

## **South African neonatal nurse specialization – is professional licensing justifiable?**

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### **Abstract**

Neonatal nursing is currently not acknowledged as a clinical nurse specialization in the South African context. It is argued that neonatal nursing meets all criteria for designating nursing specialists as specified by the International Council of Nursing. A competency framework is proposed aligned with the country's qualification framework. Acknowledgement of neonatal nurses as clinical nurse specialists is expected to influence policy in education and clinical practice that in turn will influence neonatal care practices and outcomes for preterm and critically ill neonates and their families.

## **AIM**

There is a need for recognition of neonatal nursing as a clinical nurse specialization in the South African context, since it was found that specialist nurses/midwives contribute significantly to the improvement of healthcare quality and services (Duma et al., 2012; Premji, et al., 2013). The need is strengthened by the neonatal mortality rate and causes of neonatal deaths in South Africa.

## **BACKGROUND**

The neonatal mortality rate in South Africa is captured by different databases varying from 12 to 21 deaths per 1000 live births in 2016. The most common cause of death was related to complications of prematurity (47.9%), intrapartum-complications, including intrauterine hypoxia (24.3%) and infections (11.6%). Approximately a quarter of the deaths were due to avoidable factors related to staff and administration (Rhoda et al., 2018). Neonatal nurse specialists might play an important role in reducing the complications during the neonatal period as well as many of the avoidable factors.

South Africa has a two-tier healthcare system, consisting of the public and private healthcare sectors. The services (primary, secondary and tertiary care) are duplicated. The private healthcare sector serves the population who can afford medical insurance or can pay private fees, while the public healthcare sector serves the rest of the population. Neonatal nurse specialists are needed in both sectors.

Specialized neonatal nurses were trained and registered as such with the South African Nursing Council (SANC) from 2001 to 2012. In 2012 the South African Nursing Council (SANC) discontinued licensing of specialist neonatal nurses as an independent specialty due to a technicality in the initial approval process. The discontinuation

subsequently negatively influenced training and availability of neonatal nurse specialists in South Africa. It is argued that there is a desperate need for this cadre of nurses in South African neonatal intensive care units and other areas where neonates are care for. The argument for designated neonatal nurse specialists is based on the ‘Criteria Designating Nursing Specialists’ by the International Council of Nursing (ICN) (2009).

A clinical nurse specialist refers to someone who has advanced education and expertise in a branch of nursing, built upon the nurse base of competence and authority for generalist practice in all settings and branches of nursing (ICN, 2009) and requires in-depth knowledge and expertise in a specific practice area (SANC, 2015). The advanced nurse specialist, in addition to in-depth clinical specialization knowledge, has to acquire broader field dynamics at master’s level e.g. strategic leadership, health service management, research and policy making (SANC, 2015).

A competency and qualification framework for a clinical neonatal nurse specialist is proposed as well as an advanced neonatal nurse specialist as aligned with the Higher Education Qualification Sub-Framework of South Africa (Minister of Higher Education and Training, RSA, 2013) and the SANC’s education and training guidelines for postgraduate diploma programs in nursing (SANC, 2020a).

### **Sources of evidence and discussion**

Neonatal nursing emerged globally as a nursing specialty over the last five decades with a range of skills and knowledge obtained through post-registration nurse training (Petty, 2014). A nurse/midwife specialist, as defined by the ICN (2009:6) is “a nurse prepared beyond the level of a generalist nurse and authorized to practice as a specialist with advanced expertise in a branch of the nursing field. Specialist practice includes clinical,

teaching, administration, research and consultant roles”. The ICN developed ‘Criteria Designating Nursing Specialties’ (ICN 2009: Appendix 1) which is considered essential and underpins the nurse/midwife specialty practice. These criteria are recognized by the Forum for University Deans in South Africa (FUNDISA) (Duma *et al.*, 2012) in the South African context and were used as the framework for the advocacy regarding neonatal specialists as outlined below.

***Criteria 1: The specialty defines itself as nursing and subscribes to the overall purpose, functions, and ethical standards of nursing.***

Globally, neonatal nursing is a nursing specialty that builds upon the education that is required for qualification as a registered nurse. Training is presented at tertiary education institutions, which are either universities or institutions associated with universities. The specialist training and scope of practice are regulated by the countries’ nursing councils as a specialty within nursing science (Petty, 2014).

Neonatal nursing is defined as a specialty to such an extent that there is a Council of International Neonatal Nurses (COINN, 2020) that is affiliated with the ICN, and a large number of countries have dedicated neonatal nursing associations which focus on improving neonatal outcomes and reduce neonatal mortality and morbidity (refer to discussion under Criteria 4), complying with the Sustainable Development Goals (SDG) (United Nations General Assembly, 2015). The Neonatal Nurses Association of Southern Africa (NNASA, 2020) is the representative organization for South Africa. Furthermore, neonatal nursing in South Africa was initially listed as a certificate qualification with the SANC and from 2001 until 2012, was recognized as an additional qualification (SANC, 2016).

Neonatal nursing therefore subscribes to the overall purpose, functions and ethical standards as a nursing specialty.

***Criteria 2: The specialty practice is sufficiently complex and advanced to be considered beyond the scope of general nursing practice.***

Neonatal nurses require specialized and in-depth knowledge of maternal health (and its effect on the fetus), and of healthy, preterm and ill neonates and their family dynamics, especially in neonatal intensive care practice. Advanced nursing skills and judgement are required to care for these neonates in resource-limited and technologically advanced contexts (Petty, 2014; COINN, 2020; Freed et al., 2010).

