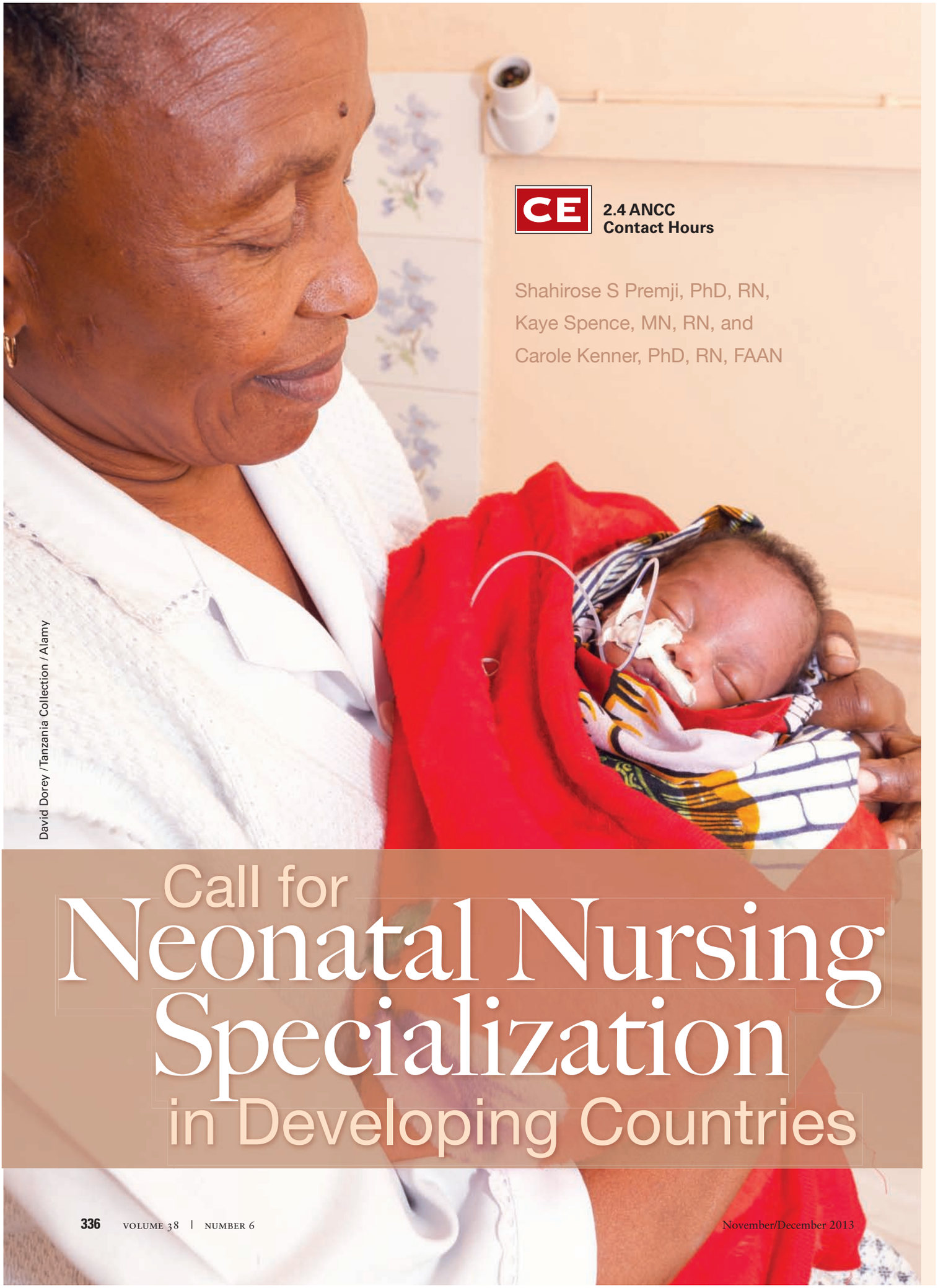

CE **2.4 ANCC Contact Hours**

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Call for Neonatal Nursing Specialization in Developing Countries

Abstract

In an attempt to reach Millennium Development Goals, health facility births, which are births occurring in health centers, facilities, or institutions under the care of a skilled birth attendant, are increasing in developing countries. We examined the state of neonatal nursing care in the context of issues related to the capacity of these health facilities to provide quality care and the high facility mortality rates in those neonates admitted to hospital. Neonatal nursing as a specialty within a community–hospital–community network system is proposed as an effective scaling-up strategy to improve neonatal survival. Establishment of international competency standards for neonatal nursing together with regulatory processes with mechanisms to facilitate specialty education forms the basis for the specialty of neonatal nursing. We have identified a strategy to mobilize financial resources for the development of the specialty of neonatal nursing. Evaluation of trends in mortality and identification of process indicators will facilitate examination of the effectiveness of the introduction of the specialty of neonatal nursing as a scaling-up strategy.

Key words: Developing countries; Education; Neonatal care; Neonatal nursing; Neonatology.

Jake Lyell /Water Aid / Alamy

Background

Between 1990 and 2009, nearly 78 million infants died before reaching 1 month of age in low- and middle-income countries (LMIC) (Oestergaard et al., 2011). Neonatal mortality accounts for a significant portion (approximately 38%) of mortality in children less than 5 years of age in LMIC (Lawn, Cousens, & Zupan, 2005). To prevent these deaths, and to reach Millennium Development Goal #4 of reducing child mortality by two thirds by 2015, advocates have promoted the presence of skilled health personnel at all births. Although there are significant variations between countries and within countries, almost half of the women in LMIC are now delivering infants in health facilities, and projections indicate that this number will continue to rise (Stanton, 2008).

Studies in LMIC report high mortality rates among neonates admitted to hospital or born in hospital (Abushhaiwia, Ziyani, & Dekna, 2010; Mbaruku, van Roosmalen, Kimondo, Bilango, & Bergström, 2009; Waisa, Kallander, Peterson, Tomson, & Pariyo, 2010). A regional hospital in Western Tanzania reported a perinatal mortality rate of 38 per 1000 live births with a little over 50% of the babies weighing greater than 2000 g (Mbaruku et al., 2009). In Eastern Uganda, findings from a demographic surveillance site revealed that 33% of newborn infants died in a hospital or health center (Waisa et al., 2010). In Libyan Arab Jamahiriya, the death rate among admitted neonates was 22% (Abushhaiwia et al., 2010). Among other factors, however, the poor knowledge and training of neonatal care providers and a shortage of qualified staff have been identified as factors associated with substandard care in health facilities (Mbaruku et al., 2009; Waisa et al., 2010). Furthermore, delay in recognizing health concerns and making the decision to seek care outside the home is also a contributing factor in newborn deaths (Mbaruku et al., 2009; Waisa et al., 2010). In addition to these factors, the inability of healthcare facilities to provide timely quality care following arrival at the hospital is a leading (Mbaruku et al., 2009) or secondary (Waisa et al., 2010) cause of in-hospital newborn deaths. Thus, in countries that are characterized as having weak healthcare systems (e.g., poor knowledge resources, infrastructure, and low skill levels) (Balabanova, McKee, Mills, Walt, & Haines, 2010) this shift to increasing numbers of facility-based births may not improve infant health outcomes.

Hamilton, Redshaw, and Tarnow-Mordi (2007) found that survival of premature infants was linked to the number of qualified neonatal nurses working per shift in 54 randomly sampled neonatal intensive care units in the United Kingdom. In this study, neonatal nurses were considered qualified if they had taken neonatal nursing courses (Hamilton et al., 2007). In 2011, Lee et al. conducted a systematic review of studies undertaken in

LMIC. They found neonatal resuscitation training in facility settings reduced neonatal mortality occurring as a result of intrapartum-related events by 30%. Those trained in neonatal resuscitation included birthing room nurses working in 14 different university hospitals in India (Deorari, Paul, Singh, & Vidyasagar, 2001), as well as midwives with a 3-year college degree working in the 18 urban low-risk birthing centers in Zambia (Carlo et al., 2010). In their systematic review, Lee et al. (2011) also examined the impact of basic level training (e.g., assessment and stimulation) of healthcare providers in healthcare facilities. The effect size, however, could not be determined as the data were heterogeneous. Consequently, Lee et al. (2011) set up a Delphi panel comprising 18 experts, sent them questionnaires by email, and asked them to estimate effect size based on scenarios presented to them. Based on a response rate of 90%, the findings suggested a 30% reduction in intrapartum-related neonatal mortality and 10% reduction in preterm deaths as a result of facility-based resuscitation. Thus, provision of care by RNs with specialty training in neonatal care is expected to have the potential to improve neonatal outcomes in facility settings in low-income countries.

In most countries, nurses are the most accessible healthcare provider with more nurses per 1000 people than doctors (Peters et al., 2008). We therefore propose the development of a specialty in neonatal nursing as a scaling-up strategy to improve neonatal survival in LMIC. Establishing neonatal nursing programs within a community–hospital–community network system will be important in reducing neonatal mortality in low-income countries because a significant number of births continue to occur in the home. We describe the current state of neonatal nursing care in LMIC to illustrate the basis of our premise and relate the potential role the specialty of neonatal nursing could play in improving perinatal outcomes in LMIC.

State of Neonatal Nursing Care in LMIC

Most LMIC do not have formal training programs in neonatal nursing. Nurses acquire their competence through experiential learning, on-the-job training with support from specialized neonatal nurses or physicians from other countries, or by attending specialist continuing courses offered outside their country. Where nurses have received training in neonatal care, this training is not recognized, and they are categorized as general nurses (e.g., South Africa) (Kenner, Sugrue, Mubichi, Boykova, & Davidge, 2009). Through our involvement with the Council of International Neonatal Nurses, Inc., which is a volunteer organization representing nurses around the world [see www.coinnurses.org/], we identified many neonatal nurses in LMIC who, through personal initiative, have obtained neonatal nursing competence and have expressed the need for more training. Thus, the interest to pursue a specialization in neonatal nursing exists. There is a need to create a way for these enthusiastic and motivated nurses to utilize their skills in providing expert care to sick and vulnerable newborn infants.

In LMIC the education of staff providing care to neonates and their families in healthcare facilities may include diploma or baccalaureate prepared nursing staff, nurse-midwives, and midwives with 1-year training, 15-month training, or 2-year training. Ancillary personnel, such as technicians (with 6-month training), nursing aides, or assistants, may perform nonnursing duties. A technician may manage respiratory care (i.e., device management, suctioning of patient). Nursing staff mix is not regulated by organizations or associations, nor is it guided by standards (Premji & Kanji, 2011). In low-income countries, approximately 60 million births occur in the home annually (Lee et al., 2011), and those providing care may not have competencies to provide neonatal care, and may not even be nurses. In the home setting, care providers may include family members or healthcare providers with a wide range of skills and experiences (e.g., skilled birth attendant, trained birth attendance, untrained birth attendance, community health workers) (Wall et al., 2009).

Regulatory criteria for nursing as a profession vary from country to country (Baumann & Blythe, 2008). In some countries (e.g., Pakistan and Kenya), licenses are valid for a specified duration of time (e.g., 5 years in Pakistan and 3 years in Kenya). The renewal processes vary and may require evidence of professional training (e.g., Kenya requires 20 hours of training per year). Formal system(s) (i.e., regulated system) of assessing and monitoring continued competencies are not established. In particular, expectations regarding the relevance of professional training to specialty professional practice are not articulated. In this regard, explicating the role of a specialty in neonatal nursing in improving perinatal outcomes in both facility-based settings and community settings is imperative.

Role of Specialty of Neonatal Nursing in Improving Perinatal Outcomes

The specialty of neonatal nursing is recognized in some countries as a practice based on a continually expanding nursing knowledge. Specialty expertise has been gained through various combinations of experience, formal and informal education programs, and professional development, which has led to the creation of neonatal nursing associations or organizations in high-income countries (e.g., National Association of Neonatal Nurses, Canadian Association of Neonatal Nurses, and Australian College of Neonatal Nurses), middle-income countries (e.g., Neonatal Nurses Association of Southern Africa), and low-income countries (e.g., Indian Association of Neonatal Nurses).

Adequate training, however, is not the only precondition to improve neonatal outcomes and quality of care in facilities. A study undertaken by Pillay, Nightingale, Owen, Kirby, and Spencer (2012) in the United Kingdom demonstrated that when established infant-to-nurse staffing standards (e.g., British Association of Perinatal Medicine) are not met, it results in delays of up to 1 hour, or reduced clinical care such as ventilator care and attending

Perinatal mortality rates are high in low- and middle-income countries with weak healthcare systems.

to alarms. A growing shortage of registered nursing staff and fiscal constraints has resulted in various nursing staff mix models for delivery of patient care (e.g., RNs and registered practical nurses) guided by previous experience and knowledge of clinicians and managers, rather than being evidence-informed (Royal College of Nursing, 2010). However, a higher proportion of registered nursing staff has been recommended for delivery of care due to a systematic review of 22 studies (Lankshear, Sheldon, & Maynard, 2005) undertaken in acute care settings in various countries around the world, which demonstrated that care outcomes are improved by having more RNs in the staff mix (Royal College of Nursing, 2010). Although the studies included in the systematic review were not based in the neonatal unit(s), from a theoretical standpoint one would expect similar patient outcomes as a result of lack of role definition and role conflict regardless of the setting (McGillis et al., 2001). As neonatal units in LMIC are staffed by nurses, midwives, and ancillary personnel with varying degrees of training (e.g., technicians, nursing aides, or assistants), it is important to examine appropriate staff mixes to promote quality care.

Establishing international neonatal nursing competency standards for the various cadres of healthcare providers and settings of practice is an important first step to bringing clarity regarding the role of specialization in neonatal nursing in LMIC. These standards should establish the training expectations and required competencies for each cadre of healthcare provider, including restrictions for setting(s) and populations of practice (e.g., low-risk pregnancies and birth).

To establish realistic goals for neonatal specialized nursing care, we propose the development of:

Standardized and Leveled Curricula for Neonatal Specialized Nursing

International neonatal nursing competency standards should form the basis of educational objectives for the neonatal nursing specialization program(s). We conducted a systematic search of Comprehensive Sources of full text for Nursing and Allied Health, MEDLINE, and PubMed, which yielded limited information about neonatal nursing competency standards. The Scottish Neonatal Nurses' Group has developed competencies of neonatal nursing practice based on four categories, beginning with novice, and moving to qualified in specialty, experienced or proficient neonatal nurse, and finally, expert in specific neonatal nursing roles (Greig, Gray, Kerr, & Wright, 2006). The Australian College of Neonatal Nurses has developed neonatal nurse competency standards that guide specialist practice, as well as enable assessment of their competencies. Members and nonmembers can access this document from their Web site. Other organizations have developed definitions for the various roles nurses assume in low- and high-risk neonatal units (e.g., Association of Women's Health, Obstetric and Neonatal Nurses also referred to as AWHONN) or developed a position statement for neonatal intensive care nursing (e.g., National Certification Corporation or NCC), which can be purchased or accessed from their Web sites. Clearly, the global neonatal community (i.e., nurses, physicians, and other healthcare personnel who work with neonates) needs to identify performance standards that describe minimum practice competencies required to provide safe and effective care to newborns in various settings (e.g., home, basic health units in the community and rural health centers, secondary level care, and tertiary care) and by varied healthcare providers (e.g., trained birth attendants, community health workers, nurses, and neonatal nurses). The standards should specify the depth or scope of practice competencies for various care providers. The training curriculum should be leveled, permitting healthcare providers to progress through various competency levels based on their educational preparation, job description, and aspirations for career advancement. Opportunities for career development should be created to enable mid-level workers to enhance their education and work toward becoming neonatal nurses.

Australia (Duffield, 2008), Canada (Rochefort & Clarke, 2010), the United Kingdom (Cole, 2009), and the United States (Cavanaugh & Huse, 2004) have all experienced staffing issues in their neonatal units as a result of the nursing shortage. Given the current global nursing shortage (Stewart, Clark, & Clark, 2007), creating a neonatal nursing specialty will require a systematic approach. In LMIC, the shortfall in nursing staff has been attributed predominantly to the lack of adequate resources, that is, training programs and qualified faculty members (Stewart et al., 2007). Consideration, however, will need to be given to strengthen the supply of neonatal nurses and to balance this against the demand for nursing generally. Undertaking a needs assessment will determine the appropriate leveling of specialization, that is, whether it should be offered in undergraduate curricula, in post-RN

International neonatal nursing competency standards should form the basis of educational objectives for the neonatal nursing specialization program(s).

certification programs, or as specialty-specific track in master's programs. We suggest that a neonatal specialty-specific practice with an emphasis on community-based interventions may attract more people to enter the nursing profession (e.g., mid-level workers) or, alternately, may encourage those with diploma training to seek specialization.

Local and Distance Models of Neonatal Nursing Care

We propose developing capacity in healthcare facilities and communities through training staff, a networked care system, and policy changes. Specialized training in neonatal nursing can provide front-line skilled nursing care to prevent adverse outcomes for both the vulnerable infant and their family. At an individual level, neonatal nurses can empower women in their communities to make choices to seek healthcare in a timely way. An interim measure of task shifting minimum basic level neonatal care competencies to mid-level workers may scale up provision of neonatal care to the larger community. Mid-level workers are those individuals who receive less training than "professional qualified personnel" (e.g., nurses), have a defined scope of practice, and have received a certificate by an accredited institution following successful completion of an examination (Lehmann, 2008). Neonatal nurses can provide education on evidence-based clinical practices to these mid-level workers to prevent infant mortality related to the causes that are specific to a particular district. Innovative approaches, such as using low-cost technology (e.g., cell phone, blackberry) between mid-level workers, and a specialized neonatal nurse can maintain connections with the community care provider. These connections would facilitate establishing a networked care system in which standard of care would guide decisions to refer to facility, to ensure the "right care is provided at the right place at the right time." Furthermore, this step would also establish a flow of information between the community and facility to promote continuity of care and support parents in decision making about seeking facility-based care. A networked care system may enhance delivery of care and increase commitment to implementing best practices to improve health of the infant and family in both community and facility settings. Other strategies should also be identified in consultation with mid-level workers. In these ways, communities that are most in need of cost-effective interventions to prevent neonatal death will have access to supports for the provision of specialized care. Specialized neonatal nurses should identify advocacy efforts to support policy changes to raise standards of care in the community. Neonatal nurses should also support career laddering of mid-level workers through formal continuing education in neonatal nursing specialty program(s).

A research-based practice approach can be used by specialized neonatal nurses to identify the efficiency, effectiveness, and quality of care provided by mid-level workers. Additionally, watchful vigilance of the trends in neonatal, infant, and child mortality and morbidity will be imperative to monitor the effectiveness of the introduction of specialization of neonatal nursing in LMIC. In countries that have weak information and data registration systems, caution will need to be exercised when monitoring and making inferences from these trends. Process indicators, such as the number of babies who maintained normal body temperature, the number of babies who were put to breast within 30 minutes of birth, and so on, will be helpful in determining improvements in quality of care resulting from specialization in neonatal care.

Global Educational Standards and International Legislation and Regulatory Process

Baumann and Blythe (2008) articulated the importance of global standards for nursing, given the demand for, and expansion of, education worldwide. Fortunately, collaborative efforts are underway with neonatal nurses from developed countries supporting the training and education of neonatal nurses in LMIC. At present, however, there is no organization or association that has international authority to develop educational standards for the specialty of neonatal nursing. Hence, what constitutes essential skills and practice expectations are left to the discretion of the individuals facilitating the training and education of neonatal nurses.

According to Baumann and Blythe (2008), the International Council of Nurses is well positioned to take on the responsibility of establishing education standards, as their mission is to work with national nursing associations, governmental and nongovernmental organizations, foundations, and others to bring conformity to nursing education, practice, and standards globally (International Council of Nurses, 2011). As well, the Bologna Process is focusing on bringing uniformity in education through the involvement of national governments. The goal is to establish standards for academic degrees not only throughout Europe, but in 45 countries (Baumann & Blythe, 2008). Active engagement with the International Council of Nurses and the Bologna Process will be important to realize the establishment of educational standards for the specialty of neonatal nursing. The International Council of Nurses can give direction to a coherent international vision about standards of education for the specialty of neonatal nursing, as well as bring about reform in the credentialing process and recognition of specialized neonatal nurses. As indicated previously, regulatory criteria for nursing as a profession vary from country to country (Baumann & Blythe, 2008), which hinders the

monitoring of achievement, maintenance, and updating of competencies set forth in the standards for the specialty of neonatal nursing. The World Health Organization Collaborating Centres (WHOCC), which specialize in nursing midwifery development, may also be instrumental in establishing international legislation and regulatory processes for the specialty of neonatal nursing as part of their mandate. The WHOCC work with many partners, including the International Council of Nurses, International Confederation of Midwives, and Sigma Theta Tau International to name a few; hence, these partners can ensure the regulatory processes are informed by the standards for the specialty of neonatal nursing.

Mechanisms to Fund the Development of Neonatal Specialized Nursing Programs

Funding will be critical to developing the specialty of neonatal care in LMIC, and to facilitating knowledge transfer of best practices for neonatal care. Official development assistance (ODA) comprises donations from donor government agencies to both LMIC (bilateral ODA) and multilateral institutions with the aim to promote economic development, as well as the welfare of LMIC. Pitt, Greco, Powell-Jackson, and Mills' (2010) analysis of flow of ODA for maternal, newborn, and child health offers hope and optimism, as their findings indicate increased aid to 68 countries with high maternal and child mortality rates. ODA has an important role in targeting funds in ways that build capacity of healthcare providers who have the potential to make a significant difference in reaching Millennium Development Goal #4 of reducing child mortality by two thirds by 2015.

Pitt et al. (2010) have indicated that agreements, such as the Paris Declaration on Aid Effectiveness and the Accra Agenda for Action, have stressed re-examining ways in which money is allocated to LMIC, as well as to ensure more coordination among donors. This offers an opportunity for international advocacy for the education and hiring of neonatal nurses, and evaluating their effectiveness in reducing neonatal mortality. Institutions such as the Aga Khan University, which has been deliberating on specialization in nursing as a way to attend to local and national priorities in the country, as well as reforming healthcare services delivery (i.e., establishing an integrated healthcare system), can be leveraged as a means to advance the development of the specialization of neonatal nursing with a community–hospital–community network system. The system can then be used to plan, implement, and evaluate a neonatal nursing specialty model of care in LMIC.

Conclusion

Facility-based birth is becoming increasingly common in LMIC in the hopes of improving maternal and neonatal health, and reaching Millennium Development Goals. The effectiveness of this strategy is dependent on the skills of the health personnel attending to the mother and baby. Current studies in LMIC report high mortality rates among neonates admitted to hospital. As nurses are the most accessible healthcare providers and front-line workers, the specialty of neonatal nursing may be an important scaling-up strategy to improve neonatal survival. We proposed the establishment of a neonatal nursing program with a community–hospital–community network system to address delays in decision to seek care and receiving care. Needs assessments will help determine the appropriate leveling of specialization (e.g., post-RN certification or specialty track in master's programs).

An interim measure of task shifting minimum basic level neonatal care competencies (e.g., initial steps in stabilization, and bag and mask ventilation) to mid-level workers may scale up provision of neonatal care to the larger community. However, the ultimate goals would be to facilitate career development of these workers to become neonatal nurses. Neonatal nurses will need to generate new knowledge that is context specific to establish effective and safe guidelines for infant-to-nurse ratios, staff mix, and other preconditions that currently hinder quality of care in their work environments (i.e., community or hospital).

Establishing international neonatal nursing competency standards and regulatory processes to monitor these competencies for the various levels of training of healthcare providers and settings of practice will be an important first step in establishing specialization in neonatal nursing care in LMIC. Engagement of the Council of Neonatal Nurses in initiatives currently led by International Council of Nurses, the Bologna Process, and the WHOCC will be instrumental in this regard. A coordinated effort between the governmental, nongovernmental organizations, private and semiprivate education, and healthcare institutions to scale up investment in educating and hiring neonatal nurses will be imperative to reducing infant mortality. The neonatal community needs to act now! Time is of the essence. ✣

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The authors declare no conflict of interest.

DOI:10.1097/NMC.0b013e31829f2c94

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ONLINE

Bologna Process
www.ond.vlaanderen.be/hogeronderwijs/bologna/about/

The Australian College of Neonatal Nurses
www.acnn.org.au/Members/Professional Development/CompetencyStandards.aspx

Association of Women's Health, Obstetric and Neonatal Nurses also referred to as AWHONN
www.awhonn.org/awhonn/index.do

National Certification Corporation or NCC
www.nccwebsite.org/Self-Assessment/WB1320NCC ContinuingCompetencyInitiative.aspx

International Council of Nurses
www.icn.ch/

World Health Organization
www.who.int/en/

International Confederation of Midwives
www.internationalmidwives.org/

The Partnership for Maternal, Newborn & Child Health
www.who.int/pmnch/en/

Council of International Neonatal Nurses, INC (COINN)
www.healthynewbornnetwork.org/partner/council-international-neonatal-nurses-inc-coinn

Sigma Theta Tau International
www.nursingsociety.org/Pages/default.aspx