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NEONATAL NURSING STANDARDS OF PRACTICE FOR CAMBODIAN PEDIATRIC NURSES: USING DELPHI TECHNIQUE

Mrs. Manila Prak

A Thesis Submitted in Partial Fulfillment of the Requirements
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งานวิจัยเชิงพรรณนาครั้งนี้มีวัตถุประสงค์เพื่อ พัฒนามาตรฐานการปฏิบัติพยาบาลทารกแรกเกิด ในประเทศกัมพูชา โดยใช้เทคนิคเดลฟาย กลุ่มตัวอย่างในรอบที่ 1 ประกอบด้วยผู้เชี่ยวชาญ จำนวน 20 คน ในรอบที่ 2 และ 3 จำนวน 19 คน กลุ่มตัวอย่างประกอบด้วย ผู้อำนวยการฝ่ายการพยาบาลในโรงพยาบาล จำนวน 3 คน อาจารย์พยาบาลสาขาวิชากุมารเวชศาสตร์ จำนวน 6 คน พยาบาลเด็ก จำนวน 4 คน กุมารแพทย์ จำนวน 3 คน และพยาบาลทารกแรกเกิดจากประเทศสหรัฐอเมริกา จำนวน 4 คน เก็บรวบรวมข้อมูลตั้งแต่เดือนพฤษภาคม 2559 ถึงเดือนกุมภาพันธ์ 2560 รวมเวลาทั้งสิ้น 10 เดือน แบบสอบถามรอบที่ 1-3 พัฒนาโดยผู้วิจัยและผู้เชี่ยวชาญ ประกอบด้วย แบบสอบถามในรอบที่ 1 เป็นคำถามปลายเปิด รอบที่ 2 และ 3 แบบสอบถามเป็นมาตราวัด 5 ระดับ วิเคราะห์ข้อมูลโดยใช้ค่ามัธยฐาน และค่าพิสัยควอไทล์ กำหนดเกณฑ์มาตรฐานร่วมโดยใช้ค่ามัธยฐานมากกว่าหรือเท่ากับ 3.50 และค่าพิสัยควอไทล์ น้อยกว่าหรือเท่ากับ 1.50

ผลการศึกษาพบว่า มาตรฐานการปฏิบัติพยาบาลทารกแรกเกิดสำหรับพยาบาลเด็กในประเทศกัมพูชา มีจำนวน 10 มาตรฐาน ประกอบด้วย 13 องค์ประกอบ จำนวน 107 ข้อ และ 73 ข้อย่อย ดังนี้ 1) มาตรฐานด้านการประเมินปัญหา มี 3 องค์ประกอบ 20 ข้อ และ 47 ข้อย่อย 2) มาตรฐานด้านการกำหนดข้อวินิจฉัยทางการพยาบาล มี 2 องค์ประกอบ 20 ข้อ 3) มาตรฐานด้านการวางแผนการพยาบาลมี 2 ข้อ 4) ขั้นมาตรฐานการปฏิบัติการพยาบาลมี 8 องค์ประกอบ 46 ข้อ และ 19 ข้อย่อย 5) มาตรฐานด้านการประเมินผลมี 8 ข้อ 6) มาตรฐานด้านจริยธรรมมี 2 ข้อ 7) มาตรฐานด้านการปฏิบัติตามหลักฐานเชิงประจักษ์ และงานวิจัย มี 5 ข้อ 8) มาตรฐานด้านการให้ความรู้และส่งเสริมสุขภาพ มี 2 ข้อ และ 7 ข้อย่อย 9) มาตรฐานด้านการให้ความรู้อย่างต่อเนื่อง มี 3 ข้อ และ 10 ข้อย่อย และ 10) มาตรฐานด้านการสื่อสารมี 1 ข้อ

สาขาวิชา พยาบาลศาสตร์ ลายมือชื่อนิสิต .....

ปีการศึกษา 2559 ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

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KEYWORDS: NEONATAL NURSING STANDARDS / NEONATAL NURSE / CAMBODIA

MANILA PRAK: NEONATAL NURSING STANDARDS OF PRACTICE FOR CAMBODIAN PEDIATRIC NURSES: USING DELPHI TECHNIQUE. ADVISOR: ASST. PROF. SUVINEE WIVATVANIT, Ph.D., 184 pp.

This descriptive study is aimed to develop the neonatal nursing standards of practice for Cambodia using Delphi technique. A total of 20 experts from pediatric field participated in round 1 and 19 experts in round 2 and 3 including 3 nursing directors, 6 nurse educators, 4 senior nurses, 3 neonatal physicians and 4 neonatal nurses who work in nursing school and hospitals from the United States of America. The data collection began in May 2016 and ended in February 2017. The questionnaire rounds 1-3 were developed by the researcher and the experts. Round 1 is a semi-open ended form questionnaire for experts to describe the neonatal nursing standards of practice for Cambodia. Content analysis was used to analyze data from round 1. Round 2 and 3 questionnaire used 5-Likert rating scale and median and interquartile range were used as the statistical tools for data analysis. The standard criteria of consensus on each item are median equal to or greater than 3.50, and interquartile range equal to or less than 1.50.

The results presented that the Neonatal Nursing Standards of Practice for Cambodia (NNSPC) consists of 10 standards, 13 components, 107 items and 73 sub-items listed as follows. 1) Assessment consists of 3 components, 20 items, 47 sub-items. 2) Nursing Diagnosis consists of 2 components, 20 items. 3) Planning consists of 2 items. 4) Implementation consists of 8 components, 46 items, 19 sub-items. 5) Evaluation consists of 8 items. 6) Ethics consists of 2 items. 7) Evidence-Based Practice and Research consists of 5 items. 8) Health Teaching and Health Promotion consists of 2 items, 7 sub-items. 9) Continuing Education consists of 3 items. 10) Communication consists of 1 item.

Field of Study: Nursing Science Student's Signature .....

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CHAPTER I
INTRODUCTION

Background and Significance of the Study

World Health Organization (WHO) defined a newborn infant, or neonate, as a child under 28 days of age. During these first 28 days of life, the child is at highest risk of dying. Internationally in 2015, there were 2.7 million neonatal deaths, which equates to roughly 45% of all under-five deaths. Of these, almost 1 million neonatal deaths occurred on the day of birth, and close to 2 million died in the first week of life (UNICEF, 2015). According to Angkor Hospital for Children (AHC), Cambodia has one of the highest death rates for children under 5 years of age in Southeast Asia (AHC, 2015). The mortality rate of children under five years old, especially neonate remains high, as the rate for the period 0-4 years is 35 per 1,000. This means that about 1 in every 29 children born in Cambodia dies before reaching their fifth birthday. Most of the mortality occurs during the first year of life: infant mortality is 28 deaths per 1,000, while mortality between the first and fifth birthday is 7 per 1,000. Mortality during the first month, or neonatal mortality, is 18 per 1,000; while post neonatal mortality (between the first month and the first birthday) is 10 per 1,000 (Cambodia Demographic and Health Survey: CDHS, 2015).

Regarding the Cambodian's healthcare system, public health facilities include: health centers, which provide basic services through the Minimum Package Activities (MPA); provincial and district referral hospitals, which provide a Complete Package Activities (CPA) at three levels (CPA-1, CPA-2, CPA-3) based on number and composition of staff, number of beds, standard of drug kit and standard of medical equipment, and clinical activities; and National Hospitals, which provide higher-level tertiary care. Only one of 8 national hospitals is a pediatric hospital, and there are 5 pediatric hospitals run by Non-Governmental Organizations (NGO) (Ministry of Health: MoH, 2015). There is a pediatric ward in each national and referral hospital but only 8 hospitals have neonatal ward separate from pediatric ward: National Pediatric Hospital, Calmette Hospital, National Maternal and Child Health Center, Kantha Bopha 1, 2, 3 located in Phnom Penh and 1 located in Siem reap and Angkor

Hospital for Children located in Siem Reap province. The national ratio of hospital beds is 0.72 per 1000 population, with wide variation across provinces. The number of public hospital beds increased from 8,986 in 2008 to 12,651 in 2012, with an increase in the average bed occupancy rate from 61% to 81%. The average length of stay for acute care in Cambodia was five days in 2011. The quality of care in public and private sectors remains inadequate, evidenced by indicators such as high neonatal mortality rates (Annear et al., 2015).

In each pediatric hospital in Cambodia, there are several units providing services for pediatric patients. Most of the hospitals have neonatal patients do not have dedicated neonate ward. Three national hospitals and 5 NGO hospitals have separate neonatal wards but there are no specific neonatal nursing standards of practice to guide their routine nursing practice. The nurse to patient ratio ranges between 1:2 and 1:5. There are 8-10 beds in each neonatal ward and the average length of stay for neonatal patients is 1 week to 2 months according to the level of illness. Nurses who work in neonatal wards are mostly associate degree nurses.

The official working-hours of Cambodian nurses is 24-hour shift while on duty at government hospitals in Cambodia (Koy, Boonyanurak & Chaiphibalsarisdi, 2015). There are usually 3 to 4 groups of nurses rotating every 3-4 days, each consisting of 3-6 nurses. For instance, group 1 is on duty today and will stay in the unit for 24 hours with lunch break, dinner break and evening rest of around 1-2 hours according to each hospital's policy. Their timetable starts at 8 am and finishes at 8 am the next day. Some NGO hospitals apply 12 hours nursing shift. This timetable starts at 6:45 am and ends at 18:45 in the evening as the new group of 2-6 nurses come in to replace them. Most neonatal wards apply 24 hour nursing shift and only 2 neonatal wards in the biggest national hospital in Phnom Penh and in Angkor Hospital for Children, Siem Reap apply 12 hour nursing shift. In these 2 hospitals nurses provide all care to neonatal patients with less assistance from families unlike other neonatal and pediatric wards in other hospitals. In each pediatric/neonatal ward there is a team including nurses and physicians to provide care to patients and they work together to provide quality care. Usually there are 2 to 3 physicians and 10 to 20 nurses in each ward. Healthcare personnel shortage is one of the biggest issues in Cambodia (MoH, BNM, 2010).

In most hospitals in Cambodia, neonatal nursing care is nonspecific. Nurses provide neonatal nursing care similarly to pediatric nursing care since there are no neonatal nursing standards of practice. Routinely, nurses take vital signs, provide bed baths, give medications to neonatal patients and provide health teaching to mothers and families. For neonatal management, there are some general guidelines for both doctors and nurses and general nursing standards of care are being implemented nowadays. Without neonatal nursing standards of practice, nurses have no guidance for their practice and this leads to poor quality of nursing care which can result in nosocomial infection, medication error and nurses' lack of knowledge in understanding the rationale behind each nursing action can contribute to the high mortality rate of neonates.

Based on the literature review, the Institute of Medicine (IOM) defines healthcare quality as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge (IOM, 2001). The most comprehensive model is Donabedian, which defined the three distinct aspects of quality as structure, process and outcome (Sardasht et al., 2014). Meanwhile, standard is a descriptive statement of desired level of performance against which to evaluate the quality of service structure, process or outcomes. A structural standard involves the set-up of the institution. Process standards describe the behaviors of the nurse at the desired level of performance. Outcome standard reflect the effectiveness and results rather than the process of giving care (QANS, 2010).

There are 19.3 million nurses and midwives worldwide. (WHO 2011) Quality of patient care is a concern in many countries. Nursing is widely recognized as a major contributor to superior quality of patient care. Nurses are frequently referred to as reliable and valid informants of quality of care (Ma et al., 2015). Neonatal nursing standards are recognized as an important component of ensuring the provision of high quality care. They represent the importance and strengths of professional partnerships, not only for the benefit of pediatric nursing professionals but also, most importantly, for the benefit of the infants and families who are cared for by nurses (Betz, 2008). Pediatric nursing, which includes neonatal nursing focuses on the protection,

promotion, and optimization of health and abilities for children of newborn age through young adulthood (ANA, 2015).

Family is crucial to Cambodian and usually refers to mother, father and/or grandma. Neonate usually attaches to their mother and the care would be provided by the mother in collaboration with nurses. Based on the experiences from Angkor Hospital for Children, around 80% of the neonate who admitted to neonatal unit are accompanied by their mother. The neonate presents to neonatal unit with grandma or father when the mother gets sick and unable to come along.

The aspects outlined above contribute to the quality of nursing care, the importance of professional nurses, nursing standards and the neonatal nursing standards and are significant in the Cambodian healthcare system. Without standards, nurses provide care to patients in their own way so there is no tool to measure the quality of nursing care. In response to these issues, the Cambodian Council of Nurses (CCN) and MoH have taken action to move forward by developing nursing policies that have included the implementation of evidence based protocols, introduction of the nursing process framework in 2004, implementation of the code of ethics for nurses in 2013, and finalization the standards of practice for nurses in 2015 (Henker, Prak, & Koy, 2015). The standards of practice for Cambodian nurses include main concepts such as nursing process, and ethical and evidence based practice. Because there is no neonatal nursing standards, the neonatal nursing care in most of hospitals is provided by nurses' own way according to the nature of work in each hospital or ward. Some hospitals have developed their own nursing procedures/guidelines. Without neonatal nursing standards of practice, the quality of care for neonatal patients is not standardized and unable to be measured.

It is necessary that Cambodian pediatric nurses have standards of practice for neonatal patients so that the appropriate evaluation tools and quality of pediatric nursing care will be ensured and attention will be given to the individual needs and responses of neonatal patients. Arries (2006) described that the development and setting of quality standards are the first and most basic step in the process of conducting quality assurance activities. One such mechanism that can be implemented to ensure the quality of nursing care is to formulate appropriate professional standards. Standard formulation is an essential activity of quality improvement. More

importantly, neonatal nursing standards of practice for Cambodia will contribute to better quality of nursing care for neonatal patients by decreasing the mortality rate. The healthcare policy team of Cambodia is currently implementing the second health strategic plan 2008-2015 (HSP2). The first strategic priority of HSP2 is that of reducing maternal, new born and child morbidity and mortality by improving access to essential maternal and newborn health services and better family-care practices (MoH, 2008; WHO, 2014).

In order to improve the quality of service delivery in Cambodia, the Bureau of Nursing and Midwifery of MoH also takes a significance role in healthcare system, compared to other healthcare professions. There is a total of 8, 979 nurses comprising 46% of the total health workforce. The quality of health service delivery and of clinical care is becoming a priority concern. As well, the increasing use of expensive medical technology in the private sector without an associated improvement in the quality of care reflects the lack of clinical skills. Improving the quality of care is now the most pressing imperative in health-system strengthening (Annear et al., 2015). Nurses in Cambodia are under the leadership and management of Cambodian Council of Nurses and the Bureau of Nursing and Midwifery of MoH.

After the extensive of literature review which has proven the challenging issues of promoting nursing care quality for neonatal patients and the importance of neonatal nursing standards of practice in relevance to quality of care. The Cambodian nursing standards of practice and the international nursing standards of practice are also cannot be comparable as there is a big gap. The researcher believes that to develop the neonatal nursing standards of practice is one of the best solutions for nursing administrators to take action in order to reach MoH's vision, mission and values. Neonatal nursing standards of practice will support the evaluation of nursing skills, how patient and family participate in the care and interaction between nurses and patient/family.

According to the above mentioned, the researcher is interested to conduct the Neonatal Nursing Standards of Practice for Cambodia using Delphi technique to explore the consensus from neonatal experts who have knowledge and experiences in neonatal field. In this study, the researcher uses two concepts from: 1) Neonatal Nursing Standards of Practice ANA (2013) and 2) Australian Standards for Neonatal

Nurses ACNA (2012). Seven components from the 2 concepts as mentioned above have been selected as follows 1) assessment 2) diagnosis 3) planning 4) implementation 4a) coordination 4b) health teaching and health promotion 5) evaluation 6) ethics 7) evidence based practice and research. Moreover the component 8) is the opinion add by all experts (others).

Research Question

What is the neonatal nursing standards of practice for Cambodian pediatric nurses?

Objective of the Study

To develop neonatal nursing standards of practice for Cambodian nurses.

Scope of the Study

This study focuses on the development of neonatal nursing standards of practice for pediatric nurses who work in any healthcare settings in Cambodia.

Operational Definitions

Neonatal Nursing Standards of Practice refers to standard guidelines of practice used by Cambodian pediatric/neonatal nurses. The standards cover the holistic approach consisting of the steps of nursing process, assessment, diagnosis, planning, implementation, coordination of care, health teaching and health promotion and evaluation. The standards also include components of professional behavioral activities related to ethics and evidence based practice and research. The neonatal nursing standards of practice are applied in the pediatric/neonatal nursing field in Cambodia. In this study the researcher uses the concepts of Neonatal Nursing Standards of Practice ANA (2013) and Australian Standards for Neonatal Nurses ACNA (2012). The 8 components of neonatal nursing standards of practice in this study are the following.

1) Assessment refers to a standard guideline of practice for assessing neonatal patients and families. The pediatric/neonatal nurses collect data holistically

related to the health of neonate, their family and situation. They assess the physical, psychological, social and spiritual aspects of neonate and family, both subjective and objective data, in order to determine health problems.

2) Diagnosis refers to a standard guideline of practice for diagnosing neonatal patients. The pediatric/neonatal nurses analyze data from assessment to determine health problems of neonate. Pediatric/neonatal nurse identify actual and potential diagnoses in order to develop the appropriate nursing care plan including nursing interventions and expected outcomes for neonate and their family. For example, a common nursing diagnosis for a sick neonate is ineffective breastfeeding.

3) Planning refers to a standard guideline of practice for planning a nursing care plan for neonatal patients. The pediatric/neonatal nurse develops a nursing care plan for each neonate and their family to achieve expected outcomes. An example of a good nursing care plan is that a nurse should set expected outcomes to replace "ineffective breastfeeding" with effective breastfeeding, so one of the outcome expectations should be; neonate manifests signs of adequate intake at the breast.

4) Implementation refers to a standard guideline of practice for implementing nursing interventions for neonatal patients and families. The pediatric/neonatal nurse implements the identified nursing interventions to achieve expected outcomes for neonate and their family. The implementation is designed to prevent or treat health problems of neonate with the goal of improvement of health issues, promoting quality of life, and facilitating ideal family functioning. An example of nursing interventions; a nurse should provide nursing care activities to neonate to make breastfeeding effective by understanding causes of problem whether from neonate or/and mother, for example a nurse assists the neonate to latch on. The implementation also includes the coordination of health teaching and health promotion.

5) Evaluation refers to a standard guideline of practice for evaluating and reassessing the nursing care for neonatal patients. The pediatric/neonatal nurse reassesses and evaluates neonate and family's progress toward the achievement of outcomes. The evaluation is continuous to meet the needs of neonate and their family's requirement to accomplish expected outcomes.

6) Ethics refers to standard guideline of practice for providing nursing care ethically to neonatal patients. Pediatric/neonatal nurse practices ethically and respects the rights of neonate and their family, and makes decisions and develops interventions that are in agreement with the family of neonate. The pediatric/neonatal nurse advocates patient's rights, identifies and helps resolve ethical conflicts of family of neonate.

7) Evidence-Based Practice and Research refers a standard guideline of practice for pediatric/neonatal nurses to apply evidence-based practice and results of research findings into neonatal nursing care. The Cambodian pediatric/neonatal nurse achieves knowledge & competence that reflects current neonatal nursing practice. Current knowledge can be gained from research findings and or literature review.

8) Others refer to the standard guidelines provided by the experts to add to the components standards provided by the researcher.

Cambodian Pediatric/Neonatal Nurse refers to nurses at all levels who are registered with the Cambodian Council of Nurses and are knowledgeable in pediatric/neonatal nursing practice. They care for neonatal patients who suffer from many conditions. They deliver care in a variety of settings such as hospitals, homes, community and during transfers between these settings. Pediatric/neonatal nurse care for and support neonates and their families. They work with neonates and their families in combination with other healthcare professionals.

Expected Benefits

The two expected benefits from this study: 1) creation of neonatal nursing standard as a guide for pediatric nurses and 2) nurse administrators can use this standard to improve nursing services.

CHAPTER II
LITERATURE REVIEW

The Cambodian healthcare system is introduced in this chapter. It includes the pediatric and neonatal health situation, nursing organization and nursing care for neonatal patients divided into the following themes.

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1. Healthcare System of Cambodia

With gross domestic product (GDP) currently growing at more than 7% per annum, since the 1980s, the government has pursued a national policy based on strengthening the economy, and under these conditions the health of the population has improved significantly (Wang, 2013). While there have been tremendous improvements in health-system performance, reflected in substantial health gains, in comparison with other countries in the region, there is still much room for improvement. Remaining challenges include the low quality of health services and health inequities. Mortality rates significantly dropped and life expectancy at birth was 62.5 years in 2010, a 1.6-fold increase from 1980. Non-communicable diseases are rising and are now estimated to account for an equal number of deaths as infectious diseases. Inequities in health outcomes, such as urban–rural or by socioeconomic status, however, persist and health outcomes are not yet as good as in other countries of the region (Annear et al., 2015).

The Ministry of Health's vision is to enhance sustainable development of the health sector for better health and wellbeing of all Cambodian, especially of the children, thereby contributing to poverty alleviation and socio-economic development. Ministry of Health's mission is to achieve the highest level of health and wellbeing. The day-to-day activities of health managers and staff in all areas throughout the organizations at all levels are guided by five working principles: (1) social health protection, especially for the poor and vulnerable groups; (2) client focused approach to health service delivery; (3) integrated approach to high quality health service delivery and public health interventions; (4) human resource management as the cornerstone for health system; and (5) good governance and accountability (MoH, 2008).

Health service delivery system in Cambodia includes public and private sectors. The public sector has two levels of health facilities: health centers and referral hospitals. Health centers primarily provide the minimum package of services, including initial consultation, primary diagnosis, maternal and child care, contraception, and other basic health services. Referral hospitals are classified into three levels: national, provincial, and district referral hospitals, according to number of staff, beds, medicines, equipment, and clinical activities. Private providers include

independent practitioners, workplace care, and international NGOs, which deliver a limited range of services (Wang, 2013).

Administration of the public health system is centralized at the national level. Ministry of Health (MoH) is responsible for the organization and delivery of government health services through 24 Provincial Health Departments (PHDs) comprising 81 health Operational Districts (ODs), distributed according to population. Each PHD operates a provincial hospital and governs ODs. Each OD covers 100 000–200 000 people with a referral hospital delivering a Complementary Package of Activities (CPA), mainly secondary care, and a number of health centers. Health centers provide a Minimum Package of Activities (MPA). NGO-run health facilities and charitable hospitals also provide services (Annear et al., 2015).

1.1. Referral System in Cambodia

The OD is the basic functional unit and has two levels of health services. The first contact level for the public is a health center, which provides a MPA. The second level is a referral hospital, providing a CPA. The referral hospital is classified into three levels: national, provincial and district referral hospitals based on number of staff, beds, medicines, equipment and clinical activities. A referral hospital has the following roles: a) to support primary health care by problem-solving and possess resources which are available all the times, b) to provide education to patients and their attendants, and to provide orientation and continuing education to health staff, c) to provide technical support and supervision if requested by the technical bureau of the operational district, and d) to conduct clinical audit of deaths (MoH, 2006).

The referral hospital is classified into 3 categories: **Complementary Package of Activities 1 (CPA 1):** has no grand surgery (without general anesthesia). **Complementary Package of Activities 2 (CPA 2):** has more activities than the first category's but less than the third one's, namely it has emergency care services and grand surgery (with general anesthesia). **Complementary Package of Activities 3 (CPA 3):** has the most activities, namely it has grand surgery (with general anesthesia) with more activities (both number of patients and activities) and has various specialized services (MoH, 2006). To be more effective for the population to use public healthcare institutions, in each Operational District, there are CPA 1 and/or CPA 2 hospitals are located and CPA 3 hospitals located in each province and capital

city. Provincial and national hospitals provide the highest-level CPA package; national hospitals include both general hospitals and specialist hospitals for pediatrics, maternal and child health, and tuberculosis. All eight national hospitals provide CPA 3 level services while the provincial referral hospitals cover several operational districts (Annear et al., 2015).

1.2. Health Situation

Cambodia has observed a significant improvement in health status of the population due to the strong economic growth in the past several years, particularly in infant, child and maternal mortality as well as continuing decline in HIV prevalence and deaths by malaria. However the improvement in neonatal mortality has been much slower, and the issues of inequity still persists between rural and urban areas as well as among different socio-economic groups including women, the poor, migrant workers, unregistered population, and ethnic minorities. Childhood mortality is substantially lower in urban than in rural areas, and has declined markedly due to better education of mothers, increasing wealth of households or both (Annear et al., 2015).

1.3. Pediatric and Neonatal Health Situation

As the general health situation presented above, in 2015 Cambodian population increased to 15,708,756 with the children aged 0-14 years: 31.43% (male 2,489,964/female 2,447,645). Birth rate was 23.83 births/1,000. The infant mortality rate was 50.04 deaths/1,000 live births (CIA, 2015). Mortality among children under 5 years of age decreased at an accelerated rate during the 2000s, but the decrease was not sufficient to achieve MDGs (Ikeda, Irie & Shibuya, 2013). The vision of Global Health Initiative for Cambodia is healthier people with an emphasis on improving the health of mothers and newborns. The high neonatal mortality rate is due mainly to perinatal conditions, such as infections, birth asphyxia, prematurity, congenital abnormalities and low birth weight (Annear et al., 2015). While infant mortality has decreased, the number of newborns who die each year remains unacceptably high, as an estimated 10,000 babies die during or shortly after delivery each year. Babies are dying due to complications at birth in addition to lack of postpartum care (UNICEF, 2013).

1.4.Health Policies

The MoH vision, mission, values and working principles imply a clear policy direction for the health sector development. The policy direction 2008-2015 comprises 15 key points: 1) make services more responsive and closer to the public and the policy on "Decentralization and De-concentration" 2) strengthen sector-wide governance through implementation of sector wide approach 3) scale up access to and coverage of health services, especially maternal, newborn and child health services 4) implement pro-poor health financing systems, including exemptions for the poor and expansion of health equity funds 5) reinforce health legislation, professional ethics and code of conduct, and strengthen regulatory mechanisms 6) improve quality in service delivery 7) increase competency and skills of health workforce to deal with increased demand for accountability and high quality care 8) strengthen and invest in health information system and health research for evidence-based policy-making, planning, monitoring performance and evaluation 9) increase investment in physical infrastructures and medical care equipment and advanced technology 10) promote quality of life and healthy lifestyles of the population by raising health awareness and creating supportive environments 11) prevent and control communicable and selected chronic and non-communicable diseases, and strengthen disease surveillance systems 12) strengthen public health interventions to deal with gender, health of minorities, hygiene, school health, environmental health risks, substance abuse/mental health, injury, and disaster 13) promote effective public and private partnerships 14) encourage community engagement in health service delivery activities 15) systematically strengthen institutions at all levels of the health system to implement policy agenda (MoH, 2008; WHO, 2015).

The implementation of the healthcare policies was put into used but still a gap mainly in neonatal mortality and mobility rate in Cambodia as they are remaining high with a slightly decrease. In relevance with the policy direction number 3 "scale up access to and coverage of health services, especially maternal, newborn and child health services". The Cambodian Ministry of Health lead the National Maternal and Child Health Center (NMCHC) together with health partners including WHO, UNFPA, UNICEF, URC and GIZ to develop and finalization of the "Fast Track Initiative Roadmap for Reducing Maternal and Newborn Mortality (FTIRM) 2016-

2020". This was developed in 2009 as a means of accelerating reductions in maternal and newborn mortality and progress toward achieving Millennium Development Goal (MDG) 4 and 5. In reflecting the policies implementation, the MoH (2016) started that tremendous progress was seen in improving maternal and newborn health between 2010 and 2015, and, as of 2014, Cambodia's Maternal Mortality Ratio (MMR) was estimated at 170 deaths per 100,000 live births and its Neonatal Mortality Rate was estimated at 18 deaths per 1,000 live births.

The FTIRM 2016-2020 is important to build on what has worked and to increasingly focus on quality and outstanding coverage gaps as near universal coverage for skilled birth attendance is achieved for the richer and better educated groups. Improving the quality and timing of Antenatal Care and Post Natal Care and the quality of delivery care and immediate newborn care is essential, as well as increasing the competence and availability of midwives, particularly at health center level, improving and rationalizing midwifery training and resolving stock-out issues for life saving drugs (MoH, 2016).

2. Pediatric Hospitals/Wards

There are 6 pediatric hospitals in Cambodia: one national pediatric hospital located in Phnom Penh, and 5 pediatric hospitals under the management of non-governmental organizations. There is a pediatric ward in each national and referral hospital. However only 3 national hospitals and 5 NGO hospitals have a neonatal ward separate from pediatric ward (MoH, BNM, 2010).

Pediatric/neonatal ward provides health care services to neonates, infants and children, and also provide health education to their parents. This includes the care and treatment for children with HIV/AIDS. (MoH, 2006).

There is a working group for nursing care in each referral hospital which consists of chiefs of wards, chiefs of departments and the chief of nursing. Their main technical responsibilities include participation in patient care, evaluation of quality of patient care, patient education, training for staff, students, nurses, and midwives, coordination and assistance of national program. Their managerial responsibilities include assistance for preparing job descriptions and development of action plans (MoH, 2006).

It is significant for the background of this study that nurses provide nursing care to neonatal patients the same way as pediatric patients in most of the hospitals. Only national hospitals and some NGO hospitals that have neonatal wards separately provide care specifically according to neonatal management guidelines which include both medical and nursing without addressing the nursing standards of practice separately. Most of the hospitals use 24 hour nursing shift rather than 12 hour shift. There are only two hospitals in Cambodia, Calmette Hospital and Angkor Hospital for Children, that apply 12 hours nursing shifts for their neonatal wards and nurses provide care with less assistance from the patient's families.

Many nurses are assigned to work in neonatal field without any specific training. Most nurses who provide neonatal nursing care only receive on the job training or 'learned by doing' to care for patients. A small number of nurses, have received 4 months neonatal nursing training in Thailand or were trained by the expatriate volunteers in their workplace for a period of 3 days to 1 week. Their main roles are to provide nursing care via a task-oriented rather than holistic approach, even though the nursing process guidelines and nursing standards of care focus on a holistic approach. The current situation of nursing care for neonatal patients in most of the hospitals is the same as pediatric nursing care. Nurses' main assessment is taking vital signs and usually following the orders of the medical doctors. Unless specifically instructed by doctors, some nurses do not consider the different needs of neonates. For example, they might not be aware that to maintain body temperature is far more important than with most pediatric patients who are able to regulate their own temperature. This can also contribute to a lack of health education to new mothers regarding how to care for their new born. This is one of many other issues which contribute to the high mortality rate of neonates.

As the number of nurses is insufficient, the non-invasive medical care such as vital signs taking is designated to nurses. Simple nursing tasks, including maintaining bedside environment/hygiene and supporting patient activities, are shared by nurses with patients' family. The shortage of doctors affects the roles and responsibilities of nurses and often results in the shifting of medical interventions from medical doctors to nurses. In performing complex medical tasks, nurses engaged in task sharing with other health-care professionals, especially medical doctors (Y Sakurai et al., 2014).

Having Neonatal nursing standards of practice for Cambodia would improve the quality of nursing care which will decrease mortality rate of neonates and increase the level of professionalism in Cambodian nurses. The development of nursing standards and guidelines are the responsibility of Cambodian Council of Nurses in collaboration with Nursing and Midwifery Bureau of MoH.

3. Nursing Organization in Cambodia

3.1 Nursing and Midwifery Bureau of Ministry of Health

The Nursing and Midwifery Bureau is a unit lead by a nurse who studying in PhD program in Nursing Science, Chulalongkorn University, Thailand. However this unit is under the control of the Hospital Services Department of the Ministry of Health which lead by the medical doctor. This structure reflected the limitation of nursing profession in term of autonomy and professionalism. The functions of the Nursing and Midwifery Bureau are: a) to operate and develop nursing standards b) to promote nursing service development by using nurses' knowledge and expertise. In addition to monitoring nursing service standards in health care facilities of all levels c) to collaborate with nursing organizations and other health development partners in order to strengthen nursing practice d) to support nursing system networks in all health care facilities (MoH, BNM, 2010). Responsibilities of Nursing and Midwifery Bureau: a) to formulate policy and to direct nursing services b) to undertake manpower planning in the nursing profession in collaboration with expert organizations and related institutions c) to innovate models of nursing services and quality systems d) to instruct and develop the standards of nursing services, nursing management and staff development e) to promote the quality of nursing services f) to upgrade the standard of nursing practice in the country g) to encourage the professional nursing education (MoH, BNM, 2010).

The role of nurses is not yet independent. In terms of providing care to patients, nurses usually follow medical doctors' orders. There is one nursing unit in each hospital the responsibility for which falls under a nurse in the position of chief of nursing and the pediatric nursing team is under this person. In each ward/pediatric ward there is a head nurse and deputy head nurse. In some hospitals nurses hold the position of deputy director or chief of the technical bureau. In the Ministry of Health

nurses hold positions such as the chief of the Nursing and Midwifery Bureau and its officers. Within the Nursing Council all positions are held by nurses. In nursing schools, nurses hold positions including the chief of the technical bureau, clinical instructors and administrators. All directors of the nursing schools are medical doctors or pharmacists. Due to the shortage of nurses and the fact that the nursing process is not well known, the quality of care and independence of the profession is limited (MoH, BNM, 2010).

The Bureau of Nursing and Midwifery of MoH is responsible for in service training for nurses and the Human Resources Department of MoH is responsible for the nursing education of pre-service nurses such as nursing students' education.

There are three types of nursing educational programs, primary nurse, Associate Degree in Nursing (ADN), and baccalaureate/Bachelor Science in Nursing (BSN), both of which are referred to as secondary nurses. Primary nursing is a 1-year academic program. The students require diploma of general education. Two years after graduation, a primary nurse can continue to associate degree in nursing program. The graduates of this program must begin in second year of ADN. Primary nursing program does not mandate to do national exit exam but requires registration to practice. ADN program: Government and private universities offer associate degree nursing programs, designed to be completed in three academic years by a full-time student whom has diploma of general education. ADN are mandated to do national exit exam and register to get license to practice.

Bachelor of Science in Nursing (BSN): This program is completed in 4 academic years full-time, for those who have a diploma of general school. BSN is divided into 2 programs: (1) students holding diploma of general school take a national entry exam to study a 4-year program. (2) ADN graduates take a national entry exam to enroll in a 2-year program. BSN are also mandated to do national exit exam and register for getting license to practice. Graduates are able to provide nursing care to individuals of all ages and families from diverse cultural backgrounds in any health care setting. Health promotion, health maintenance, disease prevention and teaching are emphasized in the nursing curriculums for Cambodia (Koy, 2013).

3.2 Cambodian Council of Nurses (CCN)

Cambodian Council of Nurses is a professional body organization which is independently lead by a nurse as a president, who graduated from Bachelor Degree in Nursing from Saint Louis College, Thailand. However, CCN is under the management of chairman of professional councils who is the Secretary of State of the Ministry of Health. CCN was established in 2007 with the aims of ensuring public safety by regulating nursing education system and setting strategic direction for CCN and overseeing the work of senior CCN staff. Roles of CCN are: a) Protect the health and wellbeing of population b) Set standards of education, training, conduct and performance so that nurses are able to deliver high quality healthcare consistently throughout their careers c) Ensure that nurses keep their skills and knowledge up to date and uphold nursing professional standards such as registration and licensing for nurses d) Have clear and transparent processes to investigate nurses who fall short of nursing professional conducts/code of ethics/nursing regulations (CCN, 2007).

There are 5698 secondary nurses and 3281 primary nurses who comprise 46% of the total health workforce (Annear et al., 2015). There are 3950 nurses working in pediatric settings in Cambodia including the national pediatric hospital, charity pediatric hospitals, pediatric wards of national hospitals and public hospitals in Cambodia (MoH, PD, 2014).

3.3 Nursing Policies

Cambodian Nursing Council together with the Bureau of Nursing and Midwifery, MoH under the support of non-governmental organizations have developed some nursing policies and guidelines such as nursing protocols, nursing process guidelines, code of ethics for nurses, nursing standards of practice and the nursing regulation. In 2015 MoH launched the Nursing Standards of Care developed by Cambodian Council of Nurses together with Nursing and Midwifery of MoH, under the support of Angkor Hospital for Children (AHC), World Health Organization (WHO), Gesundheits Informations Zentrum, (giz) and Foundation for International Development/Relief (FIDR).

The nursing standards of practice for Cambodia were developed based upon a similar document published by the ANA (2010). The standards of practice describes a competent level of nursing practice and professional performance common to all

nurses (Henker, Prak, & Koy, 2015). The standards of practice describe the application of nursing practice for nurses and there are 14 standards as follows. Standard 1: Assessment. Standard 2: Diagnosis. Standard 3: Planning. Standard 4: Implementation. Standard 5: Evaluation. Standard 6: Ethics. Standard 7: Continuing Education. Standard 8: Evidenced Base Practice and Research. Standard 9: Quality of Practice. Standard 10: Communication. Standard 11: Leadership and Management. Standard 12: Resources Utilization. Standard 13: Coordination of Care. Standard 14: Health Teaching and Health Promotion.

The Nursing and Midwifery Bureau of MoH and the Cambodian Council of Nurses are the key organizations responsible for developing nursing policies, guidelines and standards for nurses. The neonatal nursing standards of practice will be proposed for review and approval from these organizations after the completion of this study.

4. Concept of Neonatal Nursing

Neonatal nursing provides the bridge between midwifery and pediatric nursing, with a focus on the first 28 days of postnatal life. The neonatal nurse requires knowledge and skills encompassing antenatal factors, stages of fetal development, neonatal resuscitation and transition to extra-uterine life, developmentally appropriate care, complications of prematurity and illness, congenital abnormalities, neonatal surgery, breastfeeding and nutrition. Neonatal nursing care is individualized, developmentally supportive and family-centered (ACNN, 2012).

Neonatal nursing as the specialized practice of care for the neonate, infant, and their family from birth and initial hospitalization through discharge and early follow-up care. This highly specialized nursing practice includes care of infants born prematurely and those born at term or beyond who are experiencing illness or complications following their birth, as well as newborns who remain at risk for disorders of transition and later onset of symptoms of pathology (ANA, 2013).

Neonatal nursing is a subspecialty of nursing that works with newborn infants born with a variety of problems ranging from prematurity, birth defects, infection, cardiac malformations, and surgical problems. The neonatal period is defined as the first month of life. Neonatal nursing generally encompasses care for those infants who

experience problems shortly after birth, but it also encompasses care for infants who experience long-term problems related to their prematurity or illness after birth (NANN, 2014). Routine care of newborns immediately after birth facilitates adaptation of the newborn to the new environment, meets his or her immediate needs in the best possible way and avoids preventable complications (WHO, 2016). Family of the newborn plays an important role in collaboration with nurses to improve the health and wellbeing of newborn.

4.1 Concept of Family Center of Care

Family is crucial to Cambodian and usually refers to mother, father and/or grandma. Neonate usually attaches to their mother and the care would be provided by the mother in collaboration with nurses. There is no clear documentation on the family concepts related to neonate in Cambodia. Based on the experiences from Angkor Hospital for Children, around 80% of the neonate who admitted to neonatal unit are with their mother. Most of the Cambodian mothers provide breastfeeding to their babies so the mother and baby's relationship is much attached. The neonate presents to neonatal unit with grandma or father when the mother is sick and unable to come along. Some young mothers have been neglected or isolated from their family because of the traditional/culture or economic issues. The integration of family care in the standards is even more important to be focused according to this neglecting issue.

According to Wetzel (2008), in Cambodia the nuclear family is more common than the extended families found in other Southeast Asian cultures. In rural areas, extended families, including grandparents, aunts, uncles and cousins often live together for financial reasons. Arston (1999) has mentioned that, a nuclear family consisting of parents and children; however, there is much flexibility in allowing other arrangements. Aged parents often live with their adult children. Major family decisions are shared by husband and wife.

The family centered care is considered a central principle in providing care. It is a way of caring for infants and their families within health services which ensures care is planned around the whole family, not just the individual infant/person and in which all family members are recognized as care recipients. Family centered care focuses on the health and wellbeing of the infant and the family, through the development of a respectful partnership between the health care professional and

parents (ACNN 2012). ANA (2013) has stated that family is an integral part of effective care delivery. The neonatal nurse honor the partnership between families and the neonatal team. Care practices consider dignity and respect for family beliefs and culture, along with the need for accurate, complete, and timely information sharing. The nurse encourages parental presence and direct involvement in caregiving to maximize physiologic stability and developmental outcomes and prepare for discharge. Throughout the infant's hospitalization, the family members are encouraged to increase their participation in hands-on care as appropriate to the infant's physiologic status. The nurse recognizes that this evolution in parental care improves the ability of the family to confidently care for the infant as he or she transitions to home. Guimarães (2015) has mentioned that, the presence of parents and their involvement caring their babies, in a family centered care philosophy, is vital to improve the outcome of their infants and the relationships within each family. In the philosophy of care many practical aspects must be followed: to respect the babies and their families honoring the racial, ethnic, cultural, and socioeconomic diversity, to recognize and build on the strengths of each child and family, to share honest information, to collaborate with families at all levels of health care, and to empower each child and family to discover their own strengths, build confidence, and make choices and decisions about their health.

4.2 Breastfeeding in Cambodia

Breastfeeding is one of the most cost effective interventions to improve health and prevent illness in early childhood. Mothers are strongly recommended to initiate breastfeeding within one hour after birth, followed by exclusive breastfeeding (EBF) for six months, with continued breastfeeding for two years or more. In Cambodia, the exclusive breastfeeding among infants aged 0–5.9 months have increased since 2000, concurrent with an increase in the rates of early initiation of breastfeeding and a reduction in the giving of pre-lacteal feeds. However, the proportion of infants being fed with breast-milk substitutes during 0–5.9 months doubled in 5 years (3.4% to 7.0%) from 2000 to 2005, but then did not increase from 2005, likely due to extensive public health campaigns on exclusive breastfeeding. breast-milk substitutes use increased among children aged 6–23.9 months from 2000 to 2010 (4.8% to 9.3%). 26.1% of women delivering in a private clinic provided their child with breast-milk

substitute at 0–5.9 months, which is five times more than women delivering in the public sector (5.1%), and the greatest increase in bottle use happened among the urban poor (5.8% to 21.7%). Regarding information mentioned above, Cambodia has made great improvements in regards to early initiation of breastfeeding, exclusive breastfeeding rates and pre-lacteal feeding, however the use of breast-milk substitutes and bottle feeding has increased among children >6 months. Unsafe bottle feeding such as dilution or preparation with unsanitary water puts the child at risk of infectious diseases, diarrhea and malnutrition, increasing the chance of mortality (Prak et al., 2014). Save the Children (2014), has stated that, Improved exclusive breastfeeding in Cambodia has led to decreasing child mortality rates. Unfortunately, 40% of Cambodian children remain undernourished and misleading marketing and use of breast milk substitutes, including baby formula, may prevent and limit further progress. According to the Ministry of Health, the healthiest choice for newborn is to exclusively breastfeed them for the first 6 months of their life, and then gradually introduces other nutritious food while continuing to breastfeed until age 2 (Save the Children, 2014). In some cases, mother cannot provide breastfeeding to their baby due to neglecting issue and/or the illness of the mother.

4.3 Teenage Pregnancy in Cambodia

Teenage pregnancy remains a major health concern in Cambodia. It is often not out of thoughtful choice, but rather a consequence of community expectations and traditional mindsets, lack of education, lack of sexual and reproductive health knowledge and the lack of understanding of the social and health implications involved with pregnancy at a very young age. About 1 in 8 Cambodian women aged 15 to 19 have become mothers or are currently pregnant with their first child. Teenage pregnancy does not only affect the job and education prospects of young mothers, but also poses risks for the newborn child (UNFPA, 2015). According to WHO (2012), the average age for first marriage was 20 for women and 22 for men. Among female adolescents aged 15–19, 10.1% were currently married or in union, 0.8% were separated, divorced or widowed and 89.2% were never married. Among the male adolescents, 1.6% were currently married and 0.4% were separated.

5. Nursing Standards of Practice

Any health care professional who wishes to actively participate in the care of children must demonstrate appropriate education, training, skills, and ongoing competencies in pediatric health within his or her scope of practice to ensure the highest standards of care (AAP, 2015).

5.1 Definition

Nursing standard is a measure or measures by which nursing care can be judged or compared; the measures used are agreed upon by common consent (DoN, 2008). Nursing standard is a set of guidelines for providing high-quality nursing care and criteria for evaluating care (MMD, 2009). Nursing standard are the rules or definitions of competent care; guidelines for nursing (MDHPN, 2012). A standard is an expected and achievable level of performance against which actual performance can be compared. It is the minimum level of acceptable performance (CRNBC, 2013).

Moreover, ANA (2015) defined standards as the authoritative statements in which the profession, in this case nursing, describes the responsibilities for which its practitioners are accountable. Arries (2006) stated that standards can be defined as statements relating to the scope of nursing practice, including both standards of care: aspects of the nurse's role such as assessment, planning and evaluation; and standards of professional performance, such as aspects of the nurse's role in quality assurance and research.

In conclusion, nursing standards are the guidelines to guide nursing practice for the quality of nursing care. The standards describe the responsibilities for nurses by components that focus on holistic approach of patients and their families.

5.2 Type of Nursing Standards

Standards can be classified into three components: structure, process and outcomes standards. Standard is a descriptive statement of desired level of performance against which to evaluate the quality of service structure, process or outcomes. A structural standard involves the set-up of the institution. The philosophy, goals and objectives, structure of the organization, facilities and equipment, and qualifications of employees. Process standards describe the behaviors of the nurse at the desired level of performance. The criteria that specify desired method for specific nursing intervention are process standards. A process standard involves the activities

concerned with delivering patient care. These standards measure nursing actions or lack of actions involving patient care. The standards are stated in action-verbs that is in observable and measurable terms. An outcome standard measures change in the patient health status. This change may be due to nursing care, medical care or as a result of variety of services offered to the patient. Outcome standards reflect the effectiveness and results rather than the process of giving care (QANS, 2010).

5.3 The Important of Nursing Standards

Standards are important because they : 1) outline what the profession expects of its members 2) promote, guide and direct professional nursing practice, important for self-assessment and evaluation of practice by employers, clients and other stakeholders 3) provide nurses with a framework for developing competencies 4) aid in developing a better understanding & respect for the various and complimentary roles (QANS, 2010).

All standards of practice provide a guide to knowledge, skills, judgment and attitudes that are needed to practice safely. They describe what each nurse is accountable and responsible for in practice. Standards represent performance criteria for nurses and can interpret nursing's scope of practice to the public and other health care professionals. Standards can be used to stimulate peer feedback, encourage research to validate practice and generate research questions that lead to improvement in health care delivery. Finally, standards aid in developing a better understanding and respect for the various and complementary roles that nurses have (CNO, 2009). It is necessary that nurses develop standards of patient care and appropriate evaluation tools, so that quality will be ensured and attention will be given to the individual needs and responses to patients. Formulation of standards is the first step towards evaluating nursing care delivery. The purposes of standards are to 1) give direction and provide guidelines for performance of nursing staff 2) provide a baseline for evaluating quality of nursing care 3) help improve quality of nursing care, increase effectiveness of care and improve efficiency 4) may help to improve documentation of nursing care provided 5) may help to determine the degree to which standards of nursing care maintained and take necessary corrective action in time 6) help supervisors to guide nursing staff to improve performance 7) may help to improve basis for decision-making and devise alternative system for delivering nursing care 8)

may help clarify nurses area of accountability 9) may help nursing to define clearly different levels of care. The major objectives of publishing, circulating and enforcing nursing care standards are to: 1) improve quality of nursing care 2) decrease cost of nursing, and determine nursing negligence QANS (2010).

5.4 Nursing Standards of Practice

Based on the reviewing of literature and content analysis, there are five pediatric/neonatal nursing standards of practice have been studied and listed in details as the following.

1) **Nursing Standards of Practice for Cambodia (MoH, 2015)**The nursing standards of practice for Cambodia describe the application practice for nurses listed according to the three levels of nurses in Cambodia, Primary Nurse, Associate Degree Nurses and Bachelor of Nursing Science. There are 14 standards as follows. **Standard 1. Assessment:** The nurse collects comprehensive data that is appropriate to the patient's health and/or situation. **Standard 2. Diagnosis:** The nurse analyzes the assessment data to determine the diagnoses or the patient issues. **Standard 3. Planning:** The nurse develops a plan that identifies strategies and alternatives to attain expected outcomes. **Standard 4. Implementation:** The nurse implements the identified plan. **Standard 5. Evaluation:** The nurse evaluates progress toward attainment of outcomes. **Standard 6. Ethics:** The nurse practices ethically. **Standard 7. Continuing Education. Standard 8. Evidenced Base Practice and Research**. **Standard 9. Quality of Practice:** The nurse contributes to quality nursing practice. **Standard 10. Communication. Standard 11. Leadership and Management. Standard 12. Resources Utilization. Standard 13. Coordination of Care:** The nurse coordinates care delivery. **Standard 14. Health Teaching & Health Promotion:** Nurse develops a plan that identifies strategies to attain expected outcomes.

2) **Standards of Practice for Pediatric Nursing ANA (2015)** Similar to ANA (2010) but focusing on a pediatric context, the standards of pediatric nursing practice (ANA, 2015) addresses the scope of practice for pediatric nursing that applies to all registered nurses engaged in the nursing care of children and their families, regardless of clinical specialty, practice setting or educational preparation. There are 17 standards as follows. **Standard 1. Assessment:** Collect comprehensive data

pertinent to the child's health and/or the situation. Prioritize data collection activities based on the child's immediate condition, situation and anticipated needs. **Standard 2. Diagnosis:** analyze the assessment data to determine diagnoses or issues. Validate diagnoses or issues with the child, family, significant others and other healthcare providers when possible and appropriate. **Standard 3. Outcomes Identification:** Identify expected outcomes for a plan individualized to child, family or situation. Involve the child, family and healthcare providers in formulating expected outcomes when possible and appropriate.**Standard 4. Planning:** Develop a plan that prescribes strategies and alternatives to attain expected outcomes. Develop an individualized plan of care considering the child's characteristics and the situation, including age, growth, developmental level, values, beliefs, spiritual and health practices, choices, coping style, cultural and environmental factors, and available technology.

Standard 5. Implementation: Implement the identified plan. Encourage the child of accountable age and ability to assume responsibility related to his or her care; provides holistic care that addresses the needs of diverse pediatric populations. **Standard 5A: Coordination of Care:** Coordinates care delivery. **Standard 5B: Health Teaching and Health Promotion:** Employs strategies to promote health and a safe environment. Provides education to the child, family and caregiver that includes health promotion, anticipatory guidance, information about injury and disease prevention, and home care management as appropriate for the child's developmental level. **Standard 6. Evaluation:** Evaluates progress toward attainment of outcomes. Conduct a systematic, ongoing and criterion-based evaluation of the outcomes in relation to structures and processes prescribed by the plan of care and indicated timeline; collaborates with the child, family, healthcare providers and others.

Standard 7. Ethics: Practices ethically. Use Code of Ethics for Nurses with Interpretive Statements (ANA 2015) to guide practice; deliver care in a manner that preserves and protects the child's and family's autonomy, dignity, values and rights; deliver care in a nonjudgmental and nondiscriminatory manner that respects and values ethnic, racial, religious and cultural diversity. **Standard 8. Education:** Attain knowledge and competence that reflect current nursing practice. Participate in ongoing educational activities related to appropriate knowledge bases and

professional issues; demonstrate a commitment to lifelong learning through self-reflection and inquiry to address learning and personal growth needs; seeks experiences that reflect evidence-based practice to maintain knowledge, skills, abilities and judgment in clinical practice.

Standard 9. Evidence-Based Practice and Research: Integrates evidence and research findings into practice. Utilize the best available evidence, including research findings, to guide practice decisions; contributes to the culture of safety by adhering to policy and procedures that demonstrate evidence-based best nursing practice; protects the rights of all children and families. **Standard 10. Quality of Practice:** Contribute to quality nursing practice. They demonstrate quality by documenting the application of the nursing process and evidence-based practice in a responsible, accountable and ethical manner; use results of quality improvement activities to initiate changes in pediatric nursing practice. **Standard 11. Communication:** Communicates effectively in a variety of formats in all areas of practice. Assess communication format preferences of children, families and colleagues; assess own communication skills in encounters with children, families and colleagues; identifies and communicates hazards and errors related to providing safe care to the pediatric patients. **Standard 12. Leadership:** Demonstrates leadership in the professional practice setting and the profession. They provide oversight for nursing care given by others while retaining accountability for the quality of care given to the patient; works to create and maintain healthy work environments in local, regional, national or international communities; abides by the vision, associated goals and plan to implement and measure progress of an individual healthcare.

Standard 13. Collaboration: Collaborates with the child, family and others in the conduct of nursing practice. They participate in building consensus or resolving conflict in the context of patient care; applies group process and negotiation techniques; adheres to standards and applicable codes of conduct. **Standard 14. Professional Practice Evaluation:** Evaluates her/his own nursing practice in relation to professional practice standards and guidelines, and relevant statutes, rules and regulations. Evaluate own cultural and ethnic sensitivity when providing care; engages in self-evaluation of practice on a regular basis, identifying areas of strength as well as areas in which professional development would be beneficial; obtains

informal feedback regarding own practice. **Standard 15. Resource Utilization:** Utilizes appropriate resources to plan and provide nursing services that are safe, effective, and financially responsible. They evaluate factors such as patient safety, efficacy, efficiency, effectiveness, availability, cost, benefits, and impact on practice.

Standard 16. Environmental Health: Practices in an environmentally safe and healthy manner. They attain knowledge of environmental health concepts, such as implementation of environmental health strategies, with specific attention to the special needs of the health and well-being of children; promote a practice environment that reduces environmental health risks for co-workers, children and families; assess the practice environment for factors such as sound, odor, noise and light that threaten health. **Standard 17. Advocacy:** Is an advocate for the pediatric patient and family. They advocate for organizational, environmental and practice changes to ensure that nursing care meets the unique health needs of children.

3) Nursing Standards of Children's Hospital of Pittsburgh (CHP) of University of Pittsburgh Medical Center (UPMC) The nursing standards of CHP of UPMC were developed to establish standards of excellence. The nurses strive to exceed personal bests and expectations while furthering diversity. Nurses practice with benevolence and an ethically sound standard of practice. All nurses are held to standards that are in accordance with the American Nurse Association (ANA) Code of Ethics. The ANA code of Ethics provides a professional guide to nurses of all disciplines and degrees nationally. The Code of Ethics encompasses values that all nurses should practice with good intent, confidentiality, and to continue to seek new knowledge to improve.

There are 11 standards described as follows: **Standard 1. Safety**: the patient can expect an environment that is safe, clean, and quiet to provide optimal healing. And the patient's privacy will be respected. **Standard 2. Nursing Care**: the patient will receive nursing care based on the principles of patient and family centered care and utilizing an assessment of their needs by the registered nurse, **Standard 3. Plan of Care**: the patient and their family will have the opportunity to play a role in developing and implementing a patient specific plan of care, **Standard 4. Education**: the patients and families will be provided the necessary education to enhance their knowledge, skills, and afford them with the empowerment to maintain wellness goals

in their home, **Standard 5. Patient and Family Centered Communication**: Patient and their family will have the information they need to participate and collaborate with healthcare team in a meaningful way.

Standard 6. Handoff: nursing handoff occurs anytime a patient is transferred from one licensed care provider to another. **Standard 7. Satisfaction**: the patient, parent, or guardian will receive the opportunity to provide feedback on their perceptions of the care provided during their patient care experience, **Standard 8. Comfort/Pain management:** the patient's pain will be assessed by obtaining a pain history upon admission, addressing pain throughout the patient's stay, and integrating pain management as part of the discharge planning process, **Standard 9. Patient Rights/Informed Care**: the patient/family will be provided the information necessary to participate in decisions about their nursing care, **Standard 10. Confidentiality**: the patient can expect that confidentiality of information regarding their care will be maintained, **Standard 11. Cultural/Spiritual Values**: the patient will receive considerate and respectful care that is consistent with their cultural and spiritual values (CHP/UPMC).

4) Standards of Practice for Neonatal Nursing ANA (2013) Neonatal nursing standards of practice were developed and published by the National Association of Neonatal Nurses (NANN) task force and American Nurses Association (ANA). There are 16 standards as follows.

Standard 1. Assessment: They collect comprehensive data pertinent to the infant's health and/or the family situation. The neonatal registered nurse: 1) collects comprehensive data: physical, functional, psychosocial, developmental, emotional, mental, sexual, cultural, age-related, environmental, spiritual, and economic assessments 2) elicits the family's values, preferences, expressed needs 3) involves the parents of the infant, family/support system, other healthcare providers, and environment 4) identifies barriers to effective communication and makes appropriate adaptations 5) recognizes the impact of personal attitudes, values, and beliefs 6) Assesses family dynamics and their impact on the infant's health and wellness 7) prioritizes data collection activities based on the infant's immediate condition 8) uses appropriate evidence-based assessment techniques and instruments and tools 9) documents relevant data in a retrievable format 10) applies ethical, legal,

and privacy guidelines and policies to collection of data 11) recognizes the parents as the authority on their infant's health and honors their role as surrogate decision-makers.

Standard 2. Diagnosis: The neonatal registered nurse analyzes the assessment data to determine the diagnosis or issue. The neonatal registered nurse: 1) derives diagnoses using assessment data that reflect the infant's current clinical condition 2) revises diagnoses regularly, based on integration of current and relevant historical data 3) validates diagnoses with the infant's family and other healthcare providers when possible and appropriate 4) identifies actual and potential risks to the infant's health and safety 5) documents diagnoses and issues in a manner that facilitates the expected outcomes and the plan of care.

Standard 3. Outcomes Identification: The neonatal registered nurse identifies expected outcomes for a plan individualized to the infant or the situation. The neonatal registered nurse: 1) involves the parents, and if the parents desire, the extended family, significant others, and other healthcare providers to formulate expected outcomes 2) uses culturally appropriate strategies to identify expected outcomes for each infant 3) considers associated risks, benefits, costs, current scientific evidence, expected trajectory for the infant outcomes 4) defines expected outcomes in terms of the infant, family values, ethical considerations, environment 5) includes a time estimate for the attainment of expected outcomes 6) develops expected outcomes that provide direction for continuity of care 7) modifies expected outcomes based on changes in the status of the infant or evaluation of the situation 8) documents expected outcomes as measurable goals.

Standard 4. Planning: The neonatal registered nurse develops a plan of care that prescribes interventions to attain expected outcomes. The neonatal registered nurse: 1) uses appropriate data and diagnoses to develop an individualized plan of care for the infant 2) develops the plan in partnership with the family and other healthcare providers 3) includes strategies in the plan of care that address each identified diagnosis or issue and promote or restore health 4) ensures that the plan is a continuous and dynamic process that addresses the needs of infant 5) develops a plan that incorporates family in caregiving and reflects priorities of family and infant 6) utilizes plan to provide direction to other members 7) defines plan to reflect current

statutes, rules and regulations, and practice standards 8) integrates current evidence-based practice, trends, and research in care planning 9) considers economic impact of the plan 10) documents plan of care 11) includes strategies that optimize health, wholeness, growth, and development 12) organizes, integrates, and plans care with infant's stage of development 13) provides a safe atmosphere for nurse and family 14) modifies plan based on ongoing assessment of infant's response.

Standard 5. Implementation: The neonatal registered nurse implements the identified plan. The neonatal registered nurse: 1) implements the plan in a safe, timely, and realistic manner 2) demonstrates caring behaviors toward infants 3) implement the nursing process, and enhance nursing practice 4) utilizes evidence-based knowledge, treatments, and strategies 5) provides holistic care that addresses the needs of infants 6) advocates for health care that is sensitive to the needs of infants 7) applies appropriate knowledge of major health problems 8) applies healthcare technologies to optimize access and outcomes for infants 9) utilizes community resources 10) collaborates with healthcare providers to implement the plan 11) accommodates different styles of communication 12) integrates traditional and complementary healthcare practices as appropriate 13) implements the plan of care with patient safety goals 14) promotes the family's capacity for participation and problem-solving appropriate 15) documents implementation and any modifications or omissions of the identified plan 16) organizes interventions to provide an environment that supports infant's physical and developmental well-being.

Standard 5A. Coordination of Care: The neonatal registered nurse coordinates care delivery. The neonatal registered nurse: 1) coordinates implementation of the plan 2) manages care to meet the special needs of the vulnerable infant 3) assists the family and care providers to recognize viable options and alternatives 4) communicates with the family and community resources 5) advocates for the delivery of care by the inter-professional team 6) initiates referrals, including provisions for continuity of care, as needed 7) documents the coordination of the plans.

Standard 5B. Health Teaching and Health Promotion: The neonatal registered nurse employs strategies to promote health and a safe environment. The neonatal registered nurse: 1) provides the family or caregiver with health teaching 2)

uses health promotion and health teaching methods 3) evaluates the effectiveness of the strategies used 4) provides the family or caregiver with information about intended effects and potential adverse effects of proposed therapies.

Standard 6. Evaluation: The neonatal registered nurse evaluates progress toward attainment of goals. The neonatal registered nurse: 1) conducts a systematic, ongoing, and criterion-based evaluation of outcomes 2) collaborates with the family and all others involved in the care or situation 3) evaluates, in partnership with the family, the effectiveness of the planned strategies in relation to attainment of the expected outcomes 4) uses ongoing assessment data and the priorities of the family and the healthcare team to revise the diagnoses, outcomes, plan, and implementation as needed 5) disseminates the results to the healthcare consumer, family, and others involved, based on laws 6) participates in assessing and ensuring the responsible and appropriate use of interventions 7) documents the results of the evaluation.

Standard 7. Ethics: The neonatal registered nurse practices ethically. The neonatal registered nurse: 1) uses code of ethics for nurses with interpretive statements 2) delivers care in a manner that preserves and protects infant 3) recognizes the centrality of the family 4) upholds infant confidentiality within legal and regulatory parameters 5) assists the family in self-determination and informed decision-making 6) maintains a therapeutic and family–nurse relationship 7) contributes to resolving ethical issues involving families, colleagues, community groups, systems, and other stakeholders 8) takes appropriate action regarding instances of illegal, unethical, or inappropriate behavior 9) speaks up when appropriate to question healthcare practice and intervenes 10) advocates for equitable care and assists family in developing skills to become advocates for their own infant.

Standard 8. Education: The neonatal registered nurse acquires knowledge and competence that reflect current neonatal nursing practice. The neonatal registered nurse: 1) participates in ongoing educational activities related to clinical and theoretical knowledge 2) demonstrates a commitment to lifelong learning 2) seeks experiences that reflect current practice to maintain knowledge, skills, abilities, and judgment 3) acquires knowledge and skills appropriate to the neonatal specialty area 4) seeks formal and independent learning experiences to develop and

maintain clinical and professional skills and knowledge 5) identifies learning needs based on nursing knowledge 6) participates in formal or informal consultations 7) shares educational findings, experiences, and ideas with peers 8) contributes to a work environment 9) maintains professional records as lifelong learning.

Standard 9. Evidence-Based Practice and Research: The neonatal registered nurse integrates evidence and research findings into practice. The neonatal registered nurse: 1) utilizes current evidence-based nursing knowledge 2) incorporates evidence when initiating changes in nursing practice 3) participates in the development of evidence-based practice 4) shares personal or third-party research findings.

Standard 10. Quality of Practice: The neonatal registered nurse contributes to quality nursing practice. The neonatal registered nurse: 1) demonstrates the application of the nursing process 2) uses creativity and innovation to enhance nursing care 3) integrate scientific research and evidence-based practice 4) obtains and maintains professional requirements for licensure 5) participates in quality improvement activities appropriate to the nurse's education and roles 6) participating on or leading inter-professional teams to evaluate care of the neonate 7) participating in or leading efforts to minimize costs and unnecessary duplication 8) identifying problems that occur in day-to-day work flow in the NICU 8) analyzing factors related to quality, safety, and effectiveness 9) analyzing organizational systems for barriers to high-quality neonatal outcomes 10) implementing processes to remove or decrease barriers within organizational systems.

Standard 11. Communication: Neonatal registered nurse communicates effectively in all areas of practice, using a variety of formats. Neonatal registered nurse: 1) assesses communication format preferences of colleagues 2) assesses her or his own communication skills 3) seeks continuous improvement 4) conveys information to healthcare consumers, families, the NICU team, and others 5) questions the rationale supporting care processes and decisions when they do not appear to be in the best interest of the neonate 6) discloses to the appropriate level any observations or concerns related to hazards or errors 7) maintains clear, effective communication with other members of the healthcare team to minimize risks

associated with handoff and transition in care delivery 8) contributes her or his own professional perspective in discussions with neonatal team.

Standard 12. Leadership: The neonatal registered nurse demonstrates leadership in the professional practice setting and the profession. The neonatal registered nurse: 1) oversees quality of care given to the infant 2) abides by the vision, the associated goals, and plan of care to implement an individual infant 3) demonstrates a commitment to continuous lifelong learning 4) mentors colleagues for the advancement of nursing practice 5) treats colleagues with respect, trust, and dignity 6) employs therapeutic communication and conflict resolution skills 7) actively participates in professional organizations 8) communicates effectively with the family and colleagues 9) seeks ways to advance nursing autonomy and accountability 10) participates in efforts to influence healthcare policy involving infants.

Standard 13. Collaboration: Neonatal registered nurse collaborates with the family, caregivers, and others in conduct of nursing practice. The neonatal registered nurse: 1) partners with others to effect change and generate positive outcomes 2) communicates with the family and healthcare providers in the provision of that care 3) promotes conflict management 4) participates in building consensus or resolving conflict 5) applies group process and negotiation techniques 6) adheres to standards and applicable codes of conduct that promoting cooperation, respect, and trust 7) cooperates in creating a documented plan focused on outcomes 8) engages in teamwork and team-building processes 9) contributes to an environment that is conducive to clinical education as appropriate.

Standard 14. Professional Practice Evaluation: Neonatal registered nurse evaluates her or his own nursing practice in relation to professional practice standards and guidelines, relevant statutes, rules, and regulations. The neonatal registered nurse: 1) ensures that her or his practice conforms with current practice standards, guidelines, statutes, rules, and regulations 2) provides age-appropriate and developmentally appropriate care in a culturally and ethnically sensitive manner 3) engages in self-evaluation of practice on a regular basis, identifying areas of strength as well as areas in which professional development would be beneficial 4) obtains informal feedback regarding her or his own practice from patients' families, peers,

professional colleagues, and others on an ongoing basis for the purpose of professional development 5) participates in peer review as appropriate 6) takes action to achieve professional goals identified during the evaluation process 7) demonstrates knowledge of current professional practice standards, laws, and regulations 8) provides evidence for practice decisions and actions as part of informal and formal evaluation processes 8) interacts with peers and colleagues to enhance her or his own professional nursing practice or role performance 9) provides peers with formal or informal constructive feedback regarding their practice or role performance.

Standard 15. Resource Utilization: Neonatal registered nurse utilizes appropriate resources to plan and provide nursing services that are safe, effective, and financially responsible. The neonatal registered nurse: 1) assesses the individual infant and family care needs and resources available to achieve desired outcomes 2) identifies and allocates resources based on the infant and family care needs, potential for harm, complexity of the task, and desired outcome 3) delegates elements of care to appropriate healthcare workers in accordance with any applicable legal or policy parameters or principles 4) advocates for the design and implementation of technology that enhances nursing practice and healthcare delivery 5) modifies practice when necessary to promote a positive interface between the infant's family, care providers, and technology. assists the infant's family in identifying and securing appropriate and available services to address needs across the healthcare continuum 6) identifies and evaluates the cost and benefit of available resources and assists the infant's family in understanding costs, risk, and benefits of treatment and care.

Standard 16. Environmental Health: Neonatal registered nurse practices in an environmentally safe and healthy manner. The neonatal registered nurse: 1) attains knowledge of environmental health concepts, such as implementation of environmental health strategies 2) promotes a practice environment that reduces environmental health risks of workers, infants, and families 3) assesses the practice environment for factors such as sound, odor, noise, light, and potentially toxic products that negatively affect health, particularly for the vulnerable population of premature and sick infants 4) advocates for the judicious and appropriate use of products used in health care 5) communicates environmental health risks 6) utilizes scientific evidence 7) participates in strategies to promote healthy communities.

5) Australian Standards for Neonatal Nurses ACNN (2012) The Australian College of Neonatal Nurses (ACNN) has published their Australian Standards for Neonatal Nurses, 3rd edition in 2012. There are 14 standards summarized as follows. **Standard 1. Promotes the participation of parents/ families in the care of their infant**: The neonatal nurse practices consistently within a family centered model of care. They use proactive and facilitative approaches in working with the infant, family and health care team to meet the needs of individual infants. **Standard 2. Advocates and protects the rights of individuals and groups**: The neonatal nurse uses specific knowledge and understanding to undertake action in the interest of infants and parents. This action is guided, rather than directed, by protocols. The professional judgment of the neonatal nurse generates trust.

Standard 3. Develops therapeutic and caring relationships: The neonatal nurse communicates in a manner that is open, responsive, non- judgmental, facilitative and collegial. The neonatal nurse is sensitive to the vulnerability of infants and parents/families. These characteristics are reflected in relationships with individuals and groups. **Standard 4. Uses theory, research evidence, observations and experience in decision making**: This standard reflects the ability of the neonatal nurse to attend to multiple stimuli simultaneously and to focus quickly on the needs of infants and parents. While maintaining a comprehensive approach, the neonatal nurse uses a repertoire of processes in clinical decision making rather than being constrained by a single approach. The neonatal nurse frequently makes these decisions in challenging circumstances. The neonatal nurse demonstrates initiative and increasing independence in routine practice. **Standard 5. Practices in accordance with the professional, legal and ethical responsibilities affecting neonatal nursing practice**: Lawful practice is a requirement for all nurses. The neonatal nurse is able to apply knowledge of the law relating to practice, to contribute to policy development and to intervene when there is actual or potential compromise to an infant, parent or colleague.

Standard 6. Fulfils the conduct requirement of the neonatal nursing profession: Neonatal nurse critically reviews individual skills and nursing practices. The potential for mismatches between parent and infant needs and existing practices is recognized, resulting in practice and policy review.

Standard 7. Engages in collaborative practice to achieve planned outcomes: The neonatal nurse instigates, maintains and uses collegial networks in a mature, confident and assertive manner to achieve positive outcomes. **Standard 8. Provides a supportive environment for colleagues**: The neonatal nurse instills confidence and trust in colleagues through demonstration of sensitivity towards others. The neonatal nurse assumes responsibility for teaching and management functions, acting as a role model. Confidence in practice is evident in the actions of the neonatal nurse.

Standard 9. Manages the use of staff and physical resources: Context-specific knowledge and skills enable the neonatal nurse to anticipate the need for and effective use of staff and physical resources. **Standard 10. Engages in ethically justifiable nursing practice**: Reflection on experience enables the neonatal nurse to approach challenging ethical situations. The neonatal nurse initiates and guides ethical decisions with consistency, clarity and tolerance. **Standard 11. Communication:** The knowledge, attitudes and behaviors that support effective professional practice and proficiency in procedural tasks are collectively called professional skills. Development of robust communication is one of the most important skills for the neonatal nurse to master. As such, communication is the basis for professional performance and is essential for the provision of effective, safe and competent family centered care.

Standard 12. Acts to enhance the professional development of self and others: The neonatal nurse demonstrates commitment to ongoing professional development, using the best available evidence, standards and guidelines to maintain best practice. **Standard 13. Engages in activities to improve nursing practice:** The neonatal nurse uses reliable evidence and meaningful knowledge as a basis to improve practice. The neonatal nurse adopts a creative and resourceful approach to the development of practice. The neonatal nurse uses a range of processes to contribute to nursing knowledge and takes opportunities to be involved in research that will enhance professional knowledge and contribute to the validation of nursing practice.

Standard 14. Understands the importance of research in nursing practice: Neonatal nurses need to understand research process, take opportunities to be involved in research that will enhance professional knowledge and contribute to nursing practice, and seek opportunities to update practice using current studies and findings. Research knowledge includes an understanding of ethical principles for

conducting research and the different research methods used, how to review the literature, the ability to critically analyze results and how to translate findings into practice.

After an extensive literature review, there are 5 different standards of practice were selected to be synthesized 1) Standards of Pediatric Nursing Practice of ANA (2015) 2) Standards for Children's Hospital of Pittsburgh of University of Pittsburgh Medical Center 3) Neonatal Nursing Standards of Practice ANA (2013) 4) Australian Standards for Neonatal Nurses (2012) and 5) Standards of Practice for Cambodian Nurses of MoH (2015). The Pediatric Nursing Standards ANA (2015), the Nursing Standards of Practice for Cambodia MoH (2015) and the Neonatal Nursing Standards ANA (2013) share the same components of the nursing process. On the other hand, the Pediatric Nursing Standards from Children's Hospital of Pittsburgh of University of Pittsburgh Medical Center and Australian Standards for Neonatal Nurses (2012) have different names of standards but the concepts in some standards are similar. Some standards have different terms, and some are unique and not included in the other standards. The most common standards addressed by most of the authors are about the nursing process. Even though some standards do not address the nursing process directly they address specific concepts related to nursing process. Nursing process is not addressed in ACNN (2012) but the ethics and evidence based practice are addressed the same way as ANA (1013). In Cambodia, the nursing process has been used since 2004. Code of ethics for nurses, and evidence based practice are promoted in Cambodia despite limited conditions and resources. Therefore 7 components have been integrated from the two most relevant authors: Neonatal Nursing Standards of Practice ANA (2013) and Australian Standards for Neonatal Nurses. These 7 components will be introduced to the experts in order to get their consensus on the development of neonatal nursing standards for Cambodian pediatric nurses. They fit with Cambodian neonatal nursing context, knowledge, experience, the present ability of pediatric nurses and applicable in neonatal nursing practice in Cambodia. Moreover, the experts will also be encouraged to add more concepts/components of standards according to their experience. The concept analysis is presented in table 1.

Table 1 Components of General, Pediatric & Neonatal Nursing Standards of Practice

Standards of Practice	MoH 2015	ANA 2015	CHP/UPMC	ANA 2013	ACNN 2012	Proposed for Neonatal Nursing Standards of Practice for Cambodia
1. Assessment						Integrated concepts from ANA (2013) and ACNN (2012): 1. Assessment 2. Diagnosis 3. Planning 4. Implementation 5. Evaluation 6. Ethics 7. Evidence Based Practice & Research 8. Others (Experts' opinions)
1.1. Collects comprehensive data: physical functional, psychosocial, developmental, emotional, mental, sexual, cultural, age related, environmental, spiritual & economic assessments.	√	√		√		
1.2. Elicits family's values, preferences expressed needs.				√		
1.3. Involves parents of infant, family/support system, other healthcare providers, and environment.				√		
1.4. Identifies barriers to effective communication and makes appropriate adaptations.				√		
1.5. Recognizes impact of personal attitudes, values & beliefs.				√		
1.6. Assesses family dynamics and their impact on the infant's health and wellness.				√		
1.7. Prioritizes data collection activities based on the infant's immediate condition.				√		
1.8. Uses appropriate evidence-based assessment techniques and instruments and tools.		√		√		
1.9. Documents relevant data in a retrievable format						
1.10. Applies ethical, legal, and privacy guidelines and policies to the collection of data.						
1.11. Recognizes the parents as the authority on their infant's health and honors their role as surrogate decision-makers.						
2. Diagnosis						
2.11. Derives diagnoses using assessment data that reflect infant's current clinical condition.	√	√		√		
2.12. Revises diagnoses regularly, based on integration of current and relevant historical data.				√		
2.13. Validates diagnoses with infant's family and other healthcare providers when possible and appropriate.				√		
2.14. Identifies actual & potential risks to infant's health & safety	√	√		√		

Standards of Practice	MoH 2015	ANA 2015	CHP/UPMC	ANA 2013	ACNN 2012	Proposed for Neonatal Nursing Standards of Practice for Cambodia
2.15. Documents diagnoses and issues in a manner that facilitates expected outcomes and the plan of care.						
3. Planning						
3.11. Uses appropriate data & diagnoses to develop an individualized plan of care for the infant	√	√		√		
3.12. Develops plan in partnership with family & other healthcare providers.			√	√		
3.13. Includes strategies in the plan of care that address each identified diagnosis or issue and promote or restore health.	√	√		√		
3.14. Ensures that plan is a continuous & dynamic process that addresses the needs of the infant.		√		√		
3.15. Develops a plan that incorporates family in caregiving & reflects priorities of the family & infant.				√		
3.16. Utilizes the plan to provide direction to other members.				√		
3.17. Defines the plan to reflect current statutes, rules and regulations, and practice standards.		√		√		
3.18. Integrates current evidence-based practice, trends, and research in care planning.				√		
3.19. Considers the economic impact of the plan.				√		
3.10 . Documents the plan of care				√		
3.11. Includes strategies that optimize health, wholeness, growth, and development.		√		√		
3.12. Organizes, integrates & plans care with infant's stage of development.				√		
3.13. Provides a safe atmosphere for the nurse and family.						
3.14. Modifies the plan based on ongoing assessment of the infant's response.						
4. Implementation						
4.11. Implements plan in a safe, timely, and realistic manner.	√	√		√		
4.12. Demonstrates caring behaviors toward infants.				√		
4.13. Implement the nursing process, and enhance nursing practice.				√		

Standards of Practice	MoH 2015	ANA 2015	CHP/UPMC	ANA 2013	ACNN 2012	Proposed for Neonatal Nursing Standards of Practice for Cambodia
4.14. Utilizes evidence-based knowledge, treatments, and strategies.				√		
4.15. Provides holistic care that addresses the needs of infants.		√		√		
4.16. Advocates for health care that is sensitive to the needs of infants.				√		
4.17. Applies appropriate knowledge of major health problems.				√		
4.18. Applies healthcare technologies to optimize access and outcomes for infants.				√		
4.19. Utilizes community resources.				√		
4.20. Collaborates with healthcare providers to implement the plan				√		
4.21. Accommodates different styles of communication.				√		
4.22. Integrates traditional and complementary healthcare practices as appropriate.				√		
4.23. Implements the plan of care with patient safety goals.						
4.24. Promotes the family's capacity for participation and problem-solving appropriate.						
4.25. Documents implementation and any modifications or omissions of identified plan.						
4.26. Organizes interventions to provide an environment that supports infant's physical and developmental well-being.						
5. Evaluation						
5.11. Conducts a systematic, ongoing, and criterion-based evaluation of outcomes.				√		
5.12. Collaborates with the family and all others involved in the care or situation.				√		
5.13. Evaluates in partnership with family, effectiveness of planned strategies in relation to attainment of expected outcomes.	√	√ √		√		
5.14. Uses ongoing assessment data and priorities of family and healthcare team to revise diagnoses, outcomes, plan, and implementation as needed.				√		

Standards of Practice	MoH 2015	ANA 2015	CHP/UPMC	ANA 2013	ACNN 2012	Proposed for Neonatal Nursing Standards of Practice for Cambodia
5.15. Disseminates results to healthcare consumer, family & others involved, based on laws.		√		√		
5.16. Participates in assessing & ensuring responsible & appropriate use of interventions.				√		
5.17. Documents results of the evaluation.						
6. Ethics						
6.11. Uses code of ethics for nurses with interpretive statements.	√	√		√	√	
6.12. Delivers care in a manner that preserves and protects infant.		√		√		
6.13. Recognizes centrality of the family.				√		
6.14. Upholds infant confidentiality within legal and regulatory parameters.				√		
6.15. Assists family in self-determination and informed decision-making.				√		
6.16. Maintains a therapeutic & professional family–nurse relationship.				√		
6.17. Contributes to resolving ethical issues involving families, colleagues, community groups, systems and other stakeholders.		√		√	√	
6.18. Takes appropriate action regarding instances of illegal, unethical, or inappropriate behavior.				√		
6.19. Speaks up when appropriate to question healthcare practice and intervenes.				√		
6.20. Advocates equitable care & assists family in developing skills to become advocates for their own infant.						
7. Evidence-Based Practice and Research						
7.1. Utilizes current evidence-based nursing knowledge.	√	√		√	√	
				√	√	
7.2. Incorporates evidence when initiating changes in nursing practice.		√		√		
7.3. Participates in development of evidence-base practice.				√		
7.4. Shares personal/third-party research findings.						

5.5 Neonatal Nursing Standards of Practice for Cambodian Nurses

There are no neonatal nursing standards of practice to guide Cambodian nurses. So from table 1 the researcher has analyzed concepts from Neonatal Nursing Standards of Practice ANA (2013) and Australian Standards for Neonatal Nurses ACNA (2012) and finalized and synthesized them into 8 components to develop the conceptual framework for this study. There are 1 to 8 as follows 1) Assessment 2) Diagnosis 3) Planning 4) Implementation 5) Evaluation 6) Ethics 7) Evidence Based Practice and Research 8) Others (Experts' opinions).

6. Research Related to Neonatal Nursing Standards

There is no research about pediatric/neonatal nursing standards which has been done in Cambodia. However, there are six research articles related to neonatal nursing standards of practice from other countries which have been summarized as follows.

1) Mohamed et al., (2013) conducted a study entitled "Establishing Basic Standards of Nursing Care Protocol at Neonatal Intensive care unit" with the aim of establishing basic standards of care for nurses working in a Neonatal Intensive Care Unit. Researchers used a quasi-experimental research design to accomplish this study. This study showed that most nurses had not attended any previous in-service training program related to neonatal care at NICU. This finding may be owing to the shortage of nurse, absence of continuing education department in the hospital and lack of motivation for training, as well as increased workload in Neonatal Intensive Care Unit. The study also revealed that about two thirds of neonate nurses in ICU were incompetent before standards application. This moderate level of competency could be related to improper working environment and no clear cut responsibilities among nurses, as well as inadequate attendance of continuous pre-service and in-service training programs. Immediately after, and three months after application of the standards, nurses' knowledge had highly improved.

2) There was a study entitled "Using the Delphi technique to develop standards for neonatal intensive care nursing education" by Mannix (2011) with the purpose "to use the Delphi technique to determine the first draft of National Standards for Neonatal Intensive Care Nursing (NICN) education". The Australian College of

Neonatal Nurses (ACNN) endorsed the project, and assisted in the selection of members for a panel of 13 neonatal intensive care nursing and education experts from all states of Australia that conducted NICN education programs. These experts were consulted over a period of seven months using the Delphi technique. The researcher initially developed a set of questions to guide the expert panel. Over a series of three iterations and using a consensus level of 75% agreement, most standards were agreed to. Areas addressed were program requirements, prerequisite requirements, program leadership, theoretical program structure and content, clinical education program structure and content and educator support.

The results were: of the 16 expert panel members originally invited by the ACNN executive to participate in the study, 15 contacted the researcher and formed the expert panel. Thirteen panel members ultimately contributed to the study, and 11 completed all rounds. Round 1 consisted of 8 main stem areas of questioning, with 65 questions in all. In round 2 there were 315 items for comment and/or score. The result demonstrates that between rounds 2 and 3 panel members increased their agreement rates from n=171 (12 + 126 + 33) to n=209 (14 + 161 + 34): a significant shift towards consensus. The number of questions sent back to the panel members in round 3 whose score was more than two quartiles from the panel mode, and the number of changes panel members made after viewing the results of the whole panel. Number of responses where panel members were given a chance to change their score ranged between participants from 12-72 items, and on the whole panel members were reluctant to change from their original score.

In conclusion, this research defined the first set of standards for neonatal intensive care nursing education in Australia, developed by an expert panel of neonatal clinicians and educators from all states. It demonstrates that the Delphi technique is well suited to this type of research, providing a means whereby busy professionals can contribute meaningfully to significant projects affecting their discipline.

3) A systematic review about parenting in the neonatal intensive care unit by Cleveland (2008), with objective of answering the following questions.(a) What are the needs of parents who have infants in the neonatal intensive care unit? (b) What behaviors support parents with an infant in the neonatal intensive care unit? The study

selection was based on the inclusion criteria. 60 studies were selected with data extraction: study contents were analyzed with the 2 research questions in mind. Nineteen articles addressed the first question, 24 addressed the second, and 17 addressed both. Conclusions: 6 needs were identified for parents who had an infant in the neonatal intensive care unit: (a) accurate information and inclusion in the infant's care, (b) vigilant watching-over and protecting the infant, (c) contact with the infant, (d) being positively perceived by the nursery staff, (e) individualized care, and (f) a therapeutic relationship with the nursing staff. Four nursing behaviors were identified to assist parents in meeting these needs: (a) emotional support, (b) parent empowerment, (c) a welcoming environment with supportive unit policies, and (d) parent education with an opportunity to practice new skills through guided participation.

4) Wallin et al. (2000) conducted a study about national guidelines for Swedish neonatal nursing care: evaluation of clinical application using questionnaire survey with 35 of 39 nurse managers at all Swedish neonatal care units. The researchers found that the guidelines were applied to different extents in 30 of the 35 units. Almost all the guidelines were applied, especially those covering general nursing care. In total, 72 Quality Improvement (QI) projects were reported, of which 51 concerned specific topics were covered in the guidelines. Twenty units applied the guidelines as a starting point for QI. Four units evaluated nursing practice against the guidelines. Four factors [Dynamic Standard Setting System (DySSSy) as the QI method, [4 years of practice as nurse manager, experience of nursing research, and good staff resources] were closely related to a more extensive application of the guidelines. Units with both a nurse manager and an assistant nurse manager were more likely to have used guidelines as basis for changing clinical practice.

5) The article about "Importance of Establishing Neonatal BFHI Standards in Neonatal Units" by Hutchinson (2015) has addressed that the Baby Friendly Hospital Initiative (BFHI) was started in 1991 by the World Health Organization (WHO) and UNICEF to encourage breastfeeding. Evidence based tools for assessment of breastfeeding and breastfeeding supports were developed. In order to become Baby Friendly staff education and a culture change was needed. Since that time, it was recognized that breastfeeding and this initiative did not always include the sick

neonate or premature infant. This article will describe the next steps the Nordic and Quebec Working Group of the Neo-BFHI has taken to ensure that all neonates and families are offered breastfeeding support.

The Baby Friendly Hospital Initiative (BFHI) has been integrated in over 20,000 designated facilities in approximately 152 countries. The benefits of breastfeeding and breast milk are recognized for all babies. The World Health Organization (WHO) recommends infants should be exclusively breastfed for the first six months of life and thereafter for up to two years, while receiving nutritionally adequate and safe complementary food. It is widely acknowledged that breastmilk is especially important for premature and sick babies in neonatal units. There has been concern that the BFHI – "10 steps Initiative" has not been suitable for sick and premature infants. The 10 steps to Successful Breastfeeding are: 1) have a written breastfeeding policy that is routinely communicated to all health care staff 2) train all health care staff in the skills necessary to implement this policy 3) inform all pregnant women about the benefits and management of breastfeeding 4) help mothers initiative breastfeeding within one hour of birth 5) how mothers how to breastfeed and how to maintain lactation, even if they are separated from their infants 6) give infants no food or drink other than breast-milk, unless medically indicated 7) practice rooming in-allow mothers and infants to remain together 24 hours a day 8) encourage breastfeeding on demand 9) give no pacifiers or artificial nipples to breastfeeding infants 10) foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or birth center.

There has been momentum in recent years to expand the BFHI Standards to be relevant to neonatal and special care baby units. Recently two key initiatives launched that focus on Baby Friendly standards for neonatal units. The Nordic and Quebec working group, have expanded the 10 steps into a document –"Neo BFHI – The Baby Friendly Hospital Initiative forNeonatalWards"6which incorporates three guiding principles. The UNICEF UK "Baby Friendly Initiative Standards" have integrated neonatal standards and created a new look document that presents the standards in 3 stages rather than the traditional 10 steps approach. The 10 steps are still underpinning these stages. Each initiative recognizes the special challenges for babies and families

in neonatal units and the key driver is to increase breastfeeding initiation and prevalence.

6) A Delphi study about "Identify capability requisites for postgraduate certificate in Neonatal Intensive Care Nursing by Bromley (2015) has discussed the results of research exploring Stephenson's (1992) concept of capability. This heuristic research utilized the Delphi technique to identify capability requisites in students (qualified Registered Nurses and/or Midwives) enrolled any Postgraduate Certificate in Neonatal Intensive Care Nursing (PG Cert NICN) at any Tertiary Education Institution (TEI) in Australia.

This researcher has mentioned in the article that specialty clinical areas, such as Neonatal Intensive Care (NIC), require proficient nurses with skills specific to the job. Neonatal healthcare employs a global workforce and is an industry that is constantly transforming with new and evolving therapies and technologies. These characteristics require it to employ graduates capable of and effective in working in both familiar and unfamiliar contexts, and taking into account existing and emerging cultures, technologies and phenomena. There were 25 panel members responded in round 1 mean age was 49.6 years with a cumulative total of 471 years with NICU qualification. 64% possessed either a Masters or Doctorate qualification. Seventy two percent of the participants worked with NIC students in the clinical environment; 52% were involved in education (24% as nurse educators in the clinical environment and 28% worked within a tertiary institution). From the results and discussion: This research identified 20 themes (n=452 items/ capabilities); consensus was reached on 422 capability requisites (CR) and on when students would be expected to evidence them. Interestingly, the panel's agreement on the Attitudes and Values (C2) a NIC nursing student should bring to the specialist area reflect key aspects of qualities of an independent adult learner, such as having a commitment to professional development and possessing insight as a reflective practitioner, with professional integrity and an awareness of own limitations. Also, the panel identified requisites such as being "creative" and "courage to experiment, try new things", which echo Stephenson's (1992) concept that capable graduates function confidently in unfamiliar environments, devising solutions to unfamiliar problems. This is encouraging and an important concept to factor into a capability framework. The discussion of this article

provided a holistic view of these results with a focus on four areas of particular interest, namely the expectations of; 1) learning early in the programs, 2) prior experience and progression from special care to intensive care during the programs, 3) neurodevelopmental care and finally, 4) what is not expected during the programs.

7. Delphi Technique

The Delphi technique was developed by Norman Dalkey and colleagues in the 1950s and 1960s. It was constructed to obtain consensus of opinion from a group of experts using controlled feedback. It is often used when consensus views of experts are sought in nursing education, management and clinical work (Wilkes, 2015). Delphi represents expert opinion, rather than indisputable fact (Powell, 2003). Delphi technique is a widely used and accepted method for gathering data from respondents within their domain of expertise. (Hsu & Sandford, 2007).

Definition of Delphi Technique

Delphi technique is a group process involving an interaction between the researcher and a group of identified experts on a specific topic, usually through a series of questionnaires. Delphi has been used to gain a consensus regarding future trends and projections using a systematic process of information gathering. This technique is useful where opinions and judgments of experts and practitioners are necessary (Yousuf, 2007). According to Guglyuvatyy & Stoianoff (2015), Delphi applications are the examination of ideas as well as the creation of appropriate information for decision-making. Boulkedid et al (2011) mentioned that, Delphi technique is a structured process that uses a series of questionnaires or rounds to gather information. It is commonly used to developed healthcare quality indicators. The Delphi technique is favored by nurses conducting research exploring topics such as role delineation, research priorities, tool development, standards in nursing practice and curriculum development (Wilkes, 2015).

E-Delphi Technique

The e-Delphi process is an online surveys in terms of facilitating rapid communication between experts from different geographical locations and the researcher, making it possible to reach a consensus in a timely fashion (Meshkat, 2014). The e-Delphi is effective and efficient in terms of overcoming geographical

barriers, saving time and money, and building group consensus. The e-Delphi offers more than just an alternative to the traditional method. The interactive capacity of the Internet offers a range of benefits that are inextricably linked with contemporary Internet-based innovation and its growing popularity in the research domain (Douglas, Donohoe & Stellefson, 2013)

Characteristics

A Delphi is an iterative process, three to four rounds, involving a series of questionnaires, each building on the results of the previous one. The results of each round are compiled and returned to the participants. Over successive iterations, participants are able to reevaluate their responses in light of the complied responses of all participants. Responses to the questionnaires are made anonymously. Participants are known to the researchers but not necessarily to the other participants. The anonymity of panelists enhances the probability that opinions are considered in and of themselves without being influenced by the person who expressed the opinions (Somerville, 2008).

The four distinct characteristics of Delphi are 1) anonymity 2) iteration 3) controlled feedback 4) statistical "group response". **Anonymity:** The participants usually do not know each other. Anonymity is guaranteed since the process is coordinated by a moderator. Questionnaires are filled in by the individuals and returned to the facilitator, who then analyses the group response. This procedure has some advantages over other group communication methods, such as committees and face-to-face group encounters. This process assures that specious persuasion does not occur, since it reduces the effect of leading each subject of the study. Anonymity in surveys usually leads to higher response rates. **Iteration:** The procedure is executed in a series of rounds. The judgments of the respondents are summarized by the facilitator and provided as feedback or basic information for the following round. This process is usually reiterated until stability in the responses is attained, but not necessarily when consensus is achieved. Controlled feedback is a characteristic of all Delphi studies. The facilitator decides on the type of feedback and its provision. After each round, the survey data is statistically analyzed and re-stated in aggregated form. The statistical group response is usually presented numerically or graphically, and usually comprises measures of central tendency (median, mean), dispersion

(interquartile range, standard deviation), and frequency distributions. In some Delphi applications, even comments of respondents are provided. After reviewing the group statistics, each participant can decide whether to change his or her previous answer or to remain with their initial decision (Von der Gracht, 2012). Wilkes (2005) stated that the typical Delphi technique process involves identifying a research problem, reviewing the literature and refining research question, choosing a methodology, developing expertise criteria and identifying experts, selecting the number of participants, number of rounds, mode of iteration and methodological rigor, data analysis and presentation of the results.

As Delphi is an iterative process, so three to four rounds of questionnaires would be conducted. **First Round:** The first round questionnaire is usually unstructured and seeks an open response so that the participants are free to elaborate on the topic. A qualitative analysis of the results is then undertaken and this provides the basis on which to construct second and subsequent questionnaires. Role of the first round is to identify issues to be addressed in later rounds. Open-ended questions are recognized to increase the richness of the data collected. Some researchers have used semi-structured questions in their first round (Powell, 2003). **Subsequent Rounds:** Second and subsequent rounds are more specific, with questionnaires seeking quantification of earlier findings, usually through rating or ranking techniques and researcher feedback results from previous rounds. Process of feedback to participants is dominant, since this is the only communication between them. Although the possibility of more than 3 rounds is considered, there is a need to balance time, cost and possibility (Powell, 2003).

Enhancing Response Rates

To enhance responses in the rounds, it is critical that participants realize and feel that they are partners in study and are interested in the topic. The researcher should take every opportunity to remind participants that each round is constructed entirely on their responses to previous rounds. This encourages interest, ownership and active participation (Keeney, Hasson, & McKenna, 2005).

Selection of Experts

The success of a Delphi study clearly rests on the combined expertise of participants who make up the expert panel. There are two key aspects to this: panel

size and qualifications (Powell, 2003). It is vital to select panel members who have a balance between impartiality, and an interest in the topic. Some studies have over 60 experts, some as few as 15. Selection of people knowledgeable in the field, and their commitment to multiple rounds of questions on the same topic are essential (Grisham, 2008).

Qualifications of an Expert

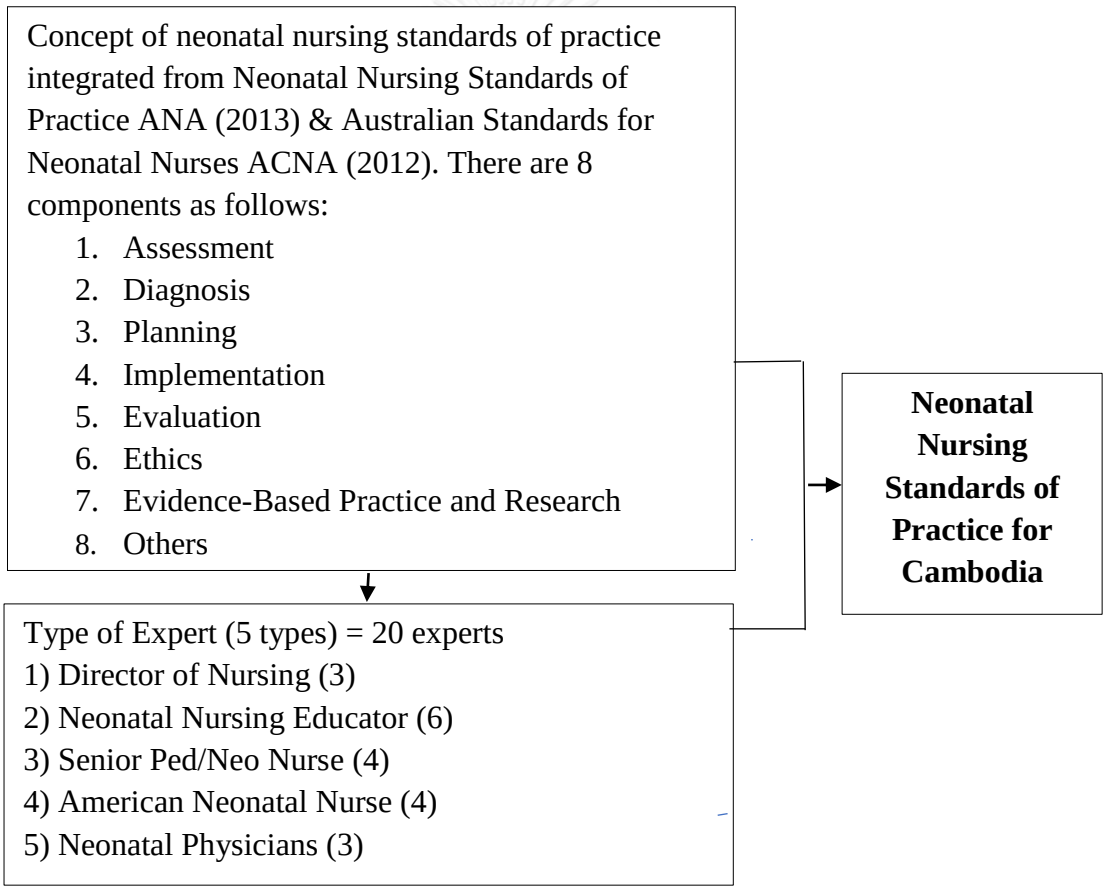
If the method is to be successful in achieving its objectives, it is important that expert panel members are willing and able to make a valid contribution. Most Delphi users suggest that experts should be chosen for their work in the appropriate area and credibility with the target audience. Experts in the clinical field may include expert clinicians, researchers with scientific expertise and patients/lay people who have expertise by virtue of having experienced the impact of a condition or intervention (Powell, 2003). There are several recommendations for the number of panelists that should be used, and it is also important to use an adequate number of panelists who are well-qualified to provide input on the topic (Warner, 2014). **Informing Experts**: It is important to explain what is required of them, how much time it will require, what they will be required to provide, what the purpose of the study is to be, and what will be done with the information (Grisham, 2008).

Meaning of Consensus

Consensus measurement in turn should be considered a valuable component of data analysis and interpretation in Delphi research. Many researchers have used it as a sole stopping criterion of rounds, which does not match the original idea of Delphi and is not recommended. In fact, it is important to distinguish between the two different concepts “consensus/agreement” and “stability” in Delphi studies. Traditionally, many Delphi studies have stopped the survey procedure for a certain projection when a pre-defined level of agreement/consensus, was achieved. Consensus is meaningless, if group stability has not been reached beforehand. Stability is “the consistency of responses between successive rounds of a study (Von der Gracht, 2012). The most common definition of consensus is based on percent agreement, followed by the proportion of participants agreeing in a specific rating range. Delphi studies from health care tended to be more likely to be stopped owing to consensus being reached by Fishers exact P-value 50.08 (Diamond et al., 2014).

8. Conceptual Framework

The conceptual framework below has been designed based on the synthesized concepts from Neonatal Nursing Standards of Practice ANA (2013), and Australian Standards for Neonatal Nurses ACNA (2012). There are 8 components which have been integrated. The Delphi technique will be used for this study. Five types of experts, making up 20 participants will be invited. Four groups of experts are from Cambodia, they are: 1) director of nursing 2) neonatal nurse educators 3) senior pediatric/neonatal nurses 4) neonatal physicians and 5) American neonatal nurses who have experience in Cambodia.



CHAPTER III
METHODOLOGY

A Delphi technique has been applied in this study to develop the neonatal nursing standards for Cambodia. The research design, sample selection, data collection and data analysis are discussed in this chapter.

Research Design

The e-Delphi technique was selected appropriately for this study. Four experts preferred to have the face to face interview and 16 experts felt confident to use e-mail to respond to the questionnaire for round 1. Nineteen experts responded to round 2 and 3 questionnaires via email. Since all experts were scattered all over Cambodia, e-Delphi approach was applicable and appropriate according to the study context.

The e-Delphi method provides an environment that is a user friendly medium for the informants since it enables them to choose when they want to formulate their answers, allowing the interviews to be combined with an often intense work-schedule. An e-mail interview is anonymous in the sense that the physical presence of a "researcher" does not exert influence or establish a relationship of power between the interviewer and the interviewee (Lindqvist & Nordanger, 2007).

McKenna (1994) suggested that the 'personal touch' could help enhance return rates. Starting with initial contact to build mutual rapport and developing and nurturing a relationship is necessary to increase the likelihood of participants' ongoing commitment. On the one hand, interviewers can show appreciation for valuable information and on the other hand, respondents may be gratified to be an object of interest and by having an audience. Despite the reported advantages of the e-Delphi, the methodological limitations may be manifesting and precluding widespread implementation of the research technique. Internet accessibility challenges, technological difficulties and the inconvenience of entering data into computer based data screens over the convenience of hard copy are presenting new and unforeseen challenges (Donohoe, Stellefson & Tennant, 2011).

Sample

Selecting the experts was one of the priorities for this study, 20 experts whom were knowlegable and experienced in neonatal nursing participated in this study. All expert panels met the inclusion criteria of experts which was they were considered to be: knowledge and had practical experience related to neonatal nursing; willingness and enthusiam to contribute to the study; sufficient time,; educational qualifications; work experience; and effictive communication skills so that rich information will be provided. The 20 experts were 1) Three Directors of Nursing who have at least five years' experience in nursing administration in pediatric hospitals and a CPA 3 hospital that has pediatric/neonatal ward. 2) Six Cambodian Neonatal Nursing Educators who have at least five years' experience in a pediatric/neonatal clinical setting and teaching pediatric/neonatal nursing for at least five years. These 6 Cambodian experts had graduated from a four month neonatal nursing training program in Thailand. 3) Five senior pediatric/neonatal nurses who have at least 8 years' experience in pediatric/neonatal clinical setting 4) Three Pediatricians who specialized via short course training program in neonatology and whom have at least five years' experience in pediatric/neonatal clinical setting and 5) Four neonatal nurses from America who have work experience in Cambodia. All nursing experts from Cambodia hold Associate Degrees in nursing and a Certified Neonatal Training program. The 3 neonatal physicians who specialized in neonatal field had graduated from medical schools recognized by the Cambodian Ministry of Health. All experts are knowledgeable about pediatric/neonatal clinical practice.

The purposive and snowball methods have been used in this study. The purposive sampling is a form of non-probability sampling, which targets a particular group of people, and entails selection of population elements on the basis of researcher's judgment that they are representative of larger population of interest. (Gillespie, Chaboyer, & Wallis, 2010).

Because the Delphi technique relies on engaging people who are knowledgeable about a specific topic, purposive sampling is used. Usually the researcher defines the qualifications of an expert in terms of the topic at hand and seeks out individuals who meet the criteria. Snowball sampling is used to increase the

number of expert panels. Snowball method involves the primary expert panels in finding extra expert panels with similar criteria (Warner, 2014). The snowball sampling is one of the most common approaches of sequential sampling. This type of sampling is a non-probability method, which is also randomly selected. In this method, the researcher first identifies some people and after receiving the information, the other expert panels are introduced by the primary expert panels (Habibi, Sarafrazi & Izadyar, 2014).

The two expert nursing directors were identified as the first step. One of them helped to identify the third nursing director who met the same criteria. The first nursing director also helped to identify the six neonatal nurse educators who graduated from a 4 months neonatal nursing program in Bangkok. The second and third nursing director was helped to identify the 5 neonatal/pediatric senior nurses from 2 hospitals. Two neonatal physicians were identified by the researcher and the first one helped to introduce the third one as well. The four neonatal nurse experts in America were purposeful selected by the researcher, however one expert took too long to answer the questionnaire round 2 so the researcher decided to move on without that expert. At the end there was a total of 19 experts. The demographic data about expert panels is presented in table 2 and 3.

Delphi panelists are typically selected, not for demographic representativeness, but for the perceived expertise that they can contribute to the topic. To obtain the desired valid results, the panel must be selected from stakeholders who will be directly affected, experts with relevant experience. The validity of the results of research is also dependent on the arrangement of the panel (Colton & Hatcher, 2004).

Table 2 Number of Experts and Their Professional Title in Each Round

Position	Round 1	Round 2	Round 3
Director of nursing	3	3	3
Neonatal nurse educator	6	6	6
Senior Neonatal/pediatric nurses	4	4	4
Neonatal physician	3	3	3
American neonatal nurse expert	4	3	3
Total	20	19	19

Table 3 Characteristics of Experts
(By country, hospital's type, position, academic degree and years of experience)

Country (type of Hospital)	**# Expert**	**Percentage %**
Cambodia	**16**	**84.21**
Public Hospital		
1. National hospitals	5	26.32
2. Provincial hospitals	2	10.53
Charity Hospital	9	47.36
America	**3**	**15.78**
Public Hospital (Primary level)	1	5.26
School of Nursing	2	10.52
Position	**# Expert**	**Percentage %**
Director of nursing	3	16%
Neonatal nurse educator	6	31%
Senior Neonatal/pediatric nurses	4	21%
Neonatal physician	3	16%
American neonatal nurse expert	3	16%
Academic Degree	**# Expert**	**Percentage %**
Associate Degree in Nursing	11	58%
Bachelor Degree in Nursing	2	10%
Master Degree in Nursing	1	6%
Doctorate Degree in Nursing/Professor	2	10%
Medical Doctor	1	6%
Assistant Professor (Medical Doctor)	2	10%
Years of Experience	**# Expert**	**Percentage %**
8-16	8	42%
17-25	7	37%
26-33	4	21%

Research Procedures

There were three sets of questionnaires and three rounds of data collection have been conducted in this study. Round 1 took one month to be completed. The participant information sheet and consent form were sent to all expert panels prior to round 1 questionnaire. The initial list of standards and the instruments for the first round were developed by researcher upon the extensive literature review.

Round 1

The round 1 questionnaire comprised 2 sections. In the first section, the experts were asked to answer the questions about demographic data related to employment, working and years of experience, highest academic degree and rank, position title and training information. The second section of the questionnaire the expert panels were encouraged to add specific details into the each standards as well as to add more necessary standards of neonatal nursing developed by the researcher.

Instrument Design

The questions were designed by the researcher in semi-open ended form using the key words in each standard to guide experts to describe the detail of each standard. According to Iqbal & Pipon-Young (2009) the more open-ended the round 1 questionnaire the better, ideally involving a series of open-ended questions inviting panelists to brainstorm. The process of instrument development discussed the following 1) Conduct an extensive review of literature focusing specifically on neonatal/pediatric nursing standards of practice. The evidence-based aspect of neonatal nursing standards of practice was also focused on. 2) Analyze the situation of neonatal/pediatric nursing in Cambodia, existing nursing policies including nursing standards developed by Cambodian Council of Nurses and Nursing and Midwifery Bureau of Ministry of Health. 3) Analyze each component in neonatal nursing standards. Seven components were selected from the integration from Neonatal Nursing Standards of Practice ANA (2013) & Australian Standards for Neonatal Nurses ACNA (2012). Round 1 questionnaire were constructed based on selected component of standard, for instance "What components should be included regarding ASSESSMENT in Neonatal Nursing Standards of Practice for Pediatric Nurses in Cambodia?" This open-ended style enabled the expert panels to address the details of components in each standard. 4) Using key words from operational definitions to form the questions the expert panels

were guided in a consistent way. 5) Discussed with advisor to ensure content and face validity of the questionnaire.

Data Collection

The package of round 1 included cover letter, instructions and round 1 questionnaire were emailed to 20 experts in May 2016. The experts were asked to describe the specific details of each standard based on their knowledge and experience and how they perceived the importance of neonatal nursing standards of practice. The experts were given 2 weeks to complete the questionnaire and return to the researcher. The follow up phone calls were made to remind all experts to return questionnaire via email. The first round data collection was one month and all 20 experts returned their completed questionnaire.

Data Analysis

The qualitative data from round 1 was analyzed using content analysis framework.Burnard (1991) content analysis framework has been used to analyze round 1 data. A systematic approach to the measurement of the frequency or the intensity of occurrence of words, phrases or sentences were provided. The Content analysis aims to group the comparable statements into zones before examining each zone for statements that are either exactly the same or can be combined into one statement (Burnard, 1991). Qualitative content analysis is defined as a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns. Content analysis is a widely used qualitative research technique (Hsieh & Shannon, 2005).

The researcher has compared the operational definitions from conceptual framework and the results from roun1/items generated from round 1. The result of the comparison is fascinating and described in and/under table 4 accordingly.

Table 4 Operational Definitions in comparison with Items generated from round 1

Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	
Operation Definitions from conceptual framework	***Experts' opinion (items generated from round 1)***
Assessment	**Assessment**
Assessment refers to a standard guideline of practice for assessing neonatal patients and families. The pediatric/neonatal nurses collect data holistically related to the health of neonate, their family and situation. They assess the physical, psychological, social and spiritual aspects of neonate and family, both subjective and objective data, in order to determine health problems.	**Physical Assessment** Chief complaints: The most significant/serious symptoms/signs of illness/ dysfunction that causing neonate to come to the hospital Check Temperature, Airway, Breathing and Circulation (TABC) Assess growth status by measure Weight in gram Length Head circumference Evaluate neonate's general appearance Level of consciousness: state of alertness Skin color: integrity and perfusion Activity: range of spontaneous movement Postures: muscle tone Obtains the maternal history Apgar score at birth Gestational age Mode of delivery Medications used and feeding provided Assess skin integrity, muscle and skeleton Skin color Skin condition: rashes, pustule, peeling, plethora, dry, erythema, infected, edema and injury Muscle tone: spontaneous movement Jaundice Check head, face and neck

Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	
Operation Definitions from conceptual framework	***Experts' opinion (items generated from round 1)***
	Head: shape, size, Scalp Fontanel: sutures Eyes: size, position structure Nose: position structure Ear: position structure Mouth: palate, teeth, gums, tongue, frenulum, jaw size. Check shoulders, arms and legs Length Proportions Symmetry Structure: number of digits Assess chest and respiratory system Chest: size, shape, symmetry, movement, breast tissue, and nipples Respiratory system: lung sounds, signs of respiratory distress, breathing pattern, oxygen needs, level of FiO2 and SpO2 and chest retraction Assess cardiovascular system Heart rate/sounds Pulse/femoral pulse and rhythm Shun syndrome Blood vessels Assess abdomen & gastrointestinal system Abdomen: size, shape, symmetry, palpate live, spleen, kidney Abdominal condition: soft, firm, redness, mass, lobe visible

Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	
Operation Definitions from conceptual framework	***Experts' opinion (items generated from round 1)***
	Umbilicus: bleeding, discharge, detached, smell Breast feeding/feeding frequency: sucking Bowel movement: meconium or stool condition/color, vomiting, nausea Assess genitourinary Abnormality: open passage for urine and stool, any discharge Urine: amount and color of urine Anal position/imperforate, stool Assess hips, legs and feet Test Ortolani and Barlow's maneuvers Measure leg length, proportions, symmetry and digits. Assessment the back of neonate carefully Backbones Spinal defect Symmetry of scapulae Buttocks Assess neurological status of neonate Behavior Irritable crying Posture: muscle tone, spontaneous movement Reflexes, primitive/five reflexes/red reflex, Erb's palsy, seizure Other assessment Neonatal status IV site: redness, swelling, edema, clean, duration of IV insertion

Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	
Operation Definitions from conceptual framework	***Experts' opinion (items generated from round 1)***
	Fluid management: cc/kg/day, electrolyte management: mg /kg/day Blood sugar level Intakes and output Breast feeding frequency and effectiveness Vaccination status Development of neonate Incubator and room temperature Maternal status Body weight, and condition of the mother before and after delivery Nutrition, breasts/express breast milk and colostrum Drug used, alcohol use and coping post-partum **Psychological Assessment** Assess mood of mother/caregiver to identify anxiety/worries/scary/depress Observe face expression of mother/caregiver to identify mood/feeling Ask about perception and belief of neonatal sickness or issue at home **Cultural/Spiritual Assessment** Collecting data about cultural and spiritual aspects: Ask about the religion and life's habit of neonate's family Identifies the barriers about cultural/spiritual from the neonate's family

Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	
Operation Definitions from conceptual framework	***Experts' opinion (items generated from round 1)***
	Observe mark on face or neonate's body Is there anything that the neonate is wearing around neck or wrist **Social-economic and family assessment** Assess family values, needs, cohesion/support, understanding of the situation, and care preferences Assess family relationships, interactions and their impact on the neonate Recognizes role of the parents in decision making about their neonate's health care Identifies barriers of financial status by asking about their incomes Assess whether the family is enabled to take care of financial issue about health problem Assess how family provide care to neonate: Is there any neglecting issue of the young mothers from their family? Does the mother know how to take care of her baby? How far the home is, where did the mother deliver baby?
Nursing Diagnosis	**Nursing Diagnosis**
Diagnosis refers to a standard guideline of practice for diagnosing neonatal patients. The pediatric/neonatal nurses analyze data from assessment to	Synthesizes by using current assessment data of physical, psychological, cultural/spiritual wellbeing and social-economic of neonate and family to develop nursing diagnosis. The comment uses of nursing diagnosis list for newborn baby is added below.

Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	
Operation Definitions from conceptual framework	***Experts' opinion (items generated from round 1)***
determine health problems of neonate. Pediatric/neonatal nurse identify actual and potential diagnoses in order to develop the appropriate nursing care plan including nursing interventions and expected outcomes for neonate and their family. For example, a common nursing diagnosis for a sick neonate is ineffective breastfeeding.	Hypothermia Hyperthermia Ineffective thermoregulation Airway obstruction Impaired gas exchange Ineffective breathing pattern Asphyxia Pain Umbilical cord infection Necrotizing Enterocolitis Neonatal Jaundice
	Premature/low birth weight infant Ineffective feeding Ineffective breastfeeding Interrupt breastfeeding **Risk for Nursing Diagnosis (5 items)** Risk for aspiration

Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	
Operation Definitions from conceptual framework	***Experts' opinion (items generated from round 1)***
	Risk for infection Risk for body temperature alteration Risk for alter nutrition Risk for fluid volume deficit
Planning	**Planning**
Planning refers to a standard guideline of practice for planning a nursing care plan for neonatal patients. The pediatric/neonatal nurse develops a nursing care plan for each neonate and their family to achieve expected outcomes. An example of a good nursing care plan is that a nurse should set expected outcomes to replace "ineffective breastfeeding" with effective breastfeeding, so one of the outcome expectations should be; neonate manifests signs of adequate intake at the breast.	The nurse develops initial, ongoing and discharge planning in partnership with the family and other healthcare providers for each neonatal patient in prevention of illness, injury and diseases base on the economic impact of the family. Set safety goals for neonate to overcome actual and risk for nursing diagnosis from admission to discharge Provide nursing interventions to fit with actual and risk for nursing diagnosis.
Implementation	**Implementation**
Implementation refers to a standard guideline of practice for implementing nursing interventions for neonatal patients and families. The	Implement nursing care individualized to infant and family in a timeframe, safe, and consistent with the goals. Below are the samples of nursing interventions with the goals, according to nursing diagnosis

Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	
Operation Definitions from conceptual framework	***Experts' opinion (items generated from round 1)***
pediatric/neonatal nurse implements the identified nursing interventions to achieve expected outcomes for neonate and their family. The implementation is designed to prevent or treat health problems of neonate with the goal of improvement of health issues, promoting quality of life, and facilitating ideal family functioning. An example of nursing interventions; a nurse should provide nursing care activities to neonate to make breastfeeding effective by understanding causes of problem whether from neonate or/and mother, for example a nurse assists the neonate to latch on. The implementation also includes the coordination of health teaching and health promotion.	**Nursing Intervention for Ineffective Thermoregulation** Goal: The stability of the baby's body temperature can be maintained Reduce or eliminate the sources of heat loss in infants *Evaporation* When a shower, prepare a warm environment Wash and dry each section to reduce evaporation Limit the time of contact with clothing or a wet blanket *Convection* Avoid the flow of air (air conditioning, ceiling fan) *Conduction* Warm all the goods for care such as stethoscope, scales, hands of care givers, clothes, bed linen *Radiation* Reduce the objects that absorb heat (metal) Place the baby swing bed away from the wall (outside) or window Monitor the baby's body temperature
	If the temperature is below normal Use two blankets Wear headgear Assess the environmental sources for heat loss If hypothermia settled more than 1 hour, refer to physician

Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	
Operation Definitions from conceptual framework	***Experts' opinion (items generated from round 1)***
	Review the complications of cold stress, hypoxia, respiratory acidosis, hypoglycemia, fluid/electrolyte imbalance and weight loss *If the temperature is above normal* Remove the blanket Remove the headgear, when worn Assess the environmental temperature again If the temperature not reduced to normal more than 1 hour, report to the physician Teach caregivers why neonates are vulnerable to temperature Demonstrate how to save heat during the bath Teach to measure the temperature if the neonate is hot, sore, or sensitive excitatory Teach the caregiver why neonates are vulnerable to heat and cold weather Refer to the hypothermia and hyperthermia for prevention Nursing Interventions for neonate with Airway and Respiratory Problems Goal: Neonate will maintain free of symptoms of respiratory distress. Breathing does not use nasal flaring, intercostal retractions, no cyanosis and warm extremities. The respiratory rate and oxygen saturation levels are in normal range. Place neonate in semi-follower/comfortable position Maintain free airway

Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	
Operation Definitions from conceptual framework	***Experts' opinion (items generated from round 1)***
	Provides oxygen per prescription Monitor dyspnea, tachypnea, breath sounds, increased respiratory effort, lung expansion, and weakness Evaluate the changes of level of consciousness, cyanosis, skin color, mucous membranes and nails. Nursing Interventions for neonate with Infection Goal: The symptoms of infection decrease over time and the neonate will remain free from infection Keep neonate in isolation room Monitor vital signs every 2 hours and record, notify the physician if vital signs are abnormal Maintain a good temperature for an incubator/room Wash hands every time before and after touching the neonate Make sure the caregivers wash hands every time before touching/holding the neonate Let the neonate rest, avoid holding if unnecessary Administer antibiotics per prescription **Nursing Interventions for impaired skin integrity** Goal: The integrity of the baby's skin can be maintained Assess skin color every 8 hours Monitor direct and indirect bilirubin

Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	
Operation Definitions from conceptual framework	***Experts' opinion (items generated from round 1)***
	Change position every 2 hours Massage the skin Keep clean skin and moisture **Fluid volume deficit** Goal: Adequate neonatal body fluid Monitor signs of dehydration such as skin turgor, fontanel and eye's condition Monitor intake output Record the frequency and amount of urine/stool Monitor fluid and electrolytes balance Explain the mother to breastfed often **Nursing Interventions for Interrupted Breastfeeding** Goal: The mother will demonstrate techniques to sustain lactation until breastfeeding is began Assess mother's perception and knowledge about breastfeeding Give emotional support to mother and accept decision regarding cessation/ continuation of breast feeding Demonstrate use of manual breast pump Explain techniques for storage/use of expressed breast milk Provide privacy, calm surroundings when mother breast feeds Recommend for infant sucking on a regular basis Encourage mother to obtain adequate rest, maintain fluid and nutritional intake, and schedule

Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	
Operation Definitions from conceptual framework	***Experts' opinion (items generated from round 1)***
	breast pumping every 3 hours while awake **Nursing Interventions: Risk for Altered Nutrition** Goal: Neonate will consume adequate breastmilk Weigh the neonate in grams daily, then document in infant growth charts Assess maturity reflex, with regard to feeding such as sucking, swallowing and cough Monitor input and output and calculate consumption of calories and electrolytes daily Assess level of hydration, note fontanel, skin turgor, urine specific gravity, condition of mucous membranes and weight fluctuations Assess for signs of poor feeding, nervous, crying high tone, trembling, eyes upside down, and seizure activity **Nursing Interventions for Pain** Goal: Neonate displays improvement mood Encourage mother to provide breastfeeding as appropriate Repositioning, swaddling and nesting Facilitated tucking and containment holding Decreasing environmental sensors (noise/ light) Talking to neonate Change nappy as needed Non nutritional sucking Allowing neonate to grasp a finger Kangaroo care

Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	
Operation Definitions from conceptual framework	***Experts' opinion (items generated from round 1)***
Evaluation	**Evaluation**
Evaluation refers to a standard guideline of practice for evaluating and reassessing the nursing care for neonatal patients. The pediatric/neonatal nurse reassesses and evaluates neonate and family's progress toward the achievement of outcomes. The evaluation is continuous to meet the needs of neonate and their family's requirement to accomplish expected outcomes.	Evaluate neonate's condition and the effectiveness of nursing care based on goals and outcome identification. The neonate requiring intervention is promptly identified and is started early. The neonate's metabolic and physiologic processes are stabilized, and recovery is proceeding without complications. Infant maintains temperature at 36.5°C to 37°C Neonate maintains a respiratory rate of 30 to 60 breaths per minute without evidence of signs of respiratory distress Neonate will exhibit no signs of infection Fluid volume will be maintained: Oral mucosa moist and pink, skin turgor elastic, urine output at least 1 to 2 mL/kg/hr. Neonate will maintain adequate nutritional intake: Weight gain or maintenance occurs. Neonate consumes adequate diet for age. The neonate will be in comfort and free from pain
Ethics	**Ethics**
Ethics refers to standard guideline of practice for providing nursing care ethically to neonates. Pediatric/neonatal nurse practices ethically and respects the rights of neonate and	The nurse uses the Cambodian Code of Ethics for nurses to provide care in a manner that preserves patient and family autonomy, dignity, rights, values, and beliefs with consideration for cultural values.

Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	
Operation Definitions from conceptual framework	***Experts' opinion (items generated from round 1)***
their family, and makes decisions and develops interventions that are in agreement with the family of neonate. The pediatric/neonatal nurse advocates patient's rights, identifies and helps resolve ethical conflicts of family of neonate.	Advocate for equitable to health care consumer Provide care following guidelines/protocols so that the care nurse provides is safe for neonate
Evidence-Based Practice and Research	**Evidence-Based Practice and Research**
Evidence-Based Practice and Research refers a standard guideline of practice for pediatric/neonatal nurses to apply evidence-based practice and results of research findings into neonatal nursing care. The Cambodian pediatric/neonatal nurse achieves knowledge & competence that reflects current neonatal nursing practice. Current knowledge can be gained from research findings and or literature review.	Develop knowledge from routine jobs towards research work that would apply to nursing practice Introduce the important research finding and evidence-based practice to other nurses Utilizes evidence based practice and research finding to guide practice Participate in nursing research according to educational level and role Integrates research findings into the development of guidelines and standards of care.

Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	
Operation Definitions from conceptual framework	***Experts' opinion (items generated from round 1)***
Others: No operation definition	**Three standards suggested by experts**
	Health Teaching & Health Promotion Provide health teaching appropriately to family using good communication skills and follow guideline of health teaching Explain to family about treatment and procedures and follow up Teach the parents about basic health information such as: Nutrition and breastfeeding Reproductive health Body hygiene for a neonate Hand hygiene correctly Prevent hypothermia Recognize signs of sick newborns Schedule of vaccination and immunization **Continuing Education** Participate in nursing education as appropriate to the educational level and position. Participate in neonatal nursing training to update knowledge and competencies. Conduct-self-directed learning, reading text books, search internet **Communication** Make effective communication with family members and other members of health care team

The details of the comparison of Operational Definitions and the Items generated from round 1 are described below.

1) Assessment Standard

The operational definition of assessment standard is covered by all the experts 'opinion from round 1. All items generated listed the holistic approach concept defined in operational definition. For instance, the physical, psychological, cultural/spiritual and social-economic and family assessment component were addressed perfectly in detail and measurable way within the items generated from round 1 under assessment standard.

2) Nursing Diagnosis Standard

The items generated from round 1 under nursing diagnosis standard fitted in so well with the operational definition. However the operational definition is broader in a conceptually way while the items generated from round 1 listed in more details and in a measurable way. The actual and potential nursing diagnoses are also listed in both. Moreover the example of the actual and potential nursing diagnoses are listed within the items as well.

3) Planning

Under this standard, the items generated from round 1 are also listed within the operational definition. For example, developing the nursing care plan with family was addressed in operational definition as well as the items generated from round 1. The expected outcomes from experts' opinion were addressed right at the beginning of implementation standard as well as in the operational definition.

4) Implementation

The nursing interventions listed under each nursing diagnosis/nursing problem together with outcomes expectation were mentioned under implementation standard within the items generated from round 1. It is consistent with the operational definition as the concept was defined in a broader way while the items are more specific details as well as measurable.

5) Evaluation

The overview of the concepts are the same for both, operational definition and items generated from round 1. For example, evaluation is continuous to meet the needs of neonate and their family's requirement to accomplish expected outcomes. Moreover there are 8 steps/items of measurable statements and are listed within items generated from round 1.

6) Ethics

For this standard, the items generated from round 1 are fitted under the operational definition. However, the items are more practical and basic while the operational definition is broader and more abstract. The 2 items generated from round 1 under this standard were addressed about patient advocacy and neonate nurses practice follow standards/guidelines for patient's safety which are consistency with operational definition.

7) Evidence-Based Practice and Research

The operational definition of this standard is broader and conceptually addressed while the items generated from round 1 were specific and put together in measurable statements which are easy to understand and applicable. For example, both addressed the utilization of research finding as the evidence-based practice to improve neonatal care and the family.

There are 3 more standards added by experts 1) health teaching and health promotion 2) continuing education and 3) communication. These 3 standards have no operational definitions from the researcher. According to the literature review, these standards are important, basic, and applicable and needed to be added to the neonatal nursing standards of practice for Cambodia.

Round 2

Design of Instrument

The items generated from round 1 were designed for the round 2 questionnaire. The experts were asked to rate each item on a 5-Likert scale as follows 5: very important. 4: Important. 3: somewhat important. 2: Neutral/no opinion and 1: Unimportant.

Round 2 questionnaire comprises of 10 standards, 14 components, 120 items and 87 sub-items listed the following. 1) Assessment consists of 4 components, 31

items and 60 sub-items. 2) Nursing Diagnosis consists of 2 components and 20 items. 3) Planning consists of 2 items. 4) Implementation consists of 8 components, 46 items and 20 sub-items. 5) Evaluation consists of 8 items. 6) Ethics consists of 2 items. 7) Evidence-Based Practice and Research consists of 5 items. 8) Health Teaching and Health Promotion consist of 2 items, 7 sub-components. 9) Continuing Education and consists of 3 items. 10). Communication consists of 1 items. Below is an example of round 2 questionnaire.

Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses		**Level of importance**				
		5	**4**	**3**	**2**	**1**
A	**Assessment (4 components; 31 items; 60 sub-items)**					
1	**Physical Assessment (16 items; 60 sub-items)**					
1)	Chief complaints: The most significant/serious symptoms/signs of illness/ dysfunction that causing neonate to the hospital					
2)	Check Temperature, Airway, Breathing and Circulation (TABC)					
3)	Assess growth status by measuring (3 sub-items)					
	(1) Weight in grams					
	(2) Length					
	(3) Head circumference					

Data Collection

Responses from round 1 were used to designed questionnaires for round 2, then sent via email to all 20 experts who joined the first round in May 2016. Experts were asked to rate each item on a 5-Likert scale as follows 5: very important. 4: Important. 3: somewhat important. 2: Neutral/no opinion and 1: Unimportant. The experts were given 2 weeks' time to complete and return the questionnaire. It took 3 weeks to get all responses.

Data Analysis

The responses of round 2 data were quantitative. Descriptive statistics of median (Mdn) and interquartile range (IQR) were used to calculated each item to get overall group response and spread the responses, respectively. The American Psychological Association (APA) statistical abbreviation were used in this study (APA, 2010) and the criteria of median and interquartile range recommended by Punpataracheevin (2008) is listed below.

The criteria of median (Mdn)

Range of median	**Meaning of the criteria**
4.50 – 5.00	The opinions of the experts agree that the item of neonatal nursing standards of practice in Cambodia is the most significant
3.50 – 4.49	The opinion of the experts agree that the item of neonatal nursing standards of practice in Cambodia is more significant
2.50 – 3.49	The opinion of the experts agree that the item of neonatal nursing standards of practice in Cambodia is moderately significant
1.50 – 2.49	The opinion of the experts agree that the item of neonatal nursing standards of practice in Cambodia is less significant
1.00–1.50	The opinion of the experts agree that the item of neonatal nursing standards of practice in Cambodia is the least significant

The criteria of interquartile range (IQR)

Interquartile range (IQR)	**Meaning of IQR**
Less than or equal to 1.50	The expert opinion of neonatal nursing standards of practice in Cambodia has achieved consensus
More than 1.50	The expert opinion of neonatal nursing standards of practice in Cambodia hasn't achieved consensus.

Round 3

Design of Instrument

Questionnaire round 3 comprises of 10 standards, 14 components and, 108 items and 74 sub-items which have achieved consensus from round 2. The individual response and overall group responses described by median and the spread of responses described by interquartile range were used in round 3. The experts were asked to provided appropriate reasons if they changed their original response. Below is the example of round 3 questionnaire.

Symbols and abbreviation in the questionnaire correspond to meanings as below:

X Your own response from round 2

△ Overall group response in round 2 (19 experts)

◄► The range between quartiles (IQR) with the opinion of all 19 experts

Mdn Median is a descriptive statistic to calculate the overall group response and the spread of responses respectively.

IQR Interquartile Range is a descriptive statistic to calculate the overall group response and the spread of responses respectively.

	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	**Level of Importance**					Overall group response	
A	Assessment (4 components; 21 items 48 sub items)	5	4	3	2	1	Mdn	IQR
1	Physical Assessment (13 items; 48 sub-items)	X ◁▷ △					5	0
1)	Chief complaints: Most serious symptoms/signs of illness that causing neonate to the hospital	X △ ◁▷					5	1
2)	Check Temperature, AIQRway, Breathing and CIQRculation (TABC)	X ◁▷ △					5	0
3)	Assess growth status by measure (2 sub-items)	X △ ◁▷					5	1
	(1) Weight in gram	X △ ◁▷					5	1
	(2) Length	X △ ◁▷					5	1

Data Collection

The package of round 3 questionnaIQRe included cover letter, instructions how to complete round 3 questionnaIQRe and questionnaIQRe itself was emailed to experts in the end of January 2017. The 19 experts who responded to round 2 questionnaIQRe were asked to re-rate the items using Likert scale the same as round 2. It took 3 weeks to get all responses back from all experts.

Data Analysis

Round 3 data is quantitative data, and the median and interquartile range of descriptive statistics were again used to calculate all items whether achieving the consensus. The same criteria of median and interquartile range the same as round 2 was used to analysis round 3 data. Round 3 results presented that there are 10 standards, 13 components, 108 items and 74 sub-items which have achieved consensus (Mdn=4.00-5.00, IQR=0.00-1.00). The analysis of changes is presented in Appendix D. There were 514 items have changed by 13 experts. Changing score from low to high is 455 items and from high to low is 59 items indicating that the consensus among all experts is highlighted. According to the final results the Delphi study stopped at round 3.

Validity and Reliability

The confirmation of content and face validity discuss as follows 1) the questionnaires have been developed based on expert opinion from their real experiences of pediatric setting and it is really the opinion of the group of experts who are specialized and experienced in neonatal field. 2) the open-ended qualitative questionnaire in round 1 enabled the experts to generate items to put in scale 3) the succeeding rounds provide the opportunity to analysis and judge the suitability of the scale 4) Delphi supports to coexisting validity due to the succeeding rounds and accomplishment of consensus (Keeney et al., 2011).

Reliability was enhanced by 1) all experts not meeting face-to-face to avoid group bias, and quasi-anonymity was ensured in this study 2) round 3 provided chance for experts to confirm and reconsider their responses from round 2. The analysis of changes presented that there is no significant changes of round 2 and round 3 responses, representing reliability of the results. Round 3 was the last one in this Delphi study. Analysis of changes is shown in Appendix D.

Ethical Consideration

Ethical approval was acquired from two institutions as follows: 1) Ethical Review Committee for Research Involving Human Research Subjects, Health Science Group, Chulalongkorn University, Thailand (ECCU) 2) Institutional Review Board of Angkor Hospital for Children. Prior to the data collection, the participant information sheet was sent via email to all experts clearly explaining the process of the study and assured the anonymity, voluntary and confidential process of the response. The idea of quasi-anonymity was well clarified to experts, which asked experts not to discuss responses with each other as the study moves on. The researcher is responsible and accountable to make sure that the experts' identities and information and their answers will not be disclosed to any other expert member. However the experts' identities, information and their answers were not anonymous to researcher, they only were anonymous to each other. Written consent form was gained before first round.

CHAPTER IV
RESULTS

The aim of this study is to develop the neonatal nursing standards of practice for Cambodia. In this chapter the results of the study in each round is presented. The results showed that a total of 10 standards, 14 components, 120 items and 87 sub-items was generated from round 1 to be the questionnaire for round 2. There were 10 standards, 13 components, 107 items and 74 sub-items which have achieved consensus in round 3. All the items are presented in tables below.

Round 1

Content analysis has been used to analyze the result of round 1. The results generated from round 1 were 10 standards, 14 components, 120 items and 87 sub-items as follows: A) Assessment consists of 4 components, 31 items and 60 sub items. B) Nursing Diagnosis consists of 2 components and 20 items. C) Planning consists of 2 items. D) Implementation consists of 8 components, 46 items and 20 sub-items. E) Evaluation consists of 8 items. F) Ethics consists of 1 item. G). Evidence-Based Practice and Research consists of 5 items. H) Health Teaching and Health Promotion consist of 2 items, 7 sub-components. I) Continuing Education and consists of 3 items and J) Communication consists of 1 items.

Round 2 and Round 3

There were 19 experts whom returned their completed questionnaires in round 2 and 3 which means 100% of response rate. There are 10 standards, 13 components, 107 items and 73 sub-items have reached the consensus in slightly different significant level. The results of round 2 and 3 show standard by standard are listed in Table 5-14.

According to the criteria of Median (Mdn) and Interquartile Range (IQR) suggested by Punpataracheevin (2008), the components, items and sub-items that has Mdn score= 4 (more significant) and IQR score=2 (didn't achieve consensus) have been removed and the item and sub-item that has score of Mdn=5 (most significant)

or 4 (more significant) and IQR 0 or 1 which is less than or equal 1.5 (achieved consensus) are kept for the standards of neonatal nursing for Cambodia. There are 10 standards, 13 components, 107 items and 74 sub-items have reached the consensus after round 3 by Mdn=4 or 5 and IQR=0 or 1. The researcher has removed 1 component, 5 items and 14 sub-items that have not reached the consensus after round 3 which the Mdn=4 and IQR=2.

Table 5-14 shown the comparison results of round 2 and 3 standard by standard.

Table 5 Standard 1: Assessment

	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
		Mdn	**IQR**	**Mdn**	**IQR**
A	**Assessment (4 components; 31 items; 60 sub-items)**				
1	**Physical Assessment (16 items; 60 sub-items)**	5	0	5	0
1)	Chief complaints: The most significant/serious symptoms/signs of illness/ dysfunction that causing neonate to the hospital	5	1	5	1
2)	Check Temperature, Airway, Breathing and Circulation	5	0	5	0
3)	Assess growth status by measure (3 sub-items)	5	1	5	0
	(1) Weight in gram	5	1	5	0
	(2) Length	5	1	5	0
	(3) Head circumference	5	1	5	0
4)	Evaluate neonate's general appearance (4 sub-items)	5	0	5	0
	(1) Level of consciousness: state of alertness	5	0	5	0
	(2) Skin color: integrity and perfusion	5	0	5	0
	(3) Activity: range of spontaneous movement	5	0	5	0
	(4) Postures: muscle tone	5	0	5	0
5)	Obtains the maternal history (4 sub-items)	5	1	5	0
	(1) Apgar score at birth	5	0	5	0

Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
	Mdn	IQR	Mdn	IQR
(2) Gestational age	5	1	5	0
(3) Mode of delivery	5	1	5	1
(4) Medications used and feeding provided	5	1	5	0
6) Assess skin integrity, muscle and skeleton (4 sub-items)	5	1	5	0
(1) Skin color	5	1	5	0
(2) Skin condition: rashes, pustule, peeling, plethora, dry, erythema, infected, edema and injury	5	1	5	1
(3) Muscle tone: spontaneous movement	5	1	5	0
(4) Jaundice	5	1	5	0
7) Check head, face and neck (6 sub-items)	4	1	4	1
(1) Head: shape, size, Scalp	4	1	5	1
(2) Fontanel: sutures	5	1	5	1
(3) Eyes: size, position structure	4	1	4	1
(4) Nose: position structure	4	1	4	1
(5) Ear: position structure	4	2	Removed	
(6) Mouth: palate/teeth/gums/tongue/frenulum/jaw	4	1	4	0
8) Check shoulders, arms and legs (4 sub-items)	4	2	Removed	
(1) Length	4	2	Removed	
(2) Proportions	4	2	Removed	
(3) Symmetry	4	2	Removed	
(4) Structure: number of digits	4	2	Removed	
9) Assess chest and respiratory system (2 sub-items)	5	0	5	0
(1) Chest: size, shape, symmetry, movement, breast tissue, and nipples	5	1	5	0

Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
	Mdn	**IQR**	**Mdn**	**IQR**
(2) Respiratory system: lung sounds, signs of respiratory distress, breathing pattern, oxygen needs, level of FiO2/SpO2 and chest retraction.	5	0	5	0
10) Assess cardiovascular system (4 sub-items)	5	1	5	0
(1) Heart rate/sounds	5	0	5	0
(2) Pulse/femoral pulse and rhythm	5	1	5	0
(3) Shun syndrome	4	1	4	1
(4) Blood vessels	4	1	4	1
11) Assess abdomen & gastrointestinal system (5 sub-items)	5	1	5	1
(1) Abdomen: size, shape, symmetry, palpate live, spleen, kidney	4	1	4	1
(2) Abdominal condition: soft, firm, redness, mass, lobe visible	4	1	5	1
(3) Umbilicus: bleeding, discharge, detached, smell	5	1	5	1
(4) Breast feeding/feeding frequency: sucking	5	1	5	1
(5) Bowel movement: meconium or stool condition/color, vomiting, nausea.	5	1	5	1
12) Assess genitourinary (3 sub-items)	4	1	5	1
(1) Abnormality: open passage for urine and stool, any discharge	5	1	5	1
(2) Urine: amount and color of urine	4	2	Removed	
(3) Anal position/imperforate, stool	4	1	4	1
13) Assess hips, legs and feet (2 sub-items)	4	2	Removed	
(1) Test Ortolani and Barlow's maneuvers	4	2	Removed	
(2) Measure leg length/proportions/symmetry/digits	4	2	Removed	

Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
	Mdn	**IQR**	**Mdn**	**IQR**
14) Assessment the back of neonate carefully (4 sub-items)	4	2	Removed	
(3) Backbones	4	2	Removed	
(4) Spinal defect	4	2	Removed	
(5) Symmetry of scapulae	4	2	Removed	
(6) Buttocks	4	2	Removed	
15) Assess neurological status of neonate (4 sub-items)	5	1	5	1
(1) Behavior	5	1	5	0
(2) Irritable crying	5	0	5	0
(3) Posture: muscle tone, spontaneous movement	5	1	5	0
(4) Reflexes, primitive/five reflexes/red reflex, Erb's palsy, seizure	5	1	5	1
16) Other assessment	5	1	5	1
Neonatal status (8 sub-items)				
(1) IV site: redness, swelling, edema, clean, duration	5	1	5	0
(2) Fluid/electrolyte management: cc/kg/day	5	1	5	0
(3) Blood sugar level	5	0	5	0
(4) Intakes and output	5	0	5	0
(5) Breast feeding frequency and effectiveness	5	1	5	0
(6) Vaccination status	5	1	5	1
(7) Development of neonate	4	1	5	1
(8) Incubator and room temperature	5	1	5	0
Maternal status (3 sub-items)				
(1) Body weight, and condition of the mother before and after delivery	4	1	5	1
(2) Nutrition, express breast milk and colostrum	5	1	5	1

	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
		Mdn	IQR	Mdn	IQR
	(3) Drug used, alcohol use and coping post-partum	5	1	5	0
2	**Psychological Assessment (3 items)**	4	1	4	1
1)	Assess mood of mother/caregiver to identify anxiety/worries/scary/depress	4	1	4	1
2)	Observe face expression of mother/caregiver to identify mood/feeling	4	1	4	1
3)	Ask about perception/belief of neonatal sickness or issues	4	1	4	1
3	**Cultural/Spiritual Assessment (4 items)**	4	2	4	2
	Collecting data about cultural and spiritual aspects:				
1)	Ask about the religion and life's habit of neonate's family	3	2	Removed	
2)	Identifies cultural/spiritual's barriers of neonate's family	4	2	Removed	
3)	Observe mark on face or neonate's body	4	2	Removed	
4)	Is there anything that neonate is wear around neck/wrist	4	1	4	2
4	**Social-economic and family assessment (8 items)**	4	2	4	1
1)	Assess family values, needs, cohesion/support, understanding of the situation, and care preferences	4	2	Removed	
2)	Assess family relationships, interactions and their impact on neonate	4	2	Removed	
3)	Recognizes role of parents in decision making about their neonate's health care	4	1	4	1
4)	Identifies barriers of financial, asking about incomes	4	2	Removed	
5)	Assess whether the family enable to taking care of financial issue about health problem	4	1	4	0
	Assess how family provide care to neonate:				

Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses		Round 2		Round 3	
		Mdn	**IQR**	**Mdn**	**IQR**
6)	Any neglecting issue of young mothers from family?	4	1	4	1
7)	Is the mother know how to taking care of her baby?	5	1	5	1
8)	How far the home is, where did the mother deliver baby?	4	2	Removed	

There are 4 components, 31 items and 60 sub-items under the Assessment Standard. Component 1, Physical Assessment has 16 items and 60 sub-items and item 8, 13 and 14 and all their sub-items have been removed. The items and sub-items that have been removed from component 1 due to the score of Median and Interquartile Range are out of the criteria which translated that the items and sub-items have not reached the consensus. Those items and sub-items are 1) sub-item 5 “Ear: position structure” under item 7 that has a total of 6 sub-items. 2) Item 8 “Check shoulders, arms and legs” and all its 4 sub-items “length”, “Proportion”, “Symmetry” and “Structure: number of digits” 3) Sub-item 2 “Urine: amount and color of the urine” under item 12 which has 3 sub-items in total. 4) Item 13 “Assess hips, legs and feet” and sub-item 1 “Test Ortolani and Barlow’s maneuvers” sub-item 2 “Measure leg length, proportions, symmetry and digits”. 5) Item 14 “Assess the back of neonate carefully” and sub-item 1 “Backbones”, sub-item 2 “Spinal defect”, sub-item 3 “Symmetry of scapular” and sub-item 4 “Buttocks”.

All items and sub-items in component 2 “Psychological Assessment” reached the consensus and kept for the standards.

The component 3 “Cultural/Spiritual Assessment” and item 1 “Ask about religion and life habits of neonate’s family”, item 2 “Identifies the barriers about cultural/spiritual aspect from the neonate’s family”, item 3 “Observe mark on face or neonate’s body” have not reached the consensus in round 2 and have been removed for round 3 since all of them have Mdn=4 and IQR=2. It is only item 4 “Is there anything that the neonate is wearing around neck or wrist” that has Mdn=4 and IQR=1 in round 2 and was kept to confirm in round 3. However in round 3, item 4 has

Mdn=4 and IQR=2 so the researcher decided to remove this component and all items from the standards.

Component 4 “Social-economic and family assessment” has not removed from the standard even though the Mdn=4, IQR=2 in round 2 because it such an important aspect of the assessment in terms of holistic approach. In round 3 this component changed the IQR from 2 to 1, so researcher decided to keep it. There are 8 items under this components and 4 items which have been removed after round 2 are, item 1 “Assess family values, needs, cohesion/support, understanding of the situation, and care preferences”, item 2 “Assess family relationships, interactions and their impact on the neonate”, item 4 “Identifies barriers of financial status by asking about their incomes” and item 8 “How far the home is, where did the mother deliver baby?”. These 4 items have the same Mdn=4 and IQR=2.

Table 6 Standard 2: Nursing Diagnosis

	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
		Mdn	IQR	Mdn	IQR
B	**Nursing Diagnosis (2 components; 20 items)**				
1	**Actual nursing diagnosis (15 items)**	5	0	5	0
1)	Hypothermia	5	0	5	0
2)	Hyperthermia	5	0	5	0
3)	Ineffective thermoregulation	5	0	5	0
4)	Airway obstruction	5	0	5	0
5)	Impaired gas exchange	5	0	5	0
6)	Ineffective breathing pattern	5	0	5	0
7)	Asphyxia	5	0	5	0
8)	Pain	5	1	5	0
9)	Umbilical cord infection	5	1	5	0
10)	Necrotizing Enterocolitis	5	0	5	0
11)	Neonatal Jaundice	5	1	5	0

	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
		Mdn	IQR	Mdn	IQR
12)	Premature/low birth weight infant	5	1	5	0
13)	Ineffective feeding	5	1	5	0
14)	Ineffective breastfeeding	5	1	5	0
15)	Interrupt breastfeeding	4	1	4	1
2	**Risk for Nursing Diagnosis (5 items)**	5	1	5	0
1)	Risk for aspiration	5	1	5	0
2)	Risk for infection	5	1	5	0
3)	Risk for body temperature alteration	5	1	5	0
4)	Risk for alter nutrition	5	1	5	0
5)	Risk for fluid volume deficit	5	1	5	0

There are 2 components with 20 items under this standard and all of them have achieved very good consensus of the IQR=0 and Mdn=5. There is only item 15 that has Mdn=4. And IQR=0 and no item has been removed from this standard since round 2.

Table 7 Standard 3: Planning

	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
		Mdn	IQR	Mdn	IQR
C	**Planning (2 items)**				
	The nurse develops initial, ongoing and discharge planning in partnership with the family and other healthcare providers for each neonatal patient in prevention of illness, injury and diseases base on the economic impact of the family.				
1)	Set safety goals for neonate to overcome actual and risk for nursing diagnosis from admission to discharge	5	1	5	1
2)	Provide nursing interventions to fit with actual and risk for nursing diagnosis.	5	0	5	0

Two items under this standard have achieved great consensus as IQR=0-1 and Mdn=5.

Table 8 Standard 4: Implementation

	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
		Mdn	IQR	Mdn	IQR
D	**Implementation (8 components; 46 items; 20 sub-items)**				
	Implement nursing care individualized to infant and family in a timeframe, safe, and consistent with the goals. Below are the samples of nursing interventions with the goals, according to nursing diagnosis				
1	**Nursing Intervention for Ineffective Thermoregulation (3 items; 21 sub-items)** Goal: The stability of the baby's body temperature can be maintained	5	1	5	1
1)	Eliminate sources of heat loss in infants (7 sub-items)	5	1	5	0
	Evaporation				
	(1) When a shower, prepare a warm environment	5	1	5	0
	(2) Wash and dry each section to reduce evaporation	5	1	5	1
	(3) Limit time of contact with clothing /wet blanket	5	1	5	0
	Convection				
	(4) Avoid flow of air (air conditioning, ceiling fan)	4	1	4	1
	Conduction				
	(5) Warm all the goods for care such as stethoscope, scales, hand care givers, clothes, bed linen	5	1	5	1

Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
	Mdn	IQR	Mdn	IQR
Radiation				
(6) Reduce the objects that absorb heat (metal)	4	1	4	1
(7) Place the baby swing bed away from the wall (outside) or window	4	2	Removed	
2) Monitor the baby's body temperature (9 sub-items)	5	1	5	1
If the temperature is below normal (5 sub-items)				
(1) Use with two blankets	4	1	4	1
(2) Wear headgear	5	1	5	1
(3) Assess the environmental sources for heat loss	5	1	5	1
(4) If hypothermia settled more than 1 hour, refer to physician.	5	1	5	0
(5) Review the complications of cold stress, hypoxia, respiratory acidosis, hypoglycemia, fluid/electrolyte imbalance and weight loss	5	1	5	0
If the temperature is above normal (4 sub-items)				
(1) Remove the blanket	4	1	5	1
(2) Remove the headgear, when worn	4	1	4	1
(3) Assess the environmental temperature again	4	1	4	1
(4) If the temperature not reduce to normal more than 1 hour, report to the physician	5	1	5	1
3) Teach caregivers why neonate are vulnerable to temperature (4 sub-items)	5	1	5	1

Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses		Round 2		Round 3	
		Mdn	IQR	Mdn	IQR
	(1) Demonstrate how to save heat during the bath	5	1	5	0
	(2) Teach to measure the temperature if the neonate is hot, sore, or sensitive excitatory.	4	1	5	1
	(3) Teach the caregiver why neonate are vulnerable to heat and cold weather	5	1	5	1
	(4) Refer to hypothermia and hyperthermia for prevention	5	1	5	0
2	**Nursing Interventions for neonate with Airway and Respiratory Problems (5 items)** Goal: Neonate will maintain free of symptoms of respiratory distress. Breathing does not use nasal flaring, intercostal retractions, no cyanosis and warm extremities. The respiratory rate and oxygen saturation levels with are in normal range.	5	0	5	0
1)	Place neonate in semi-follower/comfortable position	5	1	5	0
2)	Maintain free airway	5	0	5	0
3)	Provides oxygen per prescription	5	1	5	0
4)	Monitor dyspnea, tachypnea, breath sounds, increased respiratory effort, lung expansion, and weakness	5	0	5	0
5)	Evaluate the changes of level of consciousness, cyanosis, skin color, mucous membranes and nails.	5	0	5	0

	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
		Mdn	IQR	Mdn	IQR
3	**Nursing Interventions for neonate with Infection (7 items)** Goal: The symptoms of infection decrease over time and the neonate will remain free from infection	5	1	5	1
1)	Keep neonate in isolation room	5	1	5	1
2)	Monitor vital signs every 2 hours and record, notify the physician if vital signs are abnormal	5	1	5	0
3)	Maintain a good temperature for an incubator and room	5	1	5	1
4)	Wash hands every time before/after touching the neonate	5	0	5	0
5)	Make sure the caregivers wash hands every time before touching/holding the neonate	5	0	5	0
6)	Let the neonate rest, avoid holding if unnecessary	4	1	4	1
7)	Administer antibiotics per prescription	5	1	5	0
4	**Nursing Interventions for impaired skin integrity (5 items)** Goal: The integrity of the baby's skin can be maintained	4	1	4	1
1)	Assess skin color every 8 hours	4	1	4	1
2)	Monitor direct and indirect bilirubin	5	1	5	1
3)	Change position every 2 hours	4	1	4	1
4)	Massage the skin	4	1	4	1

	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
		Mdn	IQR	Mdn	IQR
5)	Keep clean skin and moisture	5	1	5	1
5	**Fluid volume deficit (5 items)** Goal: Adequate neonatal body fluid	5	0	5	0
1)	Monitor signs of dehydration such as skin turgor, fontanel and eye's condition	5	0	5	0
2)	Monitor intake output	5	0	5	0
3)	Record the frequency and amount of urine and stools	5	1	5	0
4)	Monitor fluid and electrolytes balance	5	1	5	1
5)	Explain the mother to breastfed often	5	1	5	0
6	**Nursing Interventions for Interrupted Breastfeeding (7 items)** Goal: The mother will demonstrate techniques to sustain lactation until breastfeeding is began	5	1	5	1
1)	Assess mother's perception and knowledge about breastfeeding	5	1	5	0
2)	Give emotional support to mother and accept decision regarding cessation/ continuation of breast feeding	4	1	4	1
3)	Demonstrate use of manual breast pump	4	1	4	1
4)	Explain techniques storage/use of expressed breast milk	5	1	5	1
5)	Provide privacy, calm surroundings when breast feeds	4	1	4	1
6)	Recommend for infant sucking on a regular basis	5	1	5	1
7)	Encourage mother to obtain adequate rest, maintain fluid and nutritional intake, and schedule breast pumping every 3 hours while awake	4	1	4	1

	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
		Mdn	IQR	Mdn	IQR
7	**Nursing Interventions: Risk for Altered Nutrition (5 items)**	5	1	5	1
	Goal: Neonate will consume adequate breast milk				
1)	Weigh the neonate in grams daily, then document in infant growth charts	5	0	5	0
2)	Assess maturity reflex, with regard to feeding such as sucking, swallowing and cough	5	1	5	0
3)	Monitor input and output and calculate consumption of calories and electrolytes daily	5	1	5	0
4)	Assess level of hydration, note fontanel, skin turgor, urine specific gravity, condition of mucous membranes and weight fluctuations	5	1	5	0
5)	Assess for signs of poor feeding, nervous, crying high tone, trembling, eyes upside down, and seizure activity	5	1	5	0
8	**Nursing Interventions for Pain (9 items)**	4	1	4	1
	Goal: Neonate displays improvement mood				
1)	Encourage mother to provide breastfeeding as appropriate	5	1	5	1
2)	Repositioning, swaddling and nesting	5	1	5	1
3)	Facilitated tucking and containment holding	4	1	4	1
4)	Decreasing environment sensors (noise/ light)	4	1	4	1
5)	Talking to neonate	4	2	Removed	
6)	Change nappy as needed	4	1	4	1
7)	Non nutrition sucking	4	2	Removed	
8)	Allowing neonate to grasp a finger	4	1	4	1
9)	Kangaroo care	5	1	5	0

Table 9 Standard 5: Evaluation

	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
		Mdn	IQR	Mdn	IQR
E	**Evaluation (8 items)**				
	Evaluate neonate's condition and the effectiveness of nursing care based on goals and outcome identification.				
1)	The neonate requiring intervention is promptly identified and this is started early.	5	0	5	0
2)	The neonate's metabolic and physiologic processes are stabilized, and recovery is proceeding without complications.	5	1	5	0
3)	Infant maintains temperature at 36.5°C to 37°C	5	0	5	0
4)	Neonate maintains respiratory rate of 30 to 60 breaths per minute without evidence of signs of respiratory distress	5	0	5	0
5)	Neonate will exhibit no signs of infection	5	1	5	0
6)	Fluid volume will be maintained: Oral mucosa moist and pink, skin turgor elastic, urine output at least 1 to 2 mL/kg/hr.	5	0	5	0
7)	Neonate will maintain adequate nutritional intake: Weight gain or maintenance occurs. Neonate consumes adequate diet for age.	5	1	5	1
8)	The neonate will be in comfort and free from pain	5	1	5	0

The Implementation Standard has 8 components, 46 items and 21 sub-items. The sub-item 7 "Place the baby swing bed away from the wall (outside) or window" under component 1 and item 1 has been removed after round 2 due to Mdn=4 and IQR=2. Item 5 "Talking to neonate" and item "Non nutrition sucking" under component 8 also have been removed by Mdn=4 and IQR=2 which is out of the consensus criteria.

Table 10 Standard 6: Ethics

	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
		Mdn	IQR	Mdn	IQR
F	**Ethics (2 items)**				
	The nurse uses the Cambodian Code of Ethics for nurses provide care in a manner that preserves patient and family autonomy, dignity, rights, values, and beliefs with consideration for cultural values.				
1)	Advocate for equitable to health care consumer	4	1	4	1
2)	Provide care follow guidelines/protocols so that the care nurse provides are safe for neonate	5	0	5	0

One item has achieved the consensus by IQR=0 and Mdn=5 and one item has IQR=1 and Mdn=4. There are only 2 items in this standard.

Table 11 Standard 7: Evidence-Based Practice and Research

	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
		Mdn	IQR	Mdn	IQR
G	**Evidence-Based Practice and Research (5 items)**				
1)	Develop knowledge from routine jobs towards research work that would apply to nursing practice	5	1	5	0
2)	Introduce the important research finding and evidence-based practice to other nurses	5	0	5	0
3)	Utilizes evidence based practice and research finding to guide practice	5	0	5	0
4)	Participate in nursing research according to educational level and role	5	1	5	0
5)	Integrates research findings into the development of guidelines and standards of care	5	0	5	0

This standard has achieved very good consensus. All 5 items have IQR=0 and Mdn=5.

Table 12 Standard 8: Health Teaching and Health Promotion

	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
		Mdn	IQR	Mdn	IQR
H	**Health Teaching and Health Promotion (2 items; 7 sub-items)**				
	Provide health teaching appropriately to family using good communication skills and follow guideline of health teaching				
1)	Explain to family about treatment and procedures and follow up	5	1	5	1
2)	Tech the parents about basic health information such as: (7 items)	5	1	5	0
	(1) Nutrition and breastfeeding	5	0	5	0
	(2) Reproductive health	4	1	4	1
	(3) Body hygiene for a neonate	5	0	5	0
	(4) Hand hygiene correctly	5	0	5	0
	(5) Prevent hypothermia	5	0	5	0
	(6) Recognize signs of sick newborns	5	0	5	0
	(7) Schedule of vaccination and immunization	5	1	5	0

All 2 items and 7 sub-items in this standard have achieved consensus of IQR=0 and Mdn=5 and only sub-item 2 has IQR=1 and Mdn=4.

Table 13 Standard 9: Continuing Education

	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
		Mdn	IQR	Mdn	IQR
I	**Continuing Education (3 items)**				
1)	Participate in nursing education as appropriate to the educational level and position.	4	1	5	1
2)	Participate in neonatal nursing training to update knowledge and competencies.	5	1	5	0
3)	Conduct-self-directed learning, reading text books, search internet	5	1	5	0

The 3 items under this standard have achieved consensus by 2 items have IQR=0 and Mdn=5 and only 1 item has IQR=1 but Mdn=5 as well.

Table 14 Standard 10: Communication

	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Round 2		Round 3	
		Mdn	IQR	Mdn	IQR
J	**Communication (1 items)**				
1)	Make effective communication with family members and other members of health care team.	5	1	5	0

The Communication Standard has only 1 item and it has achieved consensus at the most significant level as indicated by IQR=0 and Mdn=5.