Birth and the immediate adaptation period thereafter is the human life-phase with the highest risk for mortality and morbidity (Oestergaard, Inoue, Yoshida, et al., 2011). The neonate needs to adjust from intrauterine life to extra uterine life into a multiple stressor environment with the absence of maternal and placental support of physiological functioning and normal development. In the case of premature birth this adaptation occurs in the absence of mature organs. Care of premature infants should support or even replace bodily functions which are not yet ready for extra uterine life, for example ventilation (nCPAP, mechanical ventilation, oscillation), electrolyte and acid-base balance (ventilation, replacement of electrolytes, fluid) and many more (Hillman & Kallapur, 2012; Scheepers et al., 2020).

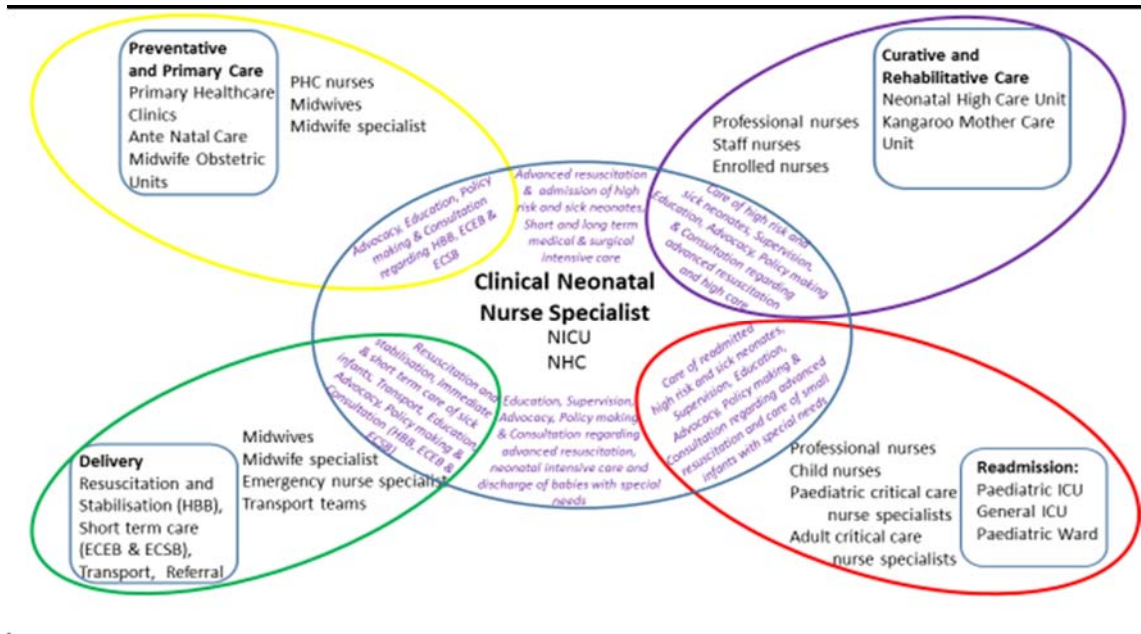
There are vast differences in the needs and the care of preterm infants less than 28 weeks, 28 to 32 weeks, 33 to 37 weeks and term infants more than 37 weeks; and between normal and sick term infants (Keels et al., 2019). The prematurely born infant responds differently to medication, treatment and the environment when compared to a

normal infant, child or adult, requiring complex and advanced knowledge and skills on the part of the caregivers. They are exceptionally vulnerable and at risk for morbidity and mortality: bright lights can cause damage or even blindness, sudden position change during nappy changing can cause intracranial hemorrhage, formula feeding might lead to necrotizing entero-colitis, a bolus of 5 ml fluid can cause fluid overload and many more (Furdon, 2016). The neonatal period is often the time when inherited and congenital conditions, of which many are fatal, as well as high risk acquired conditions, are diagnosed (WHO, 2015a).

Immediate and continued skin-to-skin contact between the mother and newborn after birth is crucial to initiate attachment and bonding. This process is interrupted if the infant is ill and is separated from the mother. The longer the separation, the higher the risk for poor attachment and bonding and the higher the risk for poor long term outcomes such as cognitive development and social skills (Baley, 2015).

The complexity of the physiological differences and care of the sick and preterm infants and their families from birth up to weeks/months after birth require specialized neonatal care. In South Africa the role of the midwife specialist regarding this population is limited to the immediate post-delivery period for stabilization and transfer and approximately a quarter of their training focuses on the neonate. The child nurse on the other hand takes care from discharge from the NICU onwards and her training regarding the neonate is approximately a quarter or less of the program. The gap in services should be filled by neonatal nurse specialists, whose full training focuses on the neonate (refer to Figure 1 for the role clarification).





\*HBB=Helping Babies Breathe; ECEB=Essential Care of Every Baby; ECSB=Essential Care of Small Babies

Figure 1: Relationship of neonatal nursing with other nursing specialties

**Criteria 3: There is both a demand and a need for the specialty service.**

Neonatal mortality is a serious problem globally. The aim of the United Nations' Sustainable Development Goal is to reduce the neonatal mortality to less than 12 per 1000 live births by 2030 (United Nations General Assembly, 2015). The neonatal mortality rate varies across the world: in developed regions it is reported as 3.38 per 1000 births for 2013, in Eastern Asia as 7.69, in Latin America 9.21, and in Sub-Saharan Africa 31.1, while South Africa reported between 12 and 21 per 1000 live births (Rhoda et al., 2018). In terms of actual numbers, nearly one million babies die globally on the date of birth, 2.5 million in their first month of life and an additional 2.6 million are stillborn. Thirty million small and sick newborns require hