The development of neonatal nursing standards of practice for Cambodia: a Delphi study

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Abstract

Purpose – Cambodia has one of the highest death rates for children under five years of age in Southeast Asia. The high mortality rate of children under five years of age, especially the neonate is 35 per 1,000 for the period zero to four years. There are no neonatal nursing standards of practice to guide nurses providing neonatal nursing care. Some general guidelines are currently being implemented for both doctors and nurses. The Minister for Health officially launched the Cambodian Council of Nurses' Guideline for the Standard of Nursing Care in December 2015. In the absence of specific neonatal nursing standards of practice, the purpose of this paper is to develop the Neonatal Nursing Standard of Practice for Cambodia.

Design/methodology/approach – The Delphi technique was selected as being appropriate for this study. The snowball with purposive sampling was used. The identified experts were located across Cambodia so the e-Delphi approach was considered appropriate and applicable according to the study context. Four experts preferred to be interviewed face-to-face, while 16 experts were confident to use e-mail to respond to the questionnaire in Round 1. In total, 19 experts provided responses via e-mail to the Rounds 2 and 3 questionnaires.

Findings – A Standard for Neonatal Nursing Practice for Cambodia which consists of ten standards was found as a result of this study: assessment, nursing diagnosis, planning, implementation, evaluation, ethics, evidence-based practice and research, health teaching and health promotion, continuing education, and communication.

Originality/value – All items and sub-items achieved consensus as either being at the most significant level and therefore, could be key indicators for neonatal nursing standards of practice. The results of this study can be incorporated into a focused discussion led by the Nursing and Midwifery Bureau of the Ministry of Health to develop national standards of practice for neonatal nurses in Cambodia.

Keywords Cambodia, Neonatal nursing standards, Neonatal nurses

Paper type Research paper

Introduction

The development of setting quality standards is an essential activity for quality improvement and the first important step in the process of conducting quality assurance activities. A mechanism that can be implemented to ensure the quality of nursing care is to formulate appropriate professional standards[1]. However, Cambodia has no Standard for Neonatal Nursing Practice to guide pediatric/neonatal nurse for their routine work, and this study aims to develop the SNNPC so that the future implementation of these standards can contribute to the improvement of quality nursing care for the neonate as well to reduce the high mortality rate of neonates in Cambodia. One paper has proved that focusing on quantity of nurses without specifying professional standards for quality nursing care would jeopardize the professional status of nursing and turn nursing practice into labor where

quality of workers does not matter[2]. This paper reflected that without nursing standard, the nursing care quality is not addressed which can result in health problems, such as nosocomial infection, medication errors, and nurses lack of knowledge in understanding the rationale behind each nursing action which can contribute to increasing the mortality rate of the neonatal patients.

According to the Angkor Hospital for Children[3], Cambodia has one of the highest death rates for children less than five years of age in Southeast Asia. The mortality rate of children under five years old, especially neonates remain high, with the mortality rate for the period zero to four years being 35 per 1,000. The neonatal mortality is 18 per 1,000, while the mortality rate of infant between the first month and the first birthday is 10 per 1,000[4]. Achieving the task of decreasing infant and child mortality is a task that requires healthcare professionals like nurses to be well informed of their position as well as have enough knowledge to relay to mothers and children[5]. The implementation of the neonatal nursing standards of practice will improve the mortality rate as well as improving the quality of care for neonates.

The conceptual framework of this study design is based on the concepts from American Nurses Association ANA[6], and the Australian Standards for Neonatal Nurses[7]. Both standards have been analyzed, synthesized, and integrated into seven components as the following: assessment, diagnosis, planning, implementation, evaluation, ethics, and evidence-based practice and research. These are fit with Cambodian neonatal nursing context, knowledge, experience, and the present ability of pediatric nurses and applicable in neonatal nursing practice. Moreover, the experts were encouraged to add more components of standards according to their experience. Both standards share the foundational concepts reflecting the nursing process steps mentioned above from standards 1-5. The ACNN[7] has not addressed the nursing process directly but addressed specific concepts about nursing process. Ethics and evidence-based practice are addressed the same way as ANA[6]. In Cambodia, the nursing process has been used in some hospitals since 2004. Code of ethics for nurses and evidence-based practice are promoted in Cambodia despite limited conditions and resources. The conceptual framework of this study is integrated from the foundational concepts from ANA[6] and ACNN[7] as well the nursing process guidelines, which has been introduced formally for the whole country in 2012. In consistency with this, the Nursing Standards of Care for Cambodia Nurses has launched in 2015 and it is including all standards in this conceptual framework.

Methods

A Delphi technique was chosen to be used for this study and to develop the Neonatal Nursing Standard of Practice for Cambodia (NNSPC). The 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[8]. Another study stated that it is an iterative process, three to four rounds, involving a series of questionnaires, each building on the results of the previous one[9].

Four experts preferred to be interviewed face-to-face, while 16 experts were confident to use e-mail to respond to the questionnaire in Round 1 since it was an open-ended questionnaire. Only 19 experts provided responses via e-mail to the Rounds 2 and 3 Likert scale questionnaires. One expert was dropped participation from Rounds 2 to 3 due to personal business. However, the response rate still remained 100 percent for all three rounds.

Setting

There were five types of setting which were selected according to where experts were located: Angkor Hospital for Children (AHC), National Pediatric Hospital, Calmette Hospital, Battambang Referral Hospital, and Kampong Cham Referral Hospital.

Sample

It is vital to select experts who demonstrate a balance between impartiality and an interest in the topic. Studies may have over 60 experts, while others may have as few as 15 experts. The snowball with purposive sampling was used. For instance, 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 four-month-neonatal nursing program in Bangkok. The identified experts were located across Cambodia so the e-Delphi approach was considered appropriate and applicable according to the study context.

Selection of experts who are knowledgeable in the field and are able to commit to multiple rounds of questions on the same topic is essential[10]. In total, 20 experts were identified that met the agreed inclusion criteria, i.e. knowledgeable and experienced in neonatal nursing care, willingness to contribute, sufficient time commitment, relevant education qualifications, professional practice experience, and effective communication skills. These 20 experts participated in the study for Round 1; however, there were only 19 experts continuing in Rounds 2 and 3 because one expert dropped the participation due to business issue. The inclusion criteria for the experts included the following: first, three directors of nursing with at least five years' experience in nursing administration in pediatric hospitals and complementary package activities level 3 hospitals that offer pediatric/neonatal healthcare services. Second, six Cambodian neonatal nursing educators who have at least five years' experience in a pediatric/neonatal clinical setting and at least five years' experience in teaching pediatric/neonatal nursing care. These six Cambodian experts were graduates of a four-month-neonatal nursing training program delivered in Thailand. Third, five senior pediatric/neonatal nurses with at least eight years' experience in pediatric/neonatal nursing care. Fourth, three pediatricians who specialized in neonatology through a short-course training program and that have at least five years' experience in pediatric/neonatal medicine; and fifth, three neonatal nurses from the USA who have professional neonatal nursing experience in Cambodia and are doctoral degree prepared.

Clinical nursing expertise is central to quality patient care, and the individual nurse's education level and years of experience both influence his or her level of expertise[11]. Relationship between expertise in nursing practice and quality care has already demonstrated that years of experience support expertise and have a positive impact on the quality of care provided and the years of experience to be considered an "expert" include two to five years[12].

Ethical consideration

Ethical approval was deemed necessary for this study and obtained from two institutions: the Ethical Review Committee for Research Involving Human Research Subjects in the Health Science Group at the Chulalongkorn University, Thailand (COA No. 143/2016); and the Institutional Review Board at the AHC in Cambodia. Prior to the data collection, a participant information sheet was developed and approved and then sent via e-mail to all 20 experts to clearly explain the study and provide assurance in relation to individual expert anonymity, the voluntary nature and confidential nature of the responses provided by each expert. The notion of quasi-anonymity was clarified with the experts. The researcher was responsible and accountable to ensure that each expert's identity, information and their answers would not be disclosed to anyone. A written consent form was designed and obtained from each expert prior to the commencement of the study.

Data collection

The data collection began in May 2016 and ended in February 2017. Three questionnaires were developed, one specifically for each round – 1, 2, and 3.

Delphi Round 1. The Round 1 questionnaire was an open-ended qualitative form, comprising two sections. The first section required each expert to complete questions about

demographic data related to their neonatal nursing care employment, years of experiences, highest academic qualification and position title, nursing and neonatal nursing training history. The second section required the experts to add or amend specific details to each of the proposed standards and add any additional standards for consideration. The example of the open-ended qualitative form is “What components should be included regarding Assessment in Neonatal Nursing Standards of Practice for Pediatric Nurses in Cambodia?” The experts were encouraged to add specific details under each standard. Four experts completed the interviewing session and 16 experts responded to the first open-ended questionnaire via e-mail and telephone call confirmation.

Delphi Round 2. The questionnaire was generated from Round 1 items and was designed for the experts to rate each item on a five-point Likert scale as follows: 5 – very important, 4 – Important, 3 – somewhat important, 2 – Neutral/no opinion, and 1 – Unimportant. Round 2 questionnaire comprised 10 standards, 14 components, 120 items, and 87 sub-items. In total, 19 experts responded to the second questionnaire by telephone calls and e-mail.

Delphi Round 3. In total, 10 standards, 14 components, 108 items, and 74 sub-items have achieved consensus from Round 2 and designed for questionnaire Round 3. The individual expert response and overall group responses were described by median and the spread of responses was described by interquartile range (IR). The experts were asked to provide their reasons why they changed their original response in subsequent Delphi rounds. In total, 19 experts responded to third questionnaire by telephone calls and e-mail.

Data analysis

Three questionnaires were developed with three rounds of data collection being conducted. The qualitative data from Round 1 was analyzed using the content analysis framework[13]. A systematic approach to the measurement of the frequency or the intensity of occurrence of words, phrases, or sentences was applied. The content analysis aims to group the comparable statements into zones before examining each zone for statements that are either identical or could be combined into one coherent statement[13]. The responses from the Rounds 2 and 3 data were quantitative. Descriptive statistics of median (Md) and IR were used to calculate all items to obtain the overall group response and the spread of responses, respectively. The criteria of median and IR recommended by Punpataracheevin[14] were used to analyze data for Rounds 2 and 3. The Punpataracheevin's[14] (criteria of IR and Median (Md) are listed in Table I.

<i>Range of median</i>	<i>Meaning of the criteria</i>
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
<i>Interquartile range (IR)</i>	<i>Meaning of IR</i>
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 has not achieved consensus

Table I.
Criteria of
Interquartile range
and Median

Results

Upon the completion of Round 1, more than 200 key statements were found and were grouping into 120 items and 87 sub-items under 14 components and 10 standards. The results from Round 1 were put into Round 2 questionnaire and sent to 19 experts and returned response rate was 100 percent.

A total of 19 questionnaires were returned in Rounds 2 and 3, and returned response rate was 100 percent. After the Round 3, 19 experts agreed to have 107 items and 74 sub-items under 13 components and 10 standards, which were contributed to neonatal nursing standards of practice in Cambodia.

As shown in Table II, these items were grouped into ten standards: assessment that consisted of 13 items and 48 sub-items (Md = 4-5, RI = 0-1); nursing diagnosis that consisted of 2 components and 20 items (Md = 5, RI = 0); planning that consisted of 2 items (Md = 5, RI = 0-1); implementation that consisted of 8 components, 46 items, and 21 sub-item (Md = 4-5, RI = 0-1); evaluation that consisted of 9 items (Md = 5, RI = 0-1); ethics that consisted of 2 items (Md = 4-5, RI = 0-1); evidence-based practice and research that consisted of 5 items (Md = 5, RI = 0); health teaching and health promotion that consisted of 2 items and 7 sub-item (Md = 5, RI = 0-1); continuing education that consisted of 3 items (Md = 5, RI = 0-1); and communication that consisted of 1 item (Md = 5, RI = 0).