Upon reviewing the results from round 3 and context of nursing in Cambodia, the researcher has suggested Neonatal Nursing Standards of Practice for pediatric/neonatal nurses in Cambodia to guide their practice in order to improve the quality of care for neonates. The suggested standard is presented as the following.

The Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses (NNSPCPN) comprises of 10 standards, 13 components, 107 items and 73 sub items.

1. Standard 1 Assessment

This standard comprises of 3 components, 20 items and 47 sub items as the following.

1.1. Component 1 Physical Assessment

This component comprises of 13 items and 47 sub items. Items 1, Chief complaints: The most significant/serious symptoms/signs of illness/ dysfunction that causes neonate to attend hospital. Item 2, Check Temperature, Airway, Breathing and Circulation (TABC). Item 3, Assess growth status by measure which has 3 sub items 1) weight in gram 2) length 3) head circumference. Item 4, Evaluate neonate's general appearance which contains of 4 sub items 1) Level of consciousness: state of alertness 2) skin color: integrity and perfusion 3) activity: range of spontaneous movement 4) postures: muscle tone. Item 5, Obtains the maternal history has 4 sub items include 1) Apgar score at birth 2) gestational age 3) mode of delivery 4) medications used in feeding provided. Item 6, Assess skin integrity, muscle and skeleton consists of 4 sub items 1) skin color 2) skin condition: rashes, pustule, peeling, plethora, dry, erythema, infected, edema and injury 3) Muscle tone: spontaneous movement 4) jaundice. Item 7, Check head, face and neck consists of 5 sub items 1) head: shape, size, scale 2) fontanel: structures 3) eyes: size, position structure 4) nose: position structure 5)mouth: palate, teeth, gums, tongue, frenulum, jaw size. Item 8, Assess chest and respiratory system consists of 2 sub items 1) chest: size, shape, symmetry, movement, breast tissue, and nipples 2) respiratory system: lung sounds, signs of respiratory distress, breathing pattern, oxygen needs, level of FiO2 and SpO2 and chest retraction. Item 9, Assess cardiovascular system which has 4 sub items 1) heart rates/sounds 2) pulse/femoral pulse and rhythm 3) shun syndrome 4) blood vessels. Item 10, Assess abdomen and gastrointestinal system that has 5 sub items 1) abdomen: size, shape, symmetry, palpate live, spleen, kidney 2) abdominal condition: soft, firm, redness, mass, lobe visible 3) umbilicus: bleeding, discharge, detached, smell 4) breast feeding/feeding frequency: sucking 5) bowel movement: meconium or stool condition/color, vomiting, nausea. Item 11, Assess genitourinary contains of 2 sub items 1) abnormality: open passage for urine and stool, any discharge 2) anal position/imperforate, stool. Item 12, Assess neurological status of neonate contains of

4 sub items 1) behavior 2) Irritable crying 3) posture: muscle tone, spontaneous movement 4) reflexes, primitive/five reflexes/red reflexes, Erb's palsy, seizure. Items 13, Other assessment consists of 8 sub items for neonate and 3 sub items for mother. Neonate: 1) IV site: redness, swelling, edema, clean, duration of IV insertion 2) fluid management: cc/kg/day, electrolyte management: mg /kg/day 3) blood sugar level 4) intakes and output 5) breast feeding frequency and effectiveness 6) vaccination status 7) development of neonate 8) incubator and room temperature. Maternal status 1) body weight, and condition of the mother before and after delivery 2) nutrition, breasts/express breast milk and colostrum 3) drug used, alcohol use and coping post-partum.

1.2. Component 2 Psychological Assessment

There are 3 items under this component. Item 1, Assess mood of mother/caregiver to identify anxiety/worries/scary/depress. Item 2, Observe facial expression of mother/caregiver to identify mood/feeling. Item 3, Ask about perception and belief of neonatal sickness or issues at home.

1.3. Component 3 Social-economic and family assessment

This component comprises of 4 items. Item 1, Recognizes role of the parents in decision making about their neonate's health care. Item 2, Assess whether the family are enabled to take care of financial issues relating to the health problem. Item 3, Are there any issues of neglect of young mothers from their family? Item 4, Assess whether the mother know how to take care of her baby.

2. Standard 2 Nursing Diagnosis

The nurse synthesizes by using current assessment data of physical, psychological, cultural/spiritual wellbeing and social-economic of neonate and family to develop nursing diagnosis. The common use of nursing diagnoses for neonate is added below. There are 2 components, component 1 consists of 15 items and component 2 consists of 5 items.

2.1.Component 1 Actual Nursing Diagnoses

Actual Nursing Diagnoses comprises of 15 items. Item 1, Hypothermia, item 2, Hypothermia, item 3, Ineffective thermoregulation, item 4, Airway obstruction, item 5, Impaired gas exchange 6, Ineffective breathing pattern, item 7, Asphyxia, item 8, Pain, item 9, Umbilical cord infection, item 10, Necrotizing Enterocolitis, item 11,

Neonatal Jaundice, item 12, Premature/low birth weight infant, item 13, Ineffective feeding, item 14, Ineffective breastfeeding, item 15, Interrupt breastfeeding.

2.2. Component 2 Risk for Nursing Diagnoses

This component comprises of 5 items as follows. Item 1, Risk for aspiration, item 2, Risk for infection, item 3, Risk for body temperature alteration, item 4, Risk for alter nutrition, item 5, Risk for fluid volume deficit.

3. Standard 3 Planning

In this standard, the nurse develops initial, ongoing and discharge planning in partnership with the family and other healthcare providers for each neonatal patient in prevention of illness, injury and diseases based on the economic impact of the family. There are 2 items under this standard as follows. Item 1, Set safety goals for neonate to overcome actual and risk for nursing diagnosis from admission to discharge. Item 2, Provide nursing interventions to fit with actual and risk for nursing diagnosis.

4. Standard 4 Implementation

The nurse implement nursing care individualized to infant and family in a timely manner, safe, and consistent with the goals. Below are the samples of nursing interventions with the goals, according to nursing diagnosis. This standard comprises of 8 components, 44 items and 19 sub items as described as the following.

4.1. Component 1 Nursing Intervention for Ineffective Thermoregulation (Goal: The stability of the baby's body temperature can be maintained).

This component comprises of 3 items and 19 sub items. Item 1, Reduce or eliminate the sources of heat loss in infants by evaporation, convection, conduction and radiation. Evaporation 1) when (having) or prior to a shower, prepare a warm environment 2) wash and dry each section to reduce evaporation 3) limit the time of contact with wet clothing or blanket. Convection 4) avoid the flow of air (air conditioning, ceiling fan). Conduction 5) Warm all the goods for care such as stethoscope, scales, hand care givers, clothes, bed linen. Radiation 6) reduce the objects that absorb heat (metal). Item 2, Monitor the baby’s body temperature which consists of 9 sub items as follows and if the temperature is below normal 1) uses 2 blankets 2) wear headgear 3) assess the environmental sources for heat loss 4) if hypothermia unsettled more than 1 hour, refer to physician 5) review the complications of cold stress, hypoxia, respiratory acidosis, hypoglycemia,

fluid/electrolyte imbalance and weight loss. If the temperature is above normal 6) remove blanket 7) remove headgear if worn 8) assess the environmental temperature again 9) if the temperature does not reduce to normal after 1 hour, report to the physician. Item 3, Teach caregivers why neonate's are vulnerable to temperature which contains 4 sub items 1) demonstrate how to save heat during the bath 2) teach how to measure the temperature if the neonate is hot, sore, or sensitive excitatory 3) teach the caregiver why neonates are vulnerable to heat and cold weather 4) refer to the hypothermia and hyperthermia for prevention.

4.2. Component 2 Nursing Interventions for neonate with Airway and Respiratory Problems (Goal: Neonate will maintain free from symptoms of respiratory distress. Breathing does not include nasal flaring, intercostal retractions, no cyanosis and warm extremities. The respiratory rate and oxygen saturation levels are within in normal range).

There are 5 items such as, Item 1, Place neonate in semi-follower/comfortable position. Item 2, Maintain free airway. Item 3, Provides oxygen per prescription. Item 4, Monitor dyspnea, tachypnea, breath sounds, increased respiratory effort, lung expansion, and weakness. Item 5, Evaluate the changes of level of consciousness, cyanosis, skin color, mucous membranes and nails.

4.3. Component 3 Nursing Interventions for neonate with Infection (Goal: The symptoms of infection decrease over time and the neonate will remain free from infection)

Seven items are under this components. Item 1, Keep neonate in isolation room. Item 2, Monitor vital signs every 2 hours and record, notify the physician if vital signs are abnormal. Item 3, Maintain a good temperature for an incubator and room. Item 4, Wash hands every time before and after touching the neonate. Item 5, Make sure the caregivers wash hands every time before touching/holding the neonate. Item 6, Let the neonate rest, avoid holding if unnecessary. Item 7, Administer antibiotics per prescription.

4.4. Component 4 Nursing Interventions for impaired skin integrity (Goal: The integrity of the baby's skin can be maintained)

There are 5 items such as item 1, Assess skin color every 8 hours. Item 2, Monitor direct and indirect bilirubin. Item 3, Change position every 2 hours, item 4, Massage the skin. Item 5, Keep clean skin and moisture.

4.5. Component 5 Nursing Interventions for Fluid volume deficit (Goal: Adequate neonatal body fluid)

This component consists of 5 items. Item 1, Monitor signs of dehydration such as skin turgor, fontanel and eye's condition. Item 2, Monitor intake output. Item 3, Record the frequency and amount of urine and stools. Item 4, Monitor fluid and electrolytes balance. Item 5, Explain the mother to breastfed often.

4.6. Component 6 Nursing Interventions for Interrupted Breastfeeding (Goal: The mother will demonstrate techniques to sustain lactation until breastfeeding is began)

This component has 7 items such as item 1, Assess mother's perception and knowledge about breastfeeding. Item 2, Give emotional support to mother and accept decision regarding cessation/ continuation of breast feeding. Item 3, Demonstrate use of manual breast pump. Item 4, Explain techniques for storage/use of expressed breast milk. Item 5, Provide privacy, calm surroundings when mother breast feeds. Item 6, Recommend for infant sucking on a regular basis. Item 7, Encourage mother to obtain adequate rest, maintain fluid and nutritional intake, and schedule breast pumping every 3 hours while awake.

4.7. Component 7 Nursing Interventions: Risk for Altered Nutrition (Goal: Neonate will consumes adequate breastmilk)

There are 5 items such as item 1, Weight the neonate in gram daily, then documented in infant growth charts. Item 2, Assess maturity reflex, regard to feeding such as sucking, swallowing & cough. Item 3, Monitor input, output and calculate consumption of calories and electrolytes daily. Item 4, Assess level of hydration, note fontanel, skin turgor, urine specific gravity, condition of mucous membranes and weight fluctuations. Item 5, Assess for signs of poor feeding, nervous, crying high tone, trembling, eyes upside down, and seizure activity.

4.8. Component 8 Nursing Interventions for Neonate with Pain (Goal: Goal: Neonate displays improvement mood)

There are 7 items under this component. Item 1, Encourage mother to provide breastfeeding as appropriate. Item 2, Repositioning, swaddling and nesting. Item 3, Facilitated tucking and containment holding. Item 4, Decreasing environmental sensors (noise/ light). Item 5, Change nappy as needed. Item 6, Allowing neonate to grasp a finger. Item 7, Kangaroo care.

5. Standard 5 Evaluation

The nurse evaluates neonate's condition and the effectiveness of nursing care based on goals and outcome identification. There are 8 items such as item 1, The neonate requiring intervention is promptly identified and is started early. Item 2, The neonate's metabolic and physiologic processes are stabilized, and recovery is proceeding without complications. Item 3, Infant maintains temperature at 36.5°C to 37°C. Item 4, Neonate maintains a respiratory rate of 30 to 60 breaths per minute without evidence of signs of respiratory distress. Item 5, Neonate will exhibit no signs of infection. Item 6, Fluid volume will be maintained: Oral mucosa moist and pink, skin turgor elastic, urine output at least 1 to 2 mL/kg/hr. Item 7, Neonate will maintain adequate nutritional intake: Weight gain or maintenance occurs. Neonate consumes adequate diet for age. Item 8, The neonate will be in comfort and free from pain.

6. Standard 6 Ethics

The nurse uses the Cambodian Code of Ethics for nurses provide care in a manner that preserves patient and family autonomy, dignity, rights, values, and beliefs with consideration for cultural values. The 2 items under this standard are item 1, Advocate for equitable to health care consumer. Item 2, Provide care follow guidelines/protocols so that the care nurses provides are safe for neonate.

7. Standard 7 Evidence-Based Practice and Research

This standard comprises of 5 items. Item 1, Develop knowledge from routine jobs towards research work that would apply to nursing practice. Item 2, Introduce the important research finding and evidence-based practice to other nurses. Item 3, Utilizes evidence based practice and research finding to guide practice. Item 4, Participate in nursing research according to educational level and role. Item 5, Integrates research findings into the development guidelines & standards of care.

8. Standard 8 Health Teaching and Health Promotion

The nurse provide health teaching appropriately to the family using good communication skills and follow guidelines of health teaching. There are 2 items and 7 sub items under this standard. Item 1, Explain to the family about treatment and procedures and follow up. Item 2, Tech the parents about basic health information such as: 1) Nutrition and breastfeeding. 2) Reproductive health. 3) Body hygiene for a neonate. 4) Hand hygiene correctly. 5) Prevent hypothermia. 6) Recognize signs of sick newborns. 7) Schedule of vaccination and immunization.

9. Standard 9 Continuing Education

There are 3 items under this standard. Item 1, Participate in nursing education as appropriate to educational level and position. Item 2, Participate in neonatal nursing training to update knowledge and competencies. Item 3, Conduct-self-directed learning, reading text books, search internet.

10. Standard 10 Communication

There are only one item under this standard, Make effective communication with family members and other members of health care team.

CHAPTER V
DISCUSSION

In this chapter, the study summary, the discussion of each standard, the limitations, implications, recommendations as well as the further study will be explained as the following.

Summary

This study is a kind of descriptive study, which aimed to develop the neonatal nursing standards of practice for Cambodia using Delphi technique. The purposive sampling and snowball sampling technique have been used for this study. There were a total of 20 experts in round 1 and 19 experts in round 2 and 3 participating in this study. Three nursing directors from pediatric hospitals and a hospital that has neonatal wards, 6 pediatric nurse educators, 4 senior pediatric nurses, 3 neonatal physicians and 4 neonatal nurses who work in nursing school and hospitals from America, however one expert in this group participated in round 1 only. This study's data collection process started in May 2016 and ended by round 3 in Feb 2017. The questionnaire round 1-3 were developed by the researcher. Round 1 is a semi-open ended form questionnaire, round 2 and 3 questionnaire used 5-Likert rating scale. Median and Interquartile Range were used as the statistical tools for data analysis. The standard criteria of consensus on each item are median equal to or greater than 3.50, and interquartile range equal to or less than 1.50.

The round 3 questionnaire consisted of 10 standards, 14 components, 108 items and 73 sub-items. The purpose of this round is to confirm the response in the context of feedback provided by all 19 experts.

Discussion

Standard 1 to standard 5 are the steps of nursing process. ANA (2010) stated that the standards of practice coincide with the steps of the nursing process to represent the directive nature of the standards as the professional nurse completes each component of the nursing process. The nursing process is often conceptualized as the integration of singular actions of assessment, diagnosis, and identification of outcomes, planning, implementation, and finally, evaluation. The nursing process in practice is not linear as often conceptualized, with a feedback loop from evaluation to assessment. The results of standard 1 to 5 discuss below reflected the statement above from ANA (2010).

1. Assessment

There are 3 components, 20 items and 47 sub items under this standard and the 3 components include physical, psychological, and social-economic and family assessment.

Component 1 has 13 items and 48 sub items presented with Median and Interquartile Range as follows. Component 1 itself, 7 items and 27 sub items have achieved the consensus at the most significant level specified by Mdn=5.00, IQR=0.00. Those are, check Temperature, Airway, Breathing and Circulation (TABC), assess growth status by measure, weight in gram, length, head circumference, evaluate neonate's general appearance, level of consciousness: state of alertness, skin color: integrity and perfusion, activity: range of spontaneous movement, postures: muscle tone, obtains the maternal history, Apgar score at birth, gestational age, medications used and feeding provided, assess skin integrity, muscle and skeleton, skin color, muscle tone: spontaneous movement, jaundice, assess chest and respiratory system, chest: size, shape, symmetry, movement, breast tissue, and nipples, respiratory system: lung sounds, signs of respiratory distress, breathing pattern, oxygen needs, level of FiO2 and SpO2 and chest retraction, assess cardiovascular system, heart rate/sound, pulse/femoral pulse and rhythm, behavior, Irritable crying, posture: muscle tone, spontaneous movement, IV site: redness, swelling, edema, clean, duration of IV insertion, fluid management: cc/kg/day, electrolyte management: mg /kg/day, blood sugar level, intakes and output, breast feeding frequency and effectiveness, incubator and room temperature, and drug used,

alcohol use and coping post-partum. These items and sub items were provided high score by the experts so they must be included and put into used for any level of neonatal setting.

There are 5 items and 14 sub items have reached the score of Mdn=5.00, IQR=1.00 but still have achieved consensus at the most significant level, Chief complaints: The most significant/serious symptoms/signs of illness/ dysfunction that causing neonate to the hospital, mode of delivery, Skin condition: rashes, pustule, peeling, plethora, dry, erythema, infected, edema & injury, head: shape, size, scalp, fontanel: sutures, assess abdomen & gastrointestinal system, abdominal condition: soft, firm, redness, mass, lobe visible, umbilicus: bleeding, discharge, detached, smell, breast feeding/feeding frequency: sucking, bowel movement: meconium or stool condition/color, vomiting, nausea, assess genitourinary, Irritable crying, posture: muscle tone, spontaneous movement, assess neurological status of neonate, reflexes, primitive/five reflexes/red reflex, Erb's palsy, seizure, other assessment, abnormality: open passage for urine and stool, any discharge, vaccination status, development of neonate, body weight, and condition of the mother before and after delivery, and nutrition, breasts/express breast milk and colostrum. These items and sub items were also considered by experts as the second important and they should be included in the standard as well. There are 1 item and 7 sub items that experts seem not to provide much important since those have reached the consensus at more significant level (Mdn=4.00, IQR=1.00). They are check head, face and neck, eyes: size, position structure, nose: position structure, shun syndrome, blood vessels, abdomen: size, shape, symmetry, palpate live, spleen, kidney, anal position/imperforate, stool. These items/sub items are considered not to be priority in the low resources setting.

Component 2, psychological Assessment itself and its 3 items have achieved consensus at more significant level identified by Mdn=4.00, IQR=1.00. The 3 items are, assess mood of mother/caregiver to identify anxiety/worries/scary/depress, observe face expression of mother/caregiver to identify mood/feeling, ask about perception and belief of neonatal sickness or issue at home. This component is important but the experts did not considered it strongly. Holistic approach is needed for all kinds of patient but it might need to add in the standard for the further step. It should be in the discussion which base on the real context if nurse administrator

would want to apply it. Component 3, Social-economic and family assessment itself and 3 items have achieved consensus at more significantly level (Mdn=4.00, IQR=1.00), recognizes role of the parents in decision making about their neonate's health care, assess whether the family enable to taking care of financial issue about health problem, neglecting issue of the young mothers from their family. One 1 item has Mdn=5.00, IQR=1.00 reflected that the experts did not considered component 3 as a very important either.

The results of Assessment component are going parallel with ANA (2013) which stated that the nurse respects culture and diversity in all aspects of newborn/ infant and family care and administers nursing care accordingly. The 3 components above highlighted the holistic approach to neonate and their family. The components, most of items and sub items which have highest score of Median and interquartile Range are suggested to apply in the neonatal field with low resources setting such as Complementary Package of Activity (CPA) 1 hospitals. The results of this standard reflected that the experts want to have foundation and basic standard rather than advanced one and it is a good start for Cambodian nurses who are working in neonatal setting. Finally there are only 3 components, 20 items and 48 sub-items remained in this standard.

2. Nursing Diagnosis

The component 1, actual nursing diagnoses and 14 items under it have achieved consensus at the highest score of Median and Interquartile Range (Mdn=5.00, IQR=0.00) in round 3. These items are hypothermia, hyperthermia, ineffective thermoregulation, airway obstruction, impair gas exchange, ineffective breathing pattern, asphyxia, pain, umbilical cord infection, necrotizing enterocolitis, neonatal Jaundice, premature/low birth weight infant, ineffective feeding, and ineffective breastfeeding. There is only 1 item, interrupt breastfeeding that has reached consensus at Mdn=4.00 and IQR=0.00. The component 2, risk for nursing diagnosis and it's all 5 items have also achieved the consensus at the highest score of Median and Interquartile Range as well (Mdn=5.00, IQR=0.00). The 5 items are, risk for aspiration, risk for infection, risk for body temperature alteration, risk for alter nutrition and risk for fluid volume deficit.

The experts highlighted the importance of this standard since the nursing diagnosis is one of the nursing process steps that have been introduced to apply officially from MoH in 2012. Nursing diagnosis is one of the nursing process steps that have been introduced to apply officially by the MoH (MoH, 2012). The diagnoses are also used to determine a neonatal patient's readiness for health improvement and whether or not they may have developed a syndrome. The diagnoses phase is a critical step as it is used to determine the course of treatment (Zarzycka, Górajek & Jóźwik, 2004). Therefore, standard 2, nursing diagnoses is strongly recommended to apply in any neonatal field that has enough resources including manpower so that the quality of care could be improved.

3. Planning

There are 2 items in total under this standard and 1 item has archived consensus at the most significant level specified by Mdn=5.00, IQR=0.00 and this item is, provides nursing interventions to fit with actual and risk for nursing diagnoses. And item of set safety goals for neonate to overcome actual and risk for nursing diagnosis from admission to discharge has reached the consensus at the higher score specified by Mdn=05.00, IQR=0.00. Experts understand that these are the 2 basic steps to be started and be applied practically. All experts agreed the planning is important since each problem is assigned a clear, measurable goal for the expected beneficial outcome of neonatal patients. It was supported by Ballantyne (2016) stated that nursing care plans used as a tool to promote holistic care, and it is central to patient-centered care, enabling nursing staff to plan the interventions and discuss them with the patient.

4. Implementation

The results showed all 8 components under implementation standard have achieved consensus at the different significant level as follows. Component 1 “Nursing Intervention for Ineffective Thermoregulation” has the total of 3 items and 19 sub-items. The component 1 itself, sub item, wash and dry each section to reduce evaporation, sub item, warm all goods for care such as stethoscope, scales, hand care givers, clothes and bed linen, item, monitor the baby’s body temperature, sub item, wear headgear and assess the environmental sources for heat loss, remove the blanket, if the temperature not reduce to normal more than 1 hour report to the physician, item,

teach care givers why neonates are vulnerable to temperature, sub item, teach to measure the temperature if neonate is hot, sore, or sensitive excitatory and teach the care givers why neonate are vulnerable to heat and cold weather have reached the consensus at most significant level by Mdn=5.00, IQR=1.00. The item, reduce or eliminate the sources of heat loss in infants, sub item, when a shower prepare a warm environment, limit time of contact with clothing or a wet blanket, if hypothermia settled more than 1 hour, refer to physician, review the complications of cold stress. Hypoxia, respiratory acidosis, hypoglycemia, fluid/electrolyte imbalance and weight loss and refers to the hypothermia and hyperthermia for prevention have reached the most significant level of Mdn=5.00, IQR=0.00. However there are some items and sub items that have reached the consensus only at more significant level of Mdn=4.00, IQR=1.00 and they are, avoid the flow of air (air conditioning, ceiling fan), reduce objects that absorb heat (metal), uses 2 blankets, remove headgear if worn, assess the environmental temperature again.

Component 2 “Nursing Interventions for neonate with Airway and Respiratory Problems” has 5 items and all have achieved the consensus at the most significant level specified by the Mdn=5, IQR=0.00. They are, place neonate in semi-follower/comfortable position, maintain free airway, provides oxygen per prescription, monitor dyspnea, tachypnea, breath sounds, increased respiratory effort, lung expansion, and weakness, and evaluate the changes of level of consciousness, cyanosis, skin color, mucous membranes and nails. All items/interventions in component 2 have been strongly considered by the experts to be included as they are practical and applicable. Component 3 “Nursing Interventions for neonate with Infection” There are a total of 7 items under this component, 4 items have achieved consensus at the most significant level by Mdn=5, IQR=0.00. Those items are, monitor vital signs every 2 hours and record, notify the physician if vital signs are abnormal, wash hands every time before and after touching the neonate, make sure the caregivers wash hands every time before touching/holding the neonate and administer antibiotics per prescription. Two items have reached consensus at more significant level, keep neonate in isolation room, and maintain a good temperature for an incubator and room. Only 1 item has reached consensus at more significant level at Mdn=4.00, IQR=1.00. That item is let the neonate rest, avoid holding if unnecessary.

Infection is one of the common problems for neonate in Cambodia so the experts have provided the importance of these items to be the interventions included.

Component 4 “Nursing Interventions for impaired skin integrity” There are 5 items under this component, 2 items have achieved the consensus at the most significant level specified by Mdn=5.00, IQR=1.00, monitor direct and indirect bilirubin and keep clean skin and moisture. The component 4 itself and the other 3 items, assess skin color every 8 hours, change position every 2 hours and massage the skin have achieved consensus at more significant level by Mdn=4.00, IQR=4.00. This reflected that the experts seem do not prioritize the some items and they should not be considered to be applied at the right beginning of implementation of the standard. Component 5 “Fluid volume deficit” has 6 items including the component itself and 4 of them have achieved consensus at the most significant level specified by Mdn=5.00, IQR=0.00. The 4 items are, monitor signs of dehydration such as skin turgor, fontanel and eye’s condition, monitor intake output, record the frequency and amount of urine and stools and explain the mother to breastfed often. The only one item that has Mdn=5.00, IQR=1.00 is monitor fluid and electrolytes balance. The fluid management is very important for the sick neonate which is why the experts considered these items to be the interventions.

Component 6 “Nursing Interventions for Interrupted Breastfeeding” that has a total of 8 items including the component itself. Four items have reached consensus only at more significant level by Mdn=4.00, IQR=1.00, give emotional support to mother and accept decision regarding cessation/ continuation of breast feeding, demonstrate use of manual breast pump, provide privacy, calm surroundings when mother breast feeds, and encourage mother to obtain adequate rest, maintain fluid and nutritional intake, and schedule breast pumping every 3 hours while awake. The experts did not strongly considered these 4 items so they are should not be included if the standard consider to be pilot or apply in low neonatal resources setting. The component itself and the other 2 items, explain techniques for storage/use of expressed breast milk, and recommend for infant sucking on a regular basis have achieved consensus at most significant level by Mdn=5.00, IQR=1.00. Item, assess mother’s perception and knowledge about breastfeeding has achieved consensus at the

most significant level identified by Mdn=5.00, IQR=0.00. These 4 items must be integrated into the standard according to the experts' decision.

Component 7 "Nursing Interventions: Risk for Altered Nutrition" has reached consensus at most significant level specified by Mdn=5.00, IQR=1.00. The 5 items under it have achieved the most significant level of consensus indicated by Mdn=5.00, IQR=0.00. The items are, weigh the neonate in grams daily, then document in infant growth charts, assess maturity reflex, with regard to feeding such as sucking, swallowing and cough, monitor input and output and calculate consumption of calories and electrolytes daily, assess level of hydration, note fontanel, skin turgor, urine specific gravity, condition of mucous membranes and weight fluctuations, and assess for signs of poor feeding, nervous, crying high tone, trembling, eyes upside down, and seizure activity. This component must be priority includes for the uses of this standard according to expert's decision. Component 8 "Nursing Interventions for Pain" has 7 items in total. The component itself and the other 4 items, facilitated tucking and containment holding, decreasing environmental sensors (noise/ light), change nappy as needed and allowing neonate to grasp a finger have reach consensus with the score of Mdn=4.00, IQR=1.00. Two items have reached consensus at most significant level by Mdn=5.00, IQR=1.00. They are encourage mother to provide breastfeeding as appropriate, and repositioning, swaddling and nesting. Only 1 item has the highest score in this component, Kangaroo care (Mdn=5.00, IQR=0.00). The last 3 items are considered by experts to be included. Pfrimmer et al. (2017) have concluded that nursing intervention provided by a single nurse on behalf of a single patient, in reality, individual patients are cared for in most contexts by multiple nurses over time.

5. Evaluation

This standard has 8 items and 7 of them have achieved consensus at the most consensus level specified by Mdn=5.00, IQR=0.00. The neonate requiring intervention is promptly identified and this is started early, the neonate's metabolic and physiologic processes are stabilized, and recovery is proceeding without complications, infant maintains temperature at 36.5°C to 37°C, neonate maintains a respiratory rate of 30 to 60 breaths per minute without evidence of signs of respiratory distress, neonate will exhibit no signs of infection, fluid volume will be maintained:

Oral mucosa moist and pink, skin turgor elastic, urine output at least 1 to 2 mL/kg/hr, and the neonate will be in comfort and free from pain. Only 1 item has achieved consensus at most significant level (Mdn=5.00, IQR=1.00) is neonate will maintain adequate nutritional intake: Weight gain or maintenance occurs. Neonate consumes adequate diet for age. The results showed that the experts considered the evaluation is an important standard to be included. For the care plan to be a success, the nurse needs cognitive, interpersonal and technical skills, and all of the nursing actions developed during the planning steps are carried out (Karimi, 2011).

6. Ethics

The results presented that item 1, Advocate for equitable to health care consumer has achieved consensus at most significant level (Mdn=4, IQR=1.00). Item 2, provide care follow guidelines/protocols so that the care nurse provides are safe for neonate has achieved consensus at the most significant level (Mdn=5.00, IQR=0.00). There are only 2 items under this standard. The experts consider more for the standard to be basic and practical action in terms of priority, which fit with the nursing context in Cambodia. This is also consisting with the professional standards of the National competency standards for the registered nurse as it states that "Integrates organizational policies and guidelines with professional standards". Nursing, as a social practice, is guided by ethical and moral values, and its purpose is to guide the process of health care and nursing care in a proper manner, therefore, nursing care, as an art and science, cannot do without ethics and as such, the protection of patients' rights, their integrity, and safety are part of nurses' responsibilities (Silva et al., 2016). Based on Dehghani, Mosalanejad, & Dehghan-Nayeri (2015) stated that nursing ethics considered as competency in nurses without any direct impact on clinical activities, which could be separated from practical duties of nursing.

7. Evidence-Based Practice and Research

All 5 items under this standard have achieved consensus at the most significant level with great score of median and interquartile range (Mdn=5.00, IQR=0.00). Develop knowledge from routine jobs towards research work that would apply to nursing practice, introduce the important research finding and evidence-based practice to other nurses, utilizes evidence based practice and research finding to guide practice, participate in nursing research according to educational level and role,

and integrates research findings into the development of guidelines and standards of care. It is fascinating that the experts attached the importance items to this standard as the evidence-based practice and research is still new to nursing in Cambodia. This showed that the experts consider strongly that this standard needs to be included in neonatal nursing in Cambodia. The results reflected the consistency with the indicators of the Standards of Practice for Registered Nurses from the College of Registered Nurses of Nova Scotia (CRNNS), (2012). These 2 indicators are "promotes practice environments that encourage learning and evidence-informed practice" and "applies a theoretical and/or evidence-informed rationale for decisions".

8. Health Teaching and Health Promotion

Two items under this standard and 7 sub-items are under item 2. This standard has achieved consensus at the most significant level in overall. Item 1, explain to family about treatment and procedures and follow up (Mdn=5.00, IQR=1.00). Item 2, tech the parents about basic health information and its 6 sub items, nutrition and breastfeeding, body hygiene for a neonate, hand hygiene correctly, prevent hypothermia, recognize signs of sick newborns, and schedule of vaccination and immunization have reached the consensus at the most significant level (Mdn=5.00, IQR=0.00). The results reflected that the experts considered this standard as an important aspect. The family of neonates need the information regarding how to taking care of neonates and to prevent them from diseases as well as to promote a healthy lifestyle. Nurses globally, place value and pay attention to this standard. As the ANA (2010) Nursing Standards of Practice under the Implementation component stated that this competency "Uses health promotion and health teaching methods appropriate to the situation and the healthcare consumer's values, beliefs, health practices, developmental level, learning needs, readiness and ability to learn, language preference, spirituality, culture, and socioeconomic status".

9. Continuing Education

Two items under this standard have achieved consensus at the most significant level specified by Mdn=5.00, IQR=0.00. They are, participate in neonatal nursing training to update knowledge and competencies, and conduct-self-directed learning, reading text books, search internet. One item has achieved consensus at most significant level (Mdn=5.00, IQR=1.00) participate in nursing education as

appropriate to the educational level and position. The experts value the education for neonatal nurses as it will improve their professionalism as well as quality of care for the neonate when all neonatal nurses are competent. According to the Professional Standards for Registered Nurses and Nurse Practitioners (CNRBC, 2012) "Uses critical thinking when collecting and interpreting data on learning needs and planning, implementing and evaluating nursing and health education programs" is one of their indicators under the Knowledge-Based Practice standard.

10. Communication

This standard has only 1 item, make effective communication with family members and other members of health care team, it has reached consensus at the most significant level by Mdn=5.00, IQR=0.00. The experts have highlighted communication as an important tool for nurses in order to promote the quality of care by provide good information to the family. One competency under the Registered nurse standards for practice by Nursing and Midwifery Board of Australia (2016) stated that the nurse communicates effectively, and is respectful of a person's dignity, culture, values, beliefs and rights. Good communication among health care members, improvement of organizational preconditions, appropriate supportive system, and development of education and culture could lead to observing professional ethics in clinical practice (Dehghani, Mosalanejad, & Dehghan-Nayeri, 2015). Another paper mentioned if health personnel improved their communication each other, the patient outcomes were most likely better (Gordon, Deland, & Kelly, 2017).

11. Delphi and e-Delphi Technique

Delphi and e-Delphi are the perfect method in the development of neonatal nursing standards of practice for Cambodia. The combination of 19 experts who have different ranges of knowledge, experiences, academic degree across nationalities and profession have made this study to be practical and applicable to neonatal nursing in Cambodia. In supporting this discussion, Thangaratinam & Redman (2005) stated that it is more appropriate to select specialists in that area to be the experts. Delphi can be used as a means of actually producing the guidelines, particularly when the available evidence in insufficient or conflicting. Delphi technique is a particularly useful tool for developing group consensus and can avoid many of the counterproductive pitfalls that can bedevil face-to-face meetings. Boulkedid et al (2011) stated that, one of the

main reasons for the popularity enjoyed by the Delphi technique is that a large number of individuals across diverse locations and areas of expertise can be included anonymously, thus avoiding domination of the consensus process by one or a few experts.

Delphi technique have used a lot in nursing research and it is suitable for the development standards, guidelines, protocols or curriculum since it bring the great combination of experts across the profession. The method of round 1 open-ended questionnaire and round 2 and 3 of quantitative-Likert scale questionnaire have facilitated in order to bring the meaningful consensus.

Conclusion

This study found ten standards of Neonatal Nursing Standards of Practice for Cambodia (NNSPC). The findings show that the NNSPC has only 10 basic standards of practice compare to the Scope and Standards of Practice: Neonatal Nursing by American Nurses Association (ANA, 2013) which had 16 standards, Australian Standards for Neonatal Nurses by Australian College of Neonatal Nurses (ACNN, 2012) has 14 standards and the Cambodian Standards of Nursing Care has 14 standards. The findings contribute to the future discussion and finalization of NNSPC to become a national standard for Cambodian pediatric/neonatal nurses. Neonatal nurses and nursing administrators can use NNSPC to improve neonatal nursing care quality, safety and education. Moreover, the standards can be used in any healthcare facility that has neonatal unit/project, more or less according to the situation and the context of the facilities.

Limitation of the Study

There are three significant limitations of this study as follows 1) The difference of experts' academic degree could be attributed to the results of this study as the standard is more likely to be focused on clinical aspect rather than conceptual aspect since most of the experts hold Associate Degree in Nursing. For instance, the cultural/spiritual component had been removed from the standard after final round. 2) This standard of practice is developed specifically for neonatal patients only, so the

standard cannot be applied for other pediatric patients outside of this age group. 3) The NNSPC should be cautious if it applies outside of Cambodia since it is developed based on the limitation of resources and Cambodian contexts.

Making this standard become a national neonatal nursing standard is a priority. The development of a project proposal with a budget plan as well as the establishment of a working group to have a regular meetings to discuss and finalize the standard are needed. Due to the limitation of the budget, the above proposal could be faced with challenging issues in order to make this happens.

Implications for Nurse Administrators and Pediatric/Neonatal Nurses

The implications of this study are described as the following:

1) The nurse administrators can use this standard as the supervision tool to measure and improve the quality of nursing care for neonates and their families.

2) The pediatric nurses can use this standard to guide their routine nursing practice provide to neonates and their families.

3) The Bureau of Nursing and Midwifery of Ministry of Health can use this standard to improve the overall nursing care quality of neonates and their families throughout the country.

Recommendations Further Research

The development of neonatal nurse is recommended for further study since it will be built on this standard. The neonatal nurse could help to measure how the care is provided and help to improve the quality of care for neonatal patients and families.

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APPENDIX

APPENDIX A
Experts' Information

Group's List of Experts

Group 1 Nursing Director

1. Mr. Sophal Som, RN, CPN, IPPNC, MBA, Director of Nursing, Angkor Hospital for Children, Siem Reap, Cambodia
2. Mrs. Thavara Lim, RN, Director of Nursing, National Pediatric Hospital, Phnom Penh, Cambodia
3. Mr. Sothea Seang, RN, BSN, Director of Nursing, Calmette Hospital, Phnom Penh, Cambodia

Group 2 Neonatal Nurse Educators

4. Mr. Vichey Ly, RN, Nursing Team Leader, Inpatient Unit, Angkor Hospital for Children, Siem Reap, Cambodia
5. Mr. Sokry Kol, RN, BSN, Nursing Team Leader, Satellite Clinic, Angkor Hospital for Children, Siem Reap, Cambodia
6. Mr. Lorn Loeuk, RN, Nursing Team Leader, Satellite Clinic, Angkor Hospital for Children, Siem Reap, Cambodia
7. Ms. Phina Touch, RN, Nursing Team Leader, Neonatal Unit, Angkor Hospital for Children, Siem Reap, Cambodia
8. Mrs. Phanoeun Heng, RN, Nursing Team Leader, Inpatient Unit, Angkor Hospital for Children, Siem Reap, Cambodia
9. Mr. Lomorng Ping, RN, Nursing Team Leader, Neonatal Unit, Angkor Hospital for Children, Siem Reap, Cambodia

Group 3 Senior Pediatric/Neonatal Nurses

10. Mr. Phal Chea, RN, Nursing Unit Manager, Neonatal Unit, Angkor Hospital for Children, Siem Reap, Cambodia
11. Mrs. Sinat Ngy, RN, Head Nurse of Neonatal Ward, National Pediatric Hospital, Phnom Penh, Cambodia
12. Mr. Sophat Long, RN, Deputy Head Nurse of Neonatal Ward, National Pediatric Hospital, Phnom Penh, Cambodia
13. Mrs. Ngim Nov, RN, Head Nurse of Neonatal Ward of Calmette Hospital, Phnom Penh, Cambodia

Group 4 Neonatal Physician

14. Dr. Leakhena Neou, MDN, Neonatologist, Neonatal Unit, Angkor Hospital for Children, Siem Reap, Cambodia
15. Assist. Prof. Peuv Chea, MDN, Chief of Pediatric and Neonatal Ward, Provincial Hospital, Battambang, Cambodia
16. Assist. Prof. Patrich Lorn Try, MDN, Chief of Pediatric and Neonatal Ward, Provincial Hospital, Kampong Cham, Cambodia

Group 5 Pediatric/Neonatal Nurses from America

17. Ms. Jennifer Parson, Senior Pediatric Nurse, California, United States of America (late response)
18. Clinical Assistant Prof. Ann Nielsen, Undergraduate Faculty Specialty- Child, Adolescent, and Family Nursing, Oregon Health and Science University School of Nursing, Portland, United States of America.
19. Prof Dr. Richard Henker, PhD, RN, CRNA, FAAN, University of Pittsburgh, Acute/Tertiary Care Department, United States of America.
20. Mrs. Babette Munting, RN, MSN, Family Nurse Practitioner, Medicine Residency of Idaho, United States of America.

Expert's Profile

N	Educational Background	Position	Work experience/ publications
1	1. Associate Degree Nurse (3 year-program) 2. Certified Pediatric Nurse (CPN) 3. International Post graduated pediatric Nurse Certificate (IPPNC) 4. Chief of nurse and midwife (1 year-program) 5. Neonatal nursing care training (less than 4 months)	Director of Nursing, Angkor Hospital for Children, Siem Reap, Cambodia	1. Out Patient Department 1 year (1999) 2. In Patient Department 5 years (2000-2005) 3. Nursing admin 10 years (2006-present)
2	1. Associate Degree Nurse (3 year-program) 2. Chief of nurse and midwife (1 year-program) 3. Neonatal nursing care training (less than 4 months)	Chief Nurse, National Pediatric Hospital, Phnom Penh, Cambodia	1. 25 years working in National Pediatric Hospital 2. 10 years working as a Chief Nurse in National Pediatric Hospital
3	1. Associate Degree Nurse (3 year-program) 2. Teaching pedagogy (3Months) 3. Pedagogy Nursing Management in Hanoi, Viet Nam(6 Months) 4. Diploma of Nurse Specialize Anesthesia (2 year-program)	1. Nurse Educator, Technical School for Medical Care 2. Chief Nurse Anesthesia, Calmette Hospital 3. Head Nurse. Emergency & Intensive Care Unit responsible for staff	1. More than 29 years teaching at Nursing schools 2. National Fascinator for: - Pain management - Infection Control - Nursing process - Nursing protocol - Neonatal Nurse training

N	Educational Background	Position	Work experience/ publications
	5. Internship Nurse Anesthesia in France CHU Bordeaux (3 Months) 6. Chief of nurse and midwife (1 year-program) 7. Internship chief of nurse in France CHU de TOURS (3 Months) 8. Nurse emergency and Ambulance in Singapore (2 Months) 9. Other short course: - Neonatal Nurse training (less than 4 months) - Pain Management - Infection Control - Trauma management - Nutrition management in Singapore - Stroke Nursing Management in Thailand	training, Calmette Hospital 4. Assistant Director General of Nurse, Calmette Hospital 5. President of Nurse Anesthesia Association Cambodia.	- First Aid and Resuscitation 3. Coordinator Nurse Specialize Anesthetist Training.
4	1. Associate Degree Nurse (3 year-program) 2. Certified Pediatric Nurse (CPN) 3. Neonatal Critical Care Nursing Training 4 months period in Boromarajonani College of Nursing, Bangkok,	1. Nursing Team Leader, Angkor Hospital for Children 2. Nurse Educator, Angkor Hospital for Children	14 years working in Angkor Hospital for Children

N	Educational Background	Position	Work experience/ publications
	Thailand in 2012 for 4 months 3. Other short course training in Angkor Hospital for Children: - Integrated Management of Childhood Illnesses - Advanced Pediatric Life Support - Preceptor Training Course		
5	1. Associate Degree Nurse (3 year-program) 2. Bachelor Bridging Program (2 year-program) 3. Certified Pediatric Nurse (CPN) 4. Neonatal Critical Care Nursing Training 4 months period in Boromarajonani College of Nursing, Bangkok, Thailand in 2012 for 4 months 3. Other short course training in Angkor Hospital for Children: - Neonatal Nursing Training - Integrated Management of Childhood Illnesses - Advanced Pediatric Life Support - Preceptor Training Course	1. Nursing Team Leader, Angkor Hospital for Children 2. Nurse Educator, Angkor Hospital for Children	10 years of working experience in Angkor Hospital for Children

N	Educational Background	Position	Work experience/ publications
6.	1. Associate Degree Nurse (3 year-program) 2. Certified Pediatric Nurse (CPN) 3. Neonatal Critical Care Nursing Training 4 months period in Boromarajonani College of Nursing, Bangkok, Thailand in 2012 for 4 months 4. Other short course training in Angkor Hospital for Children: - Neonatal Nursing Training - Integrated Management of Childhood Illnesses - Advanced Pediatric Life Support - Preceptor Training Course	1. Nursing Team Leader, Angkor Hospital for Children 2. Nurse Educator, Angkor Hospital for Children	14 years of working experience in Angkor Hospital for Children
7	1. Associate Degree Nurse (3 year-program) 2. Certified Pediatric Nurse (CPN) 3. Neonatal Critical Care Nursing Training 4 months period in Boromarajonani College of Nursing, Bangkok, Thailand in 2013 for 4 months 4. Other short course training in Angkor Hospital for	1. Nursing Team Leader, Angkor Hospital for Children 2. Nurse Educator, Angkor Hospital for Children	10 years of working experience in Angkor Hospital for Children

N	Educational Background	Position	Work experience/ publications
	Children: - Neonatal Nursing Training - Integrated Management of Childhood Illnesses - Advanced Pediatric Life Support - Preceptor Training Course		
8	1. Associate Degree Nurse (3 year-program) 2. Certified Pediatric Nurse (CPN) 3. Neonatal Critical Care Nursing Training 4 months period in Boromarajonani College of Nursing, Bangkok, Thailand in 2012 for 4 months 3. Short course trainings in Angkor Hospital for Children: - Neonatal Nursing Training - Integrated Management of Childhood Illnesses - Advanced Pediatric Life Support - Preceptor Training Course	1. Nursing Team Leader, Angkor Hospital for Children 2. Nurse Educator, Angkor Hospital for Children	10 years of working experience in Angkor Hospital for Children
9	1. Associate Degree Nurse (3 year-program) 2. Certified Pediatric Nurse (CPN) 3. Neonatal Critical Care	1. Nursing Team Leader, Neonatal Unit, Angkor Hospital for Children	9 years working experience in Angkor Hospital for Children: - 7 years working experience in

N	Educational Background	Position	Work experience/ publications
	Nursing Training 4 months period in Boromarajonani College of Nursing, Bangkok, Thailand in 2012 for 4 months 4. Other short course training in Angkor Hospital for Children: - Neonatal Nursing Training - Integrated Management of Childhood Illnesses - Advanced Pediatric Life Support - Preceptor Training Course	2. Nurse Educator, Angkor Hospital for Children	pediatric Emergency Room and Intensive Care Unit. - Instructor of Advanced Pediatric Life Support - For the last 2 years, working as team leader in Neonatal SCBU/NICU
10	1. Associate Degree Nurse (3 year-program) 2. Certified Pediatric Nurse (CPN) 3. Neonatal Critical Care Nursing Training 4 months period in Boromarajonani College of Nursing, Bangkok, Thailand in 2009 for 4 months 4. Other short course training in Angkor Hospital for Children: - Neonatal Nursing Training - Integrated Management of Childhood Illnesses	Senior Nurse and Nursing Unit Manager, Neonatal Unit, Angkor Hospital for Children	17 years of working experience in Angkor Hospital for Children

N	Educational Background	Position	Work experience/ publications
	- Advanced Pediatric Life Support - Preceptor Training Course		
11	1. Associate Degree Nurse (3 year-program) 2. Neonatal Nursing Training less than 4 months training more than 10 courses.	Head Nurse, Neonatal Unit National Pediatric Hospital, Phnom Penh, Cambodia	25 years working in National Pediatric Hospital 20 years working as a Head Nurse in National Pediatric Hospital
12	1. Associate Degree Nurse (3 year-program) 2. Neonatal Nursing Training less than 4 months training more than 7 courses.	Sub Head Nurse, Neonatal Unit, National Pediatric Hospital, Phnom Penh, Cambodia	15 years working in National Pediatric Hospital 7 years working as a Vice Head Nurse in National Pediatric Hospital
13	1. Associate Degree Nurse (3 year-program) 2. Midwifery Training Program (1 year) Neonatal Nursing Training less than 4 months training more than 4 courses	Senior Nurse at Neonatal Unit, Calmette Hospital	8 years of working experience in Neonatal Unit at Calmette Hospital.
14	1. Undergraduate, Faculty of Medicine, Pharmacy and Dentistry, Phnom Penh, Cambodia 2. General Pediatrics at	1. Head of Neonatal unit at Angkor Hospital for Children 2. Deputy Medical	17 years of working experience in Angkor Hospital for Children: - General Pediatrics and Neonatal

N	Educational Background	Position	Work experience/ publications
	Angkor Hospital for Children (3 years) 3. Neonatal Medicine, National University Hospital, Singapore (6 months) 3. Diploma in Child Health by Children's Hospital, Westmead & Sydney University, Australia (1 year). 4. Certificate of Faculty Development, Angkor Hospital for Children Cambodia	Director Angkor Hospital for Children.	physician - Course Director and Instructor of Advanced Pediatric Life Support Training - Teaching pediatric resident and pediatric Internship students. - Teaching government doctor and nurse from public hospitals in pediatrics and neonatal field. Publication: 1. Barriers to neonatal care in developing countries: parents' and providers perceptions Journal of Pediatric and Child Health. 2. High prevalence of antimicrobial resistant Gram negative colonisation in hospitalized Cambodian infants" the Pediatric Infectious Disease

N	Educational Background	Position	Work experience/ publications
			Journal. 3. Epidemiological aspect of Neonatal care in AHC and SC SR, Cambodia from 2012-2013 (May .2016) UHS.PP Cambodia.
15	1. Undergraduate, Faculty of Medicine, Pharmacy and Dentistry, Phnom Penh, Cambodia 2. Diploma in Child Health by Children's Hospital, Westmead & Sydney University, Australia (1 year).	Chief of Pediatric/neonatal Unit, Battambang Provincial Hospital	19 years of working experience in pediatric/neonatal unit at Battambang Referral Hospital
16	1. Undergraduate, Faculty of Medicine, Pharmacy and Dentistry, Phnom Penh, Cambodia 2. Pediatric residency (3 years) 3. Pediatric fellow (1 year) 4. Hospital management training course (1 year) 5. Neonatal training in Viet Nam (2 weeks) 5. Diploma in Child Health by	1. Deputy Director, Kampong Cham Provincial Hospital, Cambodia 2. Chief of Pediatric/Neonatal Department, Deputy Director, Kampong Cham Provincial, Cambodia	24 years of working experience in pediatric/neonatal field of Kampong Cham Provincial Hospital.

N	Educational Background	Position	Work experience/ publications
	Children's Hospital, Westmead & Sydney University, Australia (1 year). 6. Perinatal and neonatal Health care training, OSAKA, Japan (4 weeks).		
17	1. PhD- University of Northern Colorado 2. Masters of Nursing in the Community- Washington State University 3. Bachelor of Science in Nursing- Oregon Health Science University	Clinical Assistant Professor and Undergraduate Program Director	1. Two week-experience volunteered in 2008 in Angkor Hospital for Children, Cambodia, teaching nurses in neonatal subject and observed nurses work with neonatal patients. 2. 2001- present- Oregon Health and Science University School of Nursing, Portland, Oregon- Clinical Assistant Professor- Undergraduate Faculty Specialty- Child, Adolescent, and Family Nursing. 3. 1990- 2002- Doernbecher

N	Educational Background	Position	Work experience/ publications
			Children's Hospital, University Hospitals Portland, Oregon- Staff RN- Doernbecher Neonatal Care Center 4. 1006- 2001- Vancouver School District, Vancouver, Washington School Nurse 5. 1993-1996- Southwest Washington Medical Center, Vancouver, Washington Staff RN- Family Birth Center 6. 1993-1994- Columbia River Mental Health, Vancouver, Washington Children's Program RN Publications. Nielsen, A. (in press). Concept-based Learning in Clinical

N	Educational Background	Position	Work experience/ publications
			Experiences: Bringing Theory to Clinical for Deep Learning. Journal of Nursing Education. Nielsen, A., Lasater, K., & Stock, M. (2016). A framework to support preceptors' evaluation and development of new nurses' clinical judgment. Nursing Education and Practice, 19, 84-90. Lasater K., Nielsen A. E., Stock M., Ostrogorsky T. L. (2015). Evaluating the clinical judgment of newly hIQRed staff nurses. Journal of Continuing Education in Nursing, 46(12), 563-571. doi: 10.3928/00220124-20151112-09. Ostrogorsky, T. L., Raber, A., Yoder, C.

N	Educational Background	Position	Work experience/ publications
			M., Nielsen, A. E., Lutz, K. F., & Wros, P. L. (2015). Becoming a Nurse: Role Formation among Accelerated Baccalaureate Students. Nurse Educator, 40, 1. Nielsen, A.E., Noone, J., Voss, H., & Mathews, L.R. (2013). Preparing nursing students for the future: An innovative approach to clinical education. Nurse Education in Practice, 13, 4, 301-309. Lasater, K., Upvall, M., Nielsen, A., Prak, M., & Ptachcinski, R. (2012). Global partnerships for professional development: A Cambodian exemplar. Journal of

N	Educational Background	Position	Work experience/ publications
			Professional Nursing, 28, 1, 62-68. Lasater, K. and Nielsen (2009). The Influence Concept Based Learnin Activities on Students' Clinical Judgment Development. Journal Nursing Education, 48, Nielsen, A. (2009). Cor Based Learning Activit Using the Clinical Judg Model As a Foundation Clinical Learning. Jour Nursing Education, 48, Lasater, K. and Nielsen (2009). Clinical judgm development through reflective journaling: Outcomes of using a reflective guide. Journa Nursing Education, 48, Nielsen, A., Stragnell, S., Jester, P. (2007) Guide for Reflection Using the Clinical Judgment Model. Journal of Nursing Education,46, 11,

N	Educational Background	Position	Work experience/ publications
			513-516. Book Chapters Nielsen, A. & Lasater, K. (2017) Clinical Judgment. In J. Giddens (Ed.), Concepts for Nursing Practice (pp. 365-374), 2nd Edition. St. Louis, Mo.: Elsevier. Nielsen, A. & Lasater, K. (2013). Clinical Judgment. In J. Giddens (Ed.), Concepts for Nursing Practice (pp. 365-374). St. Louis, Mo.: Elsevier. Gedaly-Duff, V., Nielsen, A., Heims, M. & Pate, M. (2009). Family child health nursing. In J. Kaakinen, Gedaly-Duff, D. Coehlo, and S. Hanson (Eds.) Family Health Care Nursing: Theory, Practice and

N	Educational Background	Position	Work experience/ publications
			Research, 4rd edition (Chapter 13). Philadelphia: F.A. Davis. Gedaly-Duff, V., Heims, M., Nielsen, A. (2006). Family child health nursing. In S. Hanson, V. Gedaly-Duff, and J. Kaakinen, (Eds.) Family Health Care Nursing: Theory, Practice and Research, 3rd edition (Chapter 11). F.A. Davis. AJN 2005 Book of the Year Award.
18	1. BSN University of Wisconsin-Madison, School of Nursing, Madison Wisconsin, USA 2. MS University of Arizona, College of Nursing, Tucson Arizona, USA 3. PhD University of Washington, School of Nursing, Seattle, Washington,	1. University of Pittsburgh, Acute/Tertiary Care Department: 1993-2002 Assistant Professor, 2002-2009 Associate Professor 2009-present Full Professor	1. Nurse anesthetist 2 weeks to 1 month each year since 2006 at Angkor Hospital for Children, Cambodia. Last clinical rotation at AHC, March of 2016. Next clinical rotation at AHC, October of

N	Educational Background	Position	Work experience/ publications
	USA 4. MSN University of Pittsburgh, School of Nursing, Pittsburgh, Pennsylvania, USA	2. 1999 Acting Department chair 2002-2010 Vice Department Chair 2010-2012 Interim Department Chair 3. UPMC Presbyterian Nurse Anesthetist, Pittsburgh, Pennsylvania, USA	2016. Providing care as a nurse anesthetist for children 1 day to 16 years old. 2. Nurse anesthetist at UPMC Presbyterian Hospital. Providing care as a nurse anesthetist for 1 or 2 days a week. 3. Faculty at the University of Pittsburgh since 1993. **Research:** genomics, pain and thermoregulation **Teaching:** pathophysiology, research and preoperative evaluation. Expertise with simulation teaching methods. **Service:** Health Volunteers Overseas Board member, Member of the American Academy of Nursing, American

N	Educational Background	Position	Work experience/ publications
			Nurses Association Committee on Nursing Practice Standards. **Publications:** refers to CV.
19	1. Master degree in nursing science 2. Family Nurse practitioner	Family Nurse Practitioner, working with family practice, HIV, TB, Hepatitis C, Prenatal care and refugee care.	1. Six month-experience working at Angkor Hospital for Children, Cambodia in 2001. 2. 15 years of working experience in Family Medicine Residency of Idaho, United States: working with pediatric and neonatal patients.

APPENDIX B

Experts' Invitation and Questionnaires

No. 0816 / 2016

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

October 10, 2016

Dear Mr. Ping Lomorng (Nursing Team Leader of Angkor Hospital for Children)

This is to inform you that Mrs. Manila Prak is our student in a Master of Nursing Science Program, Faculty of Nursing, Chulalongkorn University. She has been approved for conducting the thesis "NEONATAL NURSING STANDARDS OF PRACTICE FOR CAMBODIAN PEDIATRIC NURSES" under supervision of Assistant Professor Suvinee Wivatvanit Ph.D., Recognizing the expertise and experience of you in pediatric nurses, it gives me a great pleasure to be an expert providing information on neonatal nursing standards of practice for Mrs. Manila Prak.

Your kindly support is highly appreciated.

Sincerely yours,

Jiraporn K. Wattana

(Jiraporn Kespichayawattana, Ph.D.)
Associate Professor and Acting Dean

Instruction how to complete Delphi round 1

Title of the study: Neonatal nursing standards of practice for Cambodian pediatric nurses

Part 1: Please fill in the demographic data. Your demographic data are very important for this study.

Part 2: Please answer the questions in each item. There is a component of neonatal nursing standards of practice for pediatric nurses in each item. Key words in each component are displayed as guidance for completion. Please describe each component based on your knowledge, skills and experiences and how you perceive the importance of neonatal nursing standards of practice.

Please list it in details for each component. Your responses for this round will be built up for the creation of round 2 questionnaire.

Thank you,

Code number……

Questionnaire Round 1

(Structured Interview Questions)

Title of the study: Neonatal nursing standards of practice for Cambodian pediatric nurses

Part 1: Demographic data

1. Gender: Male ☐ Female ☐
2. Age……. Years
3. Workplace……
4. Work experience: ……..Years
5. Position:
   - ☐ Nursing Director
   - ☐ Head Nurse
   - ☐ Nursing Educator
   - ☐ Senior Nurse
   - ☐ Physician
6. Working period for this current position……Years
7. Highest Academic Degree:
   - ☐ ADN *(Associate Degree in Nursing)*
   - ☐ BSN *(Bachelor of Science in Nursing)*
   - ☐ MSN *(Master Degree in Nursing Science)*
   - ☐ Medical Doctor/Neonatal Specialist

8. Highest Academic Rank:

   - ☐ Assistant Professor
   - ☐ Associate Professor
   - ☐ Professor
   - ☐ *Others (please specify:* …….)

9. Duration of training in neonatal field:
   - ☐ < 4 months
   - ☐ 4 months
   - ☐ 6 months
   - ☐ > 6 months
10. Please describe your experience in neonatal field

……

Part 2: Expert opinion round 1

You are encouraged to add specific details

1. What components should be included regarding ASSESSMENT in Neonatal Nursing Standards of Practice for Pediatric Nurses in Cambodia?

   ……

   ……

   ……

   ……

2. What components should be included regarding DIAGNOSIS in Neonatal Nursing Standards of Practice for Pediatric Nurses in Cambodia?

   ……

   ……

   ……

   ……

   What components should be included regarding PLANNING in Neonatal Nursing Standards of Practice for pediatric nurses in Cambodia?

   ……

   ……

   ……

   ……

   What components should be included regarding IMPLEMENTATION of Neonatal Nursing Standards of Practice for Pediatric Nurses in Cambodia?

   ……

   ……

   ……

   ……

   What components should be included regarding EVALUATION in Neonatal Nursing Standards of Practice for Pediatric Nurses in Cambodia?

   ……

   ……

   ……

   ……

What components should be included in regarding ETHICS in Neonatal Nursing Standards of Practice for Pediatric Nurses in Cambodia?

……

……

……

……

What components should be included regarding EVIDENCE-BASED PRACTICE AND RESEARCH in Neonatal Nursing Standards of Practice for Pediatric Nurses in Cambodia?

……

……

……

……

Please add more standards you think are important besides the 7 standards mentioned above. You are also encouraged to add specific details

……

……

……

……....

Instruction how to complete Delphi round 2

Title of the study: Neonatal nursing standards of practice for Cambodian pediatric nurses

Delphi round 2 lists all the responses from panel members in round 1. The content analysis has been used to ensure the questionnaire is not repetitive and easily completed. The meaning of the responses has not changed.

There is a scale beside each item. The scale is ranged from 1 to 5. Please tick (√) in the box which you feel best describes each item. These numbers correspond to a response as below:

1. Very important
2. Important
3. Somewhat important
4. Neutral/no opinion
5. Unimportant

Please return your completed questionnaire to the researcher via email pmanila@angkorhospital.org with by the return date.

Thank you,

Code number……

The Example of Questionnaire Round 2

Title of the study: Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses

This questionnaire comprises of 10 standards, 14 components, 120 items and 87 sub-items as follows:

A. Assessment consists of 4 components, 31 items and 60 sub-items
B. Nursing Diagnosis consists of 2 components and 20 items
C. Planning consists of 2 items
D. Implementation consists of 8 components, 46 items and 20 sub-items
E. Evaluation consists of 8 items
F. Ethics consists of 2 items
G. Evidence-Based Practice and Research consists of 5 items
H. Health Teaching and Health Promotion consist of 2 items, 7 sub-components
I. Continuing Education and consists of 3 items
J. Communication consists of 1 items

Please tick (√) the box below which you feel best describes how important each item is. The numbers correspond to a response as below:

5. Very important
4. Important
3. Somewhat important
2. Neutral/no opinion
1. Unimportant

Item	**Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses**	**Level of importance**				
		5	**4**	**3**	**2**	**1**
A	**Assessment (4 components; 31 items; 60 sub-items)**					
1	**Physical Assessment (16 items; 60 sub-items)**					
1)	Chief complaints: The most significant/serious symptoms/signs of illness/ dysfunction that causing neonate to the hospital					
2)	Check Temperature, Airway, Breathing and Circulation (TABC)					
3)	Assess growth status by measure (3 sub-items)					
	(1) Weight in gram					
	(2) Length					
	(3) Head circumference					
4)	Evaluate neonate's general appearance (4 sub-items)					
	(1) Level of consciousness: state of alertness					
	(2) Skin color: integrity and perfusion					

Item	Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses	Level of importance				
		5	4	3	2	1
	(3) Activity: range of spontaneous movement					
	(4) Postures: muscle tone					
5)	Obtains the maternal history (4 sub-items)					
	(1) Apgar score at birth					
	(2) Gestational age					
	(3) Mode of delivery					
	(4) Medications used and feeding provided					
6)	Assess skin integrity, muscle and skeleton (4 sub-items)					
	(1) Skin color					
	(2) Skin condition: rashes, pustule, peeling, plethora, dry, erythema, infected, edema and injury					
	(3) Muscle tone: spontaneous movement					
	(4) Jaundice					
7)	Check head, face and neck (6 sub-items)					
	(1) Head: shape, size, Scalp					
	(2) Fontanelles: sutures					
	(3) Eyes: size, position structure					
	(4) Nose: position structure					
	(5) Ear: position structure					
	(6) Mouth: palate, teeth, gums, tongue, frenulum, jaw size.					
8)	Check shoulders, arms and legs (4 sub-items)					
	(1) Length					
	(2) Proportions					
	(3) Symmetry					
	(4) Structure: number of digits					
9)	Assess chest and respiratory system (1 sub-items)					
	(1) Chest: size, shape, symmetry, movement, breast tissue, and nipples					

Cover Letter of Delphi round 3

Title of the study: Neonatal nursing standards of practice for Cambodian pediatric nurses

Dear ……..

Thank you for completing Delphi round 2 questionnaire. Please find the enclosed round 3 questionnaire including items that have not reached consensus on their importance. This doesn't mean that they are the most important standards, but they have not reached consensus at an early stage.

The instruction sheet is also enclosed here with round 3 questionnaire. This questionnaire is constructed differently from round 1 and round 2. The instruction sheet will guide you through this process. Please read it thoroughly.

I would be very grateful if you could return the questionnaire via email pmanila@angkorhospital.org and please also address your return date. Please feel free to contact the researcher if you have any questions about the study.

Thank you so much for your continuing participated in this study.

Kind regards,

Manila Prak,
Graduate student of nursing administration,
Faculty of nursing, Chulalongkorn University, Bangkok, Thailand

Instruction how to complete Delphi round 3

Title of the study: Neonatal nursing standards of practice for Cambodian pediatric nurses

Delphi round 3 includes the items that have not reached consensus from experts on their importance. You will see three columns beside each statement.

Colum 1 shows your own individual response to the items. This will appear as a number which corresponds to the same scale as in round 2 and is outline below. Column 2 shows the group response to items. This will be showed by median.

1. Very important
2. Important
3. Somewhat important
4. Neutral/no opinion
5. Unimportant

Column three is a 5-Likert scale and is provided as an opportunity for you to reconsider your response since round 2. It is very appreciated if you would consider your original response in the context of the group response to each item and if you wish to change your response please tick (√) in the appropriate box beside each item. Please note that you do not need to change your original response if you do not wish to.

Please return your completed questionnaire to the researcher via email pmanila@angkorhospital.org including the return date.

Thank you,

Code number……

The Example of Questionnaire Round 3

Title of the study: Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses

This questionnaire comprises of 10 standards, 14 components, 108 items and 74 sub-items.

Please reconsider your response in the context of feedback provided. If you wish to change your response, please tick (√) the box. The numbers correspond to a response as below:

6. Very important
5. Important
4. Somewhat important
   (1) Neutral/no opinion
2. Unimportant

The symbols correspond to the meaning as below:

X Your own response in round 2

△ Overall group response in round 2 (19 experts)

↔ The range between quartiles (IQR) with the opinion of all 19 experts

Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses		**Level of Importance**					**Overall group response**	
		5	4	3	2	1	Mdn	IQR
A	**Assessment (4 components; 21 items; 48 sub-items)**							
1	**Physical Assessment (13 items; 48 sub-items)**	X ↔ △					5	0
1)	Chief complaints: The most significant/serious symptoms/signs of illness that causing neonate to the hospital	X △ ↔					5	1
2)	Check Temperature, Airway, Breathing and Circulation (TABC)	X ↔ △					5	0
3)	Assess growth status by measure (3 sub-items)	△ ↔	X				5	1
	(1) Weight in gram	△ ↔	X				5	1
	(2) Length	△ ↔	X				5	1

Items of Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses		Level of Importance					Overall group response	
		5	4	3	2	1	Mdn	IQR
	(3) Head circumference		X				5	1
4)	Evaluate neonate's general appearance (4 sub-items)		X				5	0
	(1) Level of consciousness: state of alertness	X					5	0
	(2) Skin color: integrity and perfusion	X					5	0
	(3) Activity: range of spontaneous movement		X				5	0
	(4) Postures: muscle tone		X				5	0
5)	Obtains the maternal history (4 sub-items)		X				5	1
	(1) Apgar score at birth		X				5	0
	(2) Gestational age		X				5	1
	(3) Mode of delivery		X				5	1
	(4) Medications used and feeding provided		X				5	1
6)	Assess skin integrity, muscle and skeleton (3 sub-items)		X				5	1
	(1) Skin color		X				5	1
	(2) Skin condition: rashes, pustule, peeling, plethora, dry, erythema, infected, edema and injury		X				5	1
	(3) Muscle tone: spontaneous movement			X			5	1

APPENDIX C
Ethical Approval

AF 02-12

The Research Ethics Review Committee for Research Involving Human Research Participants, Health Sciences Group, Chulalongkorn University
Jamjuree 1 Building, 2nd Floor, Phyathai Rd., Patumwan district, Bangkok 10330, Thailand,
Tel/Fax: 0-2218-3202 E-mail: eccu@chula.ac.th

COA No. 143/2016

Certificate of Approval

Study Title No. 100.1/59 : NEONATAL NURSING STANDARDS OF PRACTICE FOR CAMBODIAN PEDIATRIC NURSES

Principal Investigator : MRS. MANILA PRAK

Place of Proposed Study/Institution : Faculty of Nursing, Chulalongkorn University

The Research Ethics Review Committee for Research Involving Human Research Participants, Health Sciences Group, Chulalongkorn University, Thailand, has approved constituted in accordance with the International Conference on Harmonization – Good Clinical Practice (ICH-GCP).

Signature: Prida Tasanapradit ... Signature: Nuntaree Chaichanawongsaroj ...

(Associate Professor Prida Tasanapradit, M.D.) Chairman

(Assistant Professor Nuntaree Chaichanawongsaroj, Ph.D.) Secretary

Date of Approval : 10 August 2016 Approval Expire date : 9 August 2017

Protocol No. 100.1/59
Date of Approval 10 AUG 2016
Approval Expire Date 9 AUG 2017

The approval documents including

1) Research proposal
2) Patient/Participant Information Sheet and Informed Consent Form
3) Researcher

The approved investigator must comply with the following conditions:

1. *The research/project activities must end on the approval expired date of the Research Ethics Review Committee for Research Involving Human Research Participants, Health Sciences Group, Chulalongkorn University (RECCU). In case the research/project is unable to complete within that date, the project extension can be applied one month prior to the RECCU approval expired date.*
2. *Strictly conduct the research/project activities as written in the proposal.*
3. *Using only the documents that bearing the RECCU's seal of approval with the subjects/volunteers (including subject information sheet, consent form, invitation letter for project/research participation (if available).*
4. *Report to the RECCU for any serious adverse events within 5 working days*
5. *Report to the RECCU for any change of the research/project activities prior to conduct the activities.*
6. *Final report (AF 03-12) and abstract is required for a one year (or less) research/project and report within 30 days after the completion of the research/project. For thesis, abstract is required and report within 30 days after the completion of the research/project.*
7. *Annual progress report is needed for a two- year (or more) research/project and submit the progress report before the expire date of certificate. After the completion of the research/project processes as No. 6.*

APPENDIX D

Round 2 Data Analysis

	Items	Frequency Counting					Mdn	IQR	C %
		5	4	3	2	1			
A	**Assessment (4 components; 31 items; 60 sub-items)**								100
1	**Physical Assessment (16 items; 60 sub-items)**	17	2				5	0	100
1)	Chief complaints: The most significant/serious symptoms/signs of illness/ dysfunction that causing neonate to the hospital	13	6				5	1	100
2)	Check Temperature, Airway, Breathing and Circulation (TABC)	18	1				5	0	100
3)	Assess growth status by measure (3 sub-items)	13	6				5	1	100
	(1) Weight in gram	14	5				5	1	
	(2) Length	13	6				5	1	100
	(3) Head circumference	13	5	1			5	1	100
4)	Evaluate neonate's general appearance (4 sub-items)	16	3				5	0	100
	(1) Level of consciousness: state of alertness	17	2				5	0	100
	(2) Skin color: integrity and perfusion	15	4				5	0	94.72
	(3) Activity: range of spontaneous movement	15	3	1			5	0	100
	(4) Postures: muscle tone	15	4				5	0	100
5)	Obtains the maternal history (4 sub-items)	13	6				5	1	100
	(1) Apgar score at birth	15	4				5	0	100
	(2) Gestational age	14	5				5	1	100
	(3) Mode of delivery	12	7				5	1	94.72
	(4) Medications used and feeding provided	11	7	1			5	1	94.72
6)	Assess skin integrity, muscle and skeleton (4 sub-items)	12	6	1			5	1	100
	(1) Skin color	13	6				5	1	94.72
	(2) Skin condition: rashes, pustule, peeling, plethora, dry, erythema, infected, edema and injury	10	8	1			5	1	94.72
	(3) Muscle tone: spontaneous movement	12	6	1			5	1	94.72
	(4) Jaundice	14	4	1			5	1	84.21

	Items	Frequency Counting					Mdn	IQR	C %
		5	4	3	2	1			
7)	Check head, face and neck (6 sub-items)	9	7	3			4	1	84.21
	(1) Head: shape, size, Scalp	8	8	3			4	1	89.47
	(2) Fontanel: sutures	10	7	2			5	1	84.21
	(3) Eyes: size, position structure	6	10	3			4	1	78.94
	(4) Nose: position structure	6	9	4			4	1	73.68
	(5) Ear: position structure	6	8	5			4	2	78.94
	(6) Mouth: palate, teeth, gums, tongue, frenulum, jaw size.	7	8	4			4	1	68.42
8)	Check shoulders, arms and legs (4 sub-items)	5	8	6			4	2	63.15
	(1) Length	5	7	7			4	2	57.89
	(2) Proportions	5	6	8			4	2	63.15
	(3) Symmetry	5	7	7			4	2	63.15
	(4) Structure: number of digits	6	6	7			4	2	94.72
9)	Assess chest and respiratory system (2 sub-items)	16	2	1			5	0	89.47
	(1) Chest: size, shape, symmetry, movement, breast tissue, and nipples	12	5	2			5	1	100
	(2) Respiratory system: lung sounds, signs of respiratory distress, breathing pattern, oxygen needs, level of FiO2 and SpO2 and chest retraction.	17	2				5	0	100
10)	Assess cardiovascular system (4 sub-items)	14	5				5	1	100
	(1) Heart rate/sounds	15	4				5	0	94.72
	(2) Pulse/femoral pulse and rhythm	14	4	1			5	1	89.47
	(3) Shun syndrome	8	8	3			4	1	78.94
	(4) Blood vessels	8	7	2	1	1	4	1	89.47
11)	Assess abdomen and gastrointestinal system (5 sub-items)	10	7	2			5	1	84.21
	(1) Abdomen: size, shape, symmetry, palpate live, spleen, kidney	8	8	3			4	1	94.72

	Items	Frequency Counting					Mdn	IQR	C %
		5	4	3	2	1			
	(2) Abdominal condition: soft, firm , redness, mass, lobe visible	9	8	2			4	1	89.47
	(3) Umbilicus: bleeding, discharge, detached, smell	11	7	1			5	1	89.47
	(4) Breast feeding/feeding frequency: sucking	11	7	1			5	1	100
	(5) Bowel movement: meconium or stool condition/color, vomiting, nausea.	10	9				5	1	84.21
12)	Assess genitourinary (3 sub-items)	8	8	3			4	1	84.21
	(1) Abnormality: open passage for urine and stool, any discharge	10	6	3			5	1	73.68
	(2) Urine: amount and color of urine	8	6	5			4	2	68.42
	(3) Anal position/imperforate, stool	9	4	2			4	1	68.42
13)	Assess hips, legs and feet (2 sub-items)	6	7	6			4	2	63.15
	(1) Test Ortolani and Barlow's maneuvers	8	4	6	1		4	2	68.42
	(2) Measure leg length, proportions, symmetry and digits.	8	5	6			4	2	73.68
14)	Assessment the back of neonate carefully (4 sub-items)	9	5	5			4	2	73.68
	(1) Backbones	9	5	5			4	2	73.68
	(2) Spinal defect	9	5	5			4	2	68.42
	(3) Symmetry of scapulae	6	7	6			4	2	68.42
	(4) Buttocks	6	7	6			4	2	100
15)	Assess neurological status of neonate (4 sub-items)	12	7				5	1	84.21
	(1) Behavior	12	4	2	1		5	1	100
	(2) Irritable crying	15	4				5	0	100
	(3) Posture: muscle tone, spontaneous movement	13	6				5	1	100
	(4) Reflexes, primitive/five reflexes/red reflex, Erb's palsy, seizure	12	7				5	1	100
16)	Other assessment	11	8				5	1	
	Neonatal status (8 sub-items)								94.72

	Items	Frequency Counting					Mdn	IQR	C %
		5	4	3	2	1			
	(1) IV site: redness, swelling, edema, clean, duration of IV insertion	13	5	1			5	1	100
	(2) Fluid management: cc/kg/day, electrolyte management: mg /kg/day	14	5				5	1	94.72
	(3) Blood sugar level	15	3	1			5	0	100
	(4) Intakes and output	15	4				5	0	100
	(5) Breast feeding frequency and effectiveness	12	7				5	1	100
	(6) Vaccination status	11	7	1			5	1	94.72
	(7) Development of neonate	9	9	1			4	1	100
	(8) Incubator and room temperature	12	7				5	1	
	Maternal status (3 sub-items)								89.47
	(1) Body weight, and condition of the mother before and after delivery	9	8	2			4	1	100
	(2) Nutrition, breasts/express breast milk and colostrum	10	9				5	1	100
	(3) Drug used, alcohol use and coping post-partum	12	7				5	1	84.21
2	**Psychological Assessment (3 items)**	6	10	3			4	1	84.21
1)	Assess mood of mother/caregiver to identify anxiety/worries/scary/depress	6	10	3			4	1	84.21
2)	Observe face expression of mother/caregiver to identify mood/feeling	5	11	3			4	1	89.47
3)	Ask about perception and belief of neonatal sickness or issue at home	6	11	2			4	1	63.15
3	**Cultural/Spiritual Assessment (4 items)**	6	6	6	1		4	2	
	Collecting data about cultural and spiritual aspects:								47.36
1)	Ask about the religion and life's habit of neonate's family	6	3	10			3	2	63.15
2)	Identifies the barriers about cultural/spiritual from the neonate's family	6	6	6	1		4	2	
	Assess traditional signs on the neonate:								63.15

	Items	Frequency Counting					Mdn	IQR	C %
		5	4	3	2	1			
3)	Observe mark on face or neonate's body	5	7	4	3		4	2	57.89
4)	Is there anything that the neonate is wearing around neck or wrist	4	7	5	2	1	4	1	68.42
4	**Social-economic and family assessment (8 items)**	5	8	6			4	2	63.15
1)	Assess family values, needs, cohesion/support, understanding of the situation, and care preferences	7	4	8			4	2	63.15
2)	Assess family relationships, interactions and their impact on the neonate	5	7	6		1	4	2	78.94
3)	Recognizes role of the parents in decision making about their neonate's health care	7	8	4			4	1	52.63
4)	Identifies barriers of financial status by asking about their incomes	5	5	9			4	2	73.68
5)	Assess whether the family enable to taking care of financial issue about health problem	4	10	4	1		4	1	
	Assess how family provide care to neonate:								78.94
6)	Is there any neglecting issue of the young mothers from their family?	5	10	3	1		4	1	89.47
7)	Is the mother know how to taking care of her baby?	10	7	2			5	1	68.42
8)	How far the home is, where did the mother deliver baby?	8	5	6			4	2	
B	**Nursing Diagnosis (2 components; 20 items)**								
	Synthesizes by using current assessment data of physical, psychological, cultural/spiritual wellbeing and social-economic of neonate and family to develop nursing diagnosis. The comment uses of nursing diagnosis list for newborn baby is added below.								100
1	**Actual nursing diagnosis (15 items)**	16	3				5	0	100
1)	Hypothermia	18	1				5	0	100
2)	Hyperthermia	15	4				5	0	94.72

	Items	Frequency Counting					Mdn	IQR	C
		5	4	3	2	1			%
3)	Ineffective thermoregulation	15	3	1			5	0	100
4)	Airway obstruction	17	2				5	0	100
5)	ImpaIQRed gas exchange	15	4				5	0	100
6)	Ineffective breathing pattern	17	2				5	0	100
7)	Asphyxia	16	3				5	0	100
8)	Pain	12	7				5	1	100
9)	Umbilical cord infection	14	5				5	1	100
10)	Necrotizing Enterocolitis	16	3				5	0	100
11)	Neonatal Jaundice	14	5				5	1	94.72
12)	Premature/low birth weight infant	14	4	1			5	1	94.72
13)	Ineffective feeding	12	6	1			5	1	94.72
14)	Ineffective breastfeeding	12	6	1			5	1	89.47
15)	Interrupt breastfeeding	8	9	2			4	1	89.47
2	**Risk for Nursing Diagnosis (5 items)**	12	5	2			5	1	94.72
1)	Risk for aspIQRation	11	7	1			5	1	89.47
2)	Risk for infection	13	4	2			5	1	89.47
3)	Risk for body temperature alteration	14	3	2			5	1	84.21
4)	Risk for alter nutrition	12	4	3			5	1	94.72
5)	Risk for fluid volume deficit	11	7	1			5	1	
C	**Planning (2 items)**								
	The nurse develops initial, ongoing and discharge planning in partnership with the family and other healthcare providers for each neonatal patient in prevention of illness, injury and diseases base on the economic impact of the family.								100
1)	Set safety goals for neonate to overcome actual and risk for nursing diagnosis from admission to discharge	11	8				5	1	94.72
2)	Provide nursing interventions to fit with actual and risk for nursing diagnosis.	15	3	1			5	0	
D	**Implementation (8 components; 46 items; 21 sub-items)**								
	Implement nursing care individualized to infant and family in a timeframe, safe, and consistent with the goals. Below are the samples of nursing interventions with the goals, according to nursing diagnosis								89.47

	Items	Frequency Counting					Mdn	IQR	C %
		5	4	3	2	1			
1	**Nursing Intervention for Ineffective Thermoregulation (3 items; 21 sub-items)** Goal: The stability of the baby's body temperature can be maintained	11	6	2			5	1	89.47
1)	Reduce or eliminate the sources of heat loss in infants (7 sub-items)	13	4	2			5	1	
	Evaporation								89.47
	(1) When a shower, prepare a warm envIQRonment	14	3	2			5	1	89.47
	(2) Wash and dry each section to reduce evaporation	10	7	2			5	1	89.47
	(3) Limit the time of contact with clothing or a wet blanket	13	4	2			5	1	
	Convection								94.72
	(4) Avoid the flow of aIQR (aIQR conditioning, ceiling fan)	9	9	1			4	1	
	Conduction								84.21
	(5) Warm all the goods for care such as stethoscope, scales, hand care givers, clothes, bed linen	10	6	2		1	5	1	
	Radiation								84.21
	(6) Reduce the objects that absorb heat (metal)	9	7	2	1		4	1	68.42
	(7) Place the baby swing bed away from the wall (outside) or window	7	6	4	2		4	2	100
2)	Monitor the baby's body temperature (9 sub-items)	13	6				5	1	
	If the temperature is below normal (5 sub-items)								94.72
	(1) Use with two blankets	9	9	1			4	1	94.72
	(2) Wear headgear	11	7	1			5	1	100
	(3) Assess the environment sources for heat loss	12	7				5	1	100
	(4) If hypothermia settled more than 1 hour, refer to physician.	12	7				5	1	100

	Items	Frequency Counting					Mdn	IQR	C %
		5	4	3	2	1			
	(5) Review the complications of cold stress, hypoxia, respiratory acidosis, hypoglycemia, fluid/electrolyte imbalance and weight loss	14	5				5	1	
	If the temperature is above normal (4 sub-items)								94.72
	(1) Remove the blanket	9	8	1		1	4	1	78.94
	(2) Remove the headgear, when worn	8	7	3		1	4	1	94.72
	(3) Assess the environment temperature again	9	9	1			4	1	89.47
	(4) If the temperature not reduce to normal more than 1 hour, report to the physician	12	5	2			5	1	89.47
3)	Teach caregivers why neonate are vulnerable to temperature (4 sub-items)	13	4	1	1		5	1	100
	(1) Demonstrate how to save heat during the bath	13	6				5	1	84.21
	(2) Teach to measure the temperature if the neonate is hot, sore, or sensitive excitatory.	9	7	2	1		4	1	94.72
	(3) Teach the caregiver why neonate are vulnerable to heat and cold weather	14	4		1		5	1	94.72
	(4) Refer to the hypothermia and hyperthermia for prevention	13	5		1		5	1	100
2	**Nursing Interventions for neonate with Airway and Respiratory Problems (5 items)** Goal: Neonate will maintain free of symptoms of respiratory distress. Breathing does not use nasal flaring, intercostal retractions, no cyanosis and warm extremities. The respiratory rate and oxygen saturation levels with are in normal range.	15	4				5	0	84.21
1)	Place neonate in semi-follower/comfortable position	11	5	2	1		5	1	100

	Items	Frequency Counting					Mdn	IQR	C %
		5	4	3	2	1			
2)	Maintain free airway	17	2				5	0	100
3)	Provides oxygen per prescription	14	5				5	1	100
4)	Monitor dyspnea, tachypnea, breath sounds, increased respiratory effort, lung expansion, and weakness	17	2				5	0	100
5)	Evaluate the changes of level of consciousness, cyanosis, skin color, mucous membranes and nails.	19					5	0	94.72
3	**Nursing Interventions for neonate with Infection (7 items)** Goal: The symptoms of infection decrease over time and the neonate will remain free from infection	10	8	1			5	1	94.72
1)	Keep neonate in isolation room	11	7		1		5	1	100
2)	Monitor vital signs every 2 hours and record, notify the physician if vital signs are abnormal	11	8				5	1	89.47
3)	Maintain a good temperature for an incubator and room	12	5	2			5	1	100
4)	Wash hands every time before and after touching the neonate	18	1				5	0	94.72
5)	Make sure the caregivers wash hands every time before touching/holding the neonate	17	1	1			5	0	89.47
6)	Let the neonate rest, avoid holding if unnecessary	9	8	2			4	1	100
7)	Administer antibiotics per prescription	13	6				5	1	94.72
4	**Nursing Interventions for impaIQRed skin integrity (5 items)** Goal: The integrity of the baby's skin can be maintained	8	10	1			4	1	100
1)	Assess skin color every 8 hours	9	10				4	1	78.94
2)	Monitor direct and indirect bilIQRubin	11	4	3	1		5	1	84.21
3)	Change position every 2 hours	8	8	1	1	1	4	1	84.21
4)	Massage the skin	7	9	1	1	1	4	1	84.21
5)	Keep clean skin and moisture	10	6	3			5	1	100
5	**Fluid volume deficit (5 items)** Goal: Adequate neonatal body fluid	16	3				5	0	89.47

	Items	Frequency Counting					Mdn	IQR	C %
		5	4	3	2	1			
1)	Monitor signs of dehydration such as skin turgor, fontanel and eye's condition	16	1	1	1		5	0	100
2)	Monitor intake output	16	3				5	0	100
3)	Record the frequency and amount of urine and stools	13	6				5	1	100
4)	Monitor fluid and electrolytes balance	13	6				5	1	100
5)	Explain the mother to breastfed often	14	5				5	1	100
6	**Nursing Interventions for Interrupted Breastfeeding (7 items)** Goal: The mother will demonstrate techniques to sustain lactation until breastfeeding is began	12	7				5	1	100
1)	Assess mother's perception and knowledge about breastfeeding	13	6				5	1	100
2)	Give emotional support to mother and accept decision regarding cessation/ continuation of breast feeding	8	11				4	1	78.94
3)	Demonstrate use of manual breast pump	8	7	4			4	1	89.47
4)	Explain techniques for storage/use of expressed breast milk	11	6	2			5	1	94.72
5)	Provide privacy, calm surroundings when mother breast feeds	8	10	1			4	1	100
6)	Recommend for infant sucking on a regular basis	12	7				5	1	100
7)	Encourage mother to obtain adequate rest, maintain fluid and nutritional intake, and schedule breast pumping every 3 hours while awake	9	10				4	1	94.72
7	**Nursing Interventions: Risk for Altered Nutrition (5 items)** Goal: Neonate will consumes adequate breastmilk	11	7	1			5	1	94.72
1)	Weight the neonate in gram daily, then documented in infant growth charts	16	2	1			5	0	89.47

	Items	Frequency Counting					Mdn	IQR	C %
		5	4	3	2	1			
2)	Assess maturity reflex, with regard to feeding such as sucking, swallowing and cough	11	6	2			5	1	84.21
3)	Monitor input and output and calculate consumption of calories and electrolytes daily	11	5	3			5	1	89.47
4)	Assess level of hydration, note fontanel, skin turgor, urine specific gravity, condition of mucous membranes and weight fluctuations	12	5	2			5	1	94.72
5)	Assess for signs of poor feeding, nervous, crying high tone, trembling, eyes upside down, and seizure activity	13	5	1			5	1	94.72
8	**Nursing Interventions for Pain (9 items)** Goal: Neonate displays improvement mood	7	11	1			4	1	100
1)	Encourage mother to provide breastfeeding as appropriate	14	5				5	1	94.72
2)	Repositioning, swaddling and nesting	10	8			1	5	1	89.47
3)	Facilitated tucking and containment holding	9	8	2			4	1	84.21
4)	Decreasing environment sensors (noise/ light)	8	8	2		1	4	1	63.15
5)	Talking to neonate	6	6	7			4	2	78.94
6)	Change nappy as needed	6	9	4			4	1	52.63
7)	Non nutrition sucking	4	6	4	5		4	2	63.15
8)	Allowing neonate to grasp a finger	4	8	5	2		4	1	89.47
9)	Kangaroo care	12	5	2			5	1	
E	**Evaluation (9 items)**								
	Evaluate neonate's condition and the effectiveness of nursing care based on goals and outcome identification.								100
1)	The neonate requIQRing intervention is promptly identified and is started early.	15	4				5	0	94.72
2)	The neonate's metabolic and physiologic processes are stabilized, and recovery is proceeding without complications.	14	4	1			5	1	100

	Items	Frequency Counting					Mdn	IQR	C %
		5	4	3	2	1			
4)	Infant maintains temperature at 36.5°C to 37°C	16	3				5	0	100
5)	Neonate maintains a respiratory rate of 30 to 60 breaths per minute without evidence of signs of respiratory distress	15	4				5	0	100
6)	Neonate will exhibit no signs of infection	13	6				5	1	100
7)	Fluid volume will be maintained: Oral mucosa moist and pink, skin turgor elastic, urine output at least 1 to 2 mL/kg/hr.	15	4				5	0	100
8)	Neonate will maintain adequate nutritional intake: Weight gain or maintenance occurs. Neonate consumes adequate diet for age.	11	8				5	1	94.72
9)	The neonate will be in comfort and free from pain	12	6	1			5	1	
F	**Ethics (2 items)**								
	The nurse uses the Cambodian Code of Ethics for nurses provide care in a manner that preserves patient and family autonomy, dignity, rights, values, and beliefs with consideration for cultural values.								100
1)	Advocate for equitable to health care consumer	9	10				4	1	100
2)	Provide care follow guidelines/protocols so that the care nurse provides are safe for neonate	16	3				5	0	
G	**Evidence-Based Practice and Research (5 items)**								89.47
1)	Develop knowledge from routine jobs towards research work that would apply to nursing practice	13	4	2			5	1	100
2)	Introduce the important research finding and evidence-based practice to other nurses	15	4				5	0	94.72
3)	Utilizes evidence based practice and research finding to guide practice	17	1	1			5	0	89.47
4)	Participate in nursing research according to educational level and role	14	3	1	1		5	1	89.47

	Items	Frequency Counting					Mdn	IQR	C %
		5	4	3	2	1			
5)	Integrates research findings into the development of guidelines and standards of care.	15	2	2			5	0	
H	**Health Teaching and Health Promotion (2 items; 7 sub-items)**								
	Provide health teaching appropriately to family using good communication skills and follow guideline of health teaching								100
1)	Explain to family about treatment and procedures and follow up	14	5				5	1	100
2)	Tech the parents about basic health information such as: (7 items)	14	5				5	1	100
	(1) Nutrition and breastfeeding	16	3				5	0	94.72
	(2) Reproductive health	9	9	1			4	1	100
	(3) Body hygiene for a neonate	15	4				5	0	100
	(4) Hand hygiene correctly	16	3				5	0	94.72
	(5) Prevent hypothermia	17	1	1			5	0	94.72
	(6) Recognize signs of sick newborns	17	1	1			5	0	100
	(7) Schedule of vaccination and immunization	13	6				5	1	
I	**Continuing Education (3 items)**								94.72
1)	Participate in nursing education as appropriate to the educational level and position.	9	9	1			4	1	100
2)	Participate in neonatal nursing training to update knowledge and competencies.	14	5				5	1	94.72
3)	Conduct-self-directed learning, reading text books, search internet	11	6	2			5	1	
J	**Communication (1 items)**								100
1)	Make effective communication with family members and other members of health care team.	12	7				5	1	

APPENDIX E
Analysis of Changes

Analysis of Changes

Code of expert	# of changes from R2 to R3	Change pattern (score)
1	85	4 to 5 = 72
		3 to 4 = 7
		5 to 4 = 5
		3 to 5 = 1
2	0	No Change
3	8	4 to 5 = 3
		3 to 5 = 2
		2 to 5 = 1
		3 to 4 = 1
		1 to 4 = 1
4	12	4 to 5 = 8
		3 to 4 = 3
		1 to 3 = 1
5	4	4 to 5 = 4
6	0	No Change
7	36	4 to 5 = 10
		3 to 4 = 22
		3 to 5 = 2
		2 to 4 = 1
		4 to 3 = 1
8	44	5 to 4 = 40
		4 to 5 = 4
9	22	4 to 5 = 21
		3 to 4 = 1
10	0	No Change
11	0	No Change
12	28	4 to 5 = 16
		3 to 5 = 12
13	50	4 to 5 = 28
		3 to 5 = 7
		3 to 4 = 6
		5 to 3 = 6
		5 to 4 = 1
		3 to 5 = 1
		2 to 3 = 1
14	54	4 to 5 = 38
		1 to 4 = 1
		3 to 5 = 6
		2 to 3 = 1
		5 to 4 = 2
		2 to 5 = 1
		1 to 5 = 1
		4 to 3 = 2
		5 to 3 = 1

Code of expert	# of changes from R2 to R3	Change pattern (score)
		1 to 4 = 1
15	116	4 to 5 = 88
		3 to 4 = 19
		3 to 5 = 8
		5 to 4 = 1
16	40	4 to 5 = 33
		3 to 5 = 5
		2 to 5 = 1
		3 to 4 = 1
17		
18	0	No Change
19	15	4 to 5 = 5
		3 to 5 = 6
		3 to 4 = 3
		2 to 5 = 1
20	0	No Change

There are 514 items changed:

Increasing

1-3: 1

1-4: 1

1-5: 1

2-3: 2

2-4: 1

2-5: 4

3-4: 64

3-5: 49

4-5: 330

Total: 455 items

Decreasing

4-3: 3

5-4: 49

5-3: 7

Total: 59 items

VITA

My name is Manila Prak. I was born in 1970 and I am Cambodian. I am a student in the Master Program of Nursing Science of the Faculty of Nursing, Chulalongkorn University, Bangkok, Thailand.

I received my Bachelor Degree in Nursing Science from Saint Louis College, Bangkok, Thailand. I worked in Siem Reap Health Center, responsible Maternal and Child Health Unit for 8 years. I am currently working at Angkor Hospital for Children as a 1) Consultant of the Community Project 2) as a member of the Board of Directors. My work at Angkor Hospital for Children enables me to work closely with the Cambodian Ministry of Health and Cambodian Council of Nurses specifically in field of Nursing Administration. In addition, I am an Advisor of the Cambodian Council of Nurses.

I have been studying Nursing Administration in Faculty of Nursing at Chulalongkorn University since 2014. Now I am developing my thesis about "Neonatal Nursing Standards of Practice for Cambodian Pediatric Nurses".