Discussion

This study found ten standards of NNSPC. The findings show that this standard differed from the two standards used for conceptual framework since the standard ANA[6] consists of 16 standards, and standard ACNN[7] consists of 14 standards. However, NNSPC is derived from foundational concepts of both standards mentioned above in consistency with conceptual framework.

The NNSPC is discussed below.

First, all experts agreed to have assessment standard, including physical, psychological, social-economic, and family component. This was parallel with ANA[6], which stated that the nurse respects culture and diversity in all aspects of newborn/infant and family care and administers nursing care accordingly. Second, experts reached 100 percent consensus on nursing diagnosis. Nursing diagnosis is one of the nursing process steps that has been introduced to apply officially from Ministry of Health[15]. These 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[16].

Third, 100 percent of experts agreed that planning was an important component of this standard. Each problem is assigned a clear, measurable goal for the expected beneficial outcome of neonatal patients. Fourth, they all accepted to have implementation. Actions involved in a nursing care plan include monitoring the patient for signs of change or improvement, directly caring for the patient or performing necessary medical tasks, educating and instructing the patient about further health management, and referring or contacting the patient for follow-up. Fifth, the experts considered the evaluation to be an important standard to be included. To carry out the important care plan successfully, nurse needs cognitive, interpersonal, and technical skills. All of the nursing actions developed during the planning steps are carried out[17].

Sixth, the experts consider that ethics are important for NNSPC. This is also consistent with the professional standards of the national competency standards for the registered nurse as it "integrates organizational policies and guidelines with professional standards." Seventh, the experts consider evidence-based practice and research strongly for neonatal nursing in Cambodia. It was consistent with the indicators of the Standards of ANA[6]. Eighth, the experts considered health teaching and health promotion as an

Neonatal nursing standards of practice for Cambodia		Round 3	Development of neonatal nursing standards
		Md IR	
<i>A. Assessment</i>			17
1. Physical assessment		5 0	
Chief complaints: most serious symptoms/signs of illness causing neonate to hospital		5 1	
Check temperature, airway, breathing and circulation (TABC)		5 0	
Assess growth status		5 0	
Weight in gram		5 0	
Length		5 0	
Head circumference		5 0	
Evaluate general appearance		5 0	
Level of consciousness: state of alertness		5 0	
Skin color: integrity and perfusion		5 0	
Activity: range of spontaneous movement		5 0	
Postures: muscle tone		5 0	
Obtains maternal history		5 0	
Apgar score		5 0	
Gestational age		5 0	
Mode of delivery		5 1	
Medications used and feeding provided		5 0	
Assess skin integrity, muscle, and skeleton		5 0	
Skin color		5 0	
Skin condition: rashes, pustule, peeling, plethora, dry, erythema, infected, edema, and injury		5 1	
Muscle tone: spontaneous movement		5 0	
Jaundice		5 0	
Check head, face, and neck		4 1	
Head: shape, size, scalp		5 1	
Fontanelles: sutures		5 1	
Eyes: size, position structure		4 1	
Nose: position structure		4 1	
Mouth: palate, teeth, gums, tongue, frenulum, jaw size		4 1	
Assess chest and respiratory system		5 0	
Chest: size, shape, symmetry, movement, breast tissue, and nipples		5 0	
Respiratory system: lung sounds, signs of respiratory distress, breathing pattern, oxygen needs, level of FiO ₂ , and SpO ₂ and chest retraction		5 0	
Assess cardiovascular system		5 0	
Heart rate/sounds		5 0	
Pulse/femoral pulse and rhythm		5 0	
Shun syndrome		4 1	
Blood vessels		4 1	
Assess abdomen and gastrointestinal system		5 1	
Abdomen: size, shape, symmetry, palpate live, spleen, and kidneys		4 1	
Abdominal condition: soft, firm, redness, mass, and lobe visible		5 1	
Umbilicus: bleeding, discharge, detached, and smell		5 1	
Breastfeeding/feeding frequency: sucking		5 1	
Bowel movement: meconium or stool condition/color, vomiting, nausea		5 1	
Assess genitourinary		5 1	
Abnormality: open passage for urine and stool, any discharge		5 1	
Anal position/imperforate		4 1	
Assess neurological status		5 1	
Behavior		5 0	
Irritable crying		5 0	
Posture: muscle tone, spontaneous movement		5 0	
Reflexes, primitive/five reflexes/red reflex, Erb's palsy, and seizure		5 1	
Other assessment		5 1	
			Table II.
			Results of Delphi
			Round 3
		(continued)	

Neonatal nursing standards of practice for Cambodia		Round 3	
		Md	IR
Neonatal status			
IV site: redness, swelling, edema, clean, and duration of IV insertion		5	0
Fluid management: cc/kg/day, electrolyte management: mg /kg/day		5	0
Blood sugar level		5	0
Intake and output		5	0
Breastfeeding frequency and effectiveness		5	0
Vaccination status		5	1
Development		5	1
Incubator and room temperature		5	0
Maternal status			
Body weight, and condition of the mother before and after delivery		5	1
Nutrition, breasts/express breast milk, and colostrum		5	1
Drug used, alcohol use, and coping post-partum		5	0
2. Psychological assessment		4	1
Assess mood of mother/caregiver to identify anxiety/worries/scary/depress		4	1
Observe face expression of mother/caregiver to identify feeling		4	1
Assess perception and belief of neonatal sickness or issue at home		4	1
3. Social-economic and family assessment		4	1
Recognizes role of parents in decision making about neonate's health		4	1
Assess whether the family able to taking care financial issue		4	0
Assess neglecting issue of the young mothers from their family		4	1
Assess mother knowledge in taking care of baby		5	1
<i>B. Nursing diagnosis</i>			
1. Actual nursing diagnosis		5	0
Hypothermia		5	0
Hyperthermia		5	0
Ineffective thermoregulation		5	0
Airway obstruction		5	0
Impaired gas exchange		5	0
Ineffective breathing pattern		5	0
Asphyxia		5	0
Pain		5	0
Umbilical cord infection		5	0
Necrotizing Enterocolitis		5	0
Neonatal Jaundice		5	0
Premature/low birth weight infant		5	0
Ineffective feeding		5	0
Ineffective breastfeeding		5	0
Interrupt breastfeeding		4	1
2. Risk for nursing diagnosis		5	0
Risk for aspiration		5	0
Risk for infection		5	0
Risk for body temperature alteration		5	0
Risk for alter nutrition		5	0
Risk for fluid volume deficit		5	0
<i>C. Planning</i>			
Set safety goals for neonate to overcome actual and risk for nursing diagnosis from admission to discharge		5	1
Provide interventions to fit with actual and risk for nursing diagnosis		5	0
<i>D. Implementation</i>			
1. Nursing intervention for ineffective thermoregulation		5	1

Table II.

(continued)

Neonatal nursing standards of practice for Cambodia	Round 3	
	Md	IR
Reduce or eliminate the sources of heat loss	5	0
Evaporation		
When a shower, prepare a warm environment	5	0
Wash and dry each section to reduce evaporation	5	1
Limit the time of contact with clothing or a wet blanket	5	0
Convection		
Avoid the flow of air	4	1
Conduction		
Warm all goods for care such as stethoscope, scales, hand caregivers, clothes, and bed linen	5	1
Radiation		
Reduce the objects that absorb heat	4	1
Monitor neonate's body temperature	5	1
If temperature is below normal		
Use two blankets	4	1
Wear headgear	5	1
Assess environmental sources for heat loss	5	1
If hypothermia settled > 1 hour, refer to physician	5	0
Review the complications of cold stress, hypoxia, respiratory acidosis, hypoglycemia, fluid/electrolyte imbalance, and weight loss	5	0
If temperature is above normal		
Remove blanket	5	1
Remove headgear, when worn	4	1
Assess environmental temperature again	4	1
If temperature not reduce to normal > 1 hour, report to physician	5	1
Teach caregivers why neonates are vulnerable to temperature	5	1
Demonstrate how to save heat during bathing	5	0
Teach to measure temperature	5	1
Teach caregiver why neonates are vulnerable to heat and cold weather	5	1
Refer to hypothermia and hyperthermia for prevention	5	0
2. Nursing Interventions for neonate with airway and respiratory problems	5	0
Place neonate in semi-follower/comfortable position	5	0
Maintain free airway	5	0
Provides oxygen per prescription	5	0
Monitor dyspnea, tachypnea, breath sounds, increased respiratory effort, lung expansion, and weakness	5	0
Evaluate changes of level of consciousness, cyanosis, skin color, mucous membranes, and nails	5	0
3. Nursing interventions for neonate with infection	5	1
Keep neonate in isolation room	5	1
Monitor vital signs every 2 hours, notify the physician if vital signs are abnormal	5	0
Maintain a good temperature for an incubator and room	5	1
Wash hands before and after touching the neonate	5	0
Make sure that caregivers wash hands before touching/holding neonate	5	0
Let neonate rest, avoid holding if unnecessary	4	1
Administer antibiotics per prescription	5	0
4. Nursing interventions for impaired skin integrity	4	1
Assess skin color every 8 hours	4	1
Monitor direct and indirect bilirubin	5	1
Change position every 2 hours	4	1
Massage the skin	4	1
Keep clean skin and moisture	5	1
5. Fluid volume deficit	5	0
Monitor signs of dehydration such as skin turgor/fontanel/eyes	5	0
Monitor intake output	5	0

(continued)

Table II.

Neonatal nursing standards of practice for Cambodia	Round 3	
	Md	IR
Record the frequency and amount of urine and stools	5	0
Monitor fluid and electrolytes balance	5	1
Explain the mother to breastfed often	5	0
6. Nursing interventions for interrupted breastfeeding	5	1
Assess mother's perception and knowledge about breastfeeding	5	0
Give emotional support to mother and accept decision regarding cessation/continuation of breastfeeding	4	1
Demonstrate use of manual breast pump	4	1
Explain techniques for storage of expressed breast milk	5	1
Provide privacy, calm surroundings when mother breast feeds	4	1
Recommend for infant sucking on a regular basis	5	1
Encourage mother to obtain adequate rest, maintain fluid and nutritional intake, and schedule breast pumping every 3 hours while awake	4	1
7. Nursing interventions: risk for altered nutrition	5	1
Weight neonate in gram daily	5	0
Assess maturity reflex, with regard to feeding such as sucking, swallowing and cough	5	0
Monitor input and output and calculate consumption of calories and electrolytes daily	5	0
Assess level of hydration, note fontanel, skin turgor, urine-specific gravity, condition of mucous membranes, and weight fluctuations	5	0
Assess signs of poor feeding, nervous, crying high tone, trembling, eyes upside down, and seizure activity	5	0
8. Nursing interventions for pain	4	1
Encourage mother to provide breastfeeding	5	1
Repositioning, swaddling, and nesting	5	1
Facilitated tucking and containment holding	4	1
Decreasing environmental sensors	4	1
Change nappy as needed	4	1
Allowing neonate to grasp a finger	4	1
Kangaroo care	5	0
<i>E. Evaluation</i>		
The neonate requiring intervention is promptly identified and is started early	5	0
The neonate's metabolic and physiologic processes are stabilized, and recovery is proceeding without complications	5	0
Infant maintains temperature at 36.5°C to 37°C	5	0
Neonate maintains a respiratory rate of 30-60 breaths per minute	5	0
Neonate will exhibit no signs of infection	5	0
Fluid volume will be maintained: Oral mucosa moist and pink, skin turgor elastic, urine output at least 1-2 mL/kg/hr	5	0
Neonate will maintain adequate nutritional intake: Weight gain or maintenance occurs.	5	1
Consumes adequate diet for age		
Neonate will be in comfort and free from pain	5	0
<i>F. Ethics</i>		
Advocate for equitable to healthcare consumer	4	1
Provide care follow guidelines/protocols so that the care nurse provides are safe for neonate	5	0
<i>G. Evidence-based practice and research</i>		
Develop knowledge from routine jobs toward research work that would apply to nursing practice	5	0
Introduce important research finding and evidence-based practice to other nurses	5	0
Utilizes evidence-based practice and research finding to guide practice	5	0
Participate in nursing research according to educational level/role	5	0
Integrates research findings into the development of guidelines and standards of care	5	0

Table II.

(continued)

Neonatal nursing standards of practice for Cambodia	Round 3		Development of neonatal nursing standards
	Md	IR	
<i>H. Health teaching and health promotion</i>			21
Explain to family about treatment and procedures and follow-up	5	1	
Tech parents about basic health information	5	0	
Nutrition/breastfeeding	5	0	
Reproductive health	4	1	
Body hygiene	5	0	
Hand hygiene correctly	5	0	
Prevent hypothermia	5	0	
Recognize signs of sick neonate	5	0	
Schedule of vaccination and immunization	5	0	
<i>I. Continuing education</i>			
Participate in nursing education as appropriate to educational level and position	5	1	
Participate in neonatal nursing training to update knowledge and competencies	5	0	
Conduct self-directed learning, reading text books, and search internet	5	0	
<i>J. Communication</i>			Table II.
Make effective communication with families and members of healthcare team	5	0	

important aspect. The families of neonate need information regarding how to take care of neonate and to prevent diseases as well as to promote a healthy lifestyle. Nurses globally pay attention for this standard[18]. Ninth, the experts valued the continued education for neonatal nurses as it will improve their professionalism as well as quality of care for neonatal patients. Last, was the communication, this standard was the one competency under the registered nurse standards for practice by Nursing and Midwifery Board of Australia[19], which stated that nurse communicates effectively, and is respectful of a person's dignity, culture, values, beliefs, and rights.

The neonatal nursing standards of practice were derived from the conceptual framework and added more components of standards on the basis of the opinions of the experts who have knowledge, experience, and experts' characteristics. This standard is practical, applicable, and Cambodian context based since the academic and experience of the experts vary across different levels, such as associate, bachelor, master, and doctoral degree in nursing who have the years of experience at least 8-33 years. Three neonatal physicians also joined this study, made it a perfect group for this study so that the standard is practical and applicable. The 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 Round 1. In total, 19 experts responded to Rounds 2 and 3 questionnaires via e-mail. The Delphi technique is often used when consensus views of experts are sought in nursing education, management, and clinical work[20]. It is an iterative process, three to four rounds, involving a series of questionnaires, each building on the results of the previous one[9]. By the way, 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[21].

Standards 1-5 are the steps of nursing process. ANA[18] 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 findings of this study contribute to NNSPC. Neonatal nurses and nursing administrators can use NNSPC to improve neonatal nursing care quality and safety, quality improvement and education for Cambodia.

Conclusion

All items and sub-items achieved consensus as either being at the most significant level and therefore, could be key indicators for neonatal nursing standards of practice. The results of this study can be incorporated into a focused discussion led by the Nursing and Midwifery Bureau of the Ministry of Health to develop national standards of practice for neonatal nurses in Cambodia.

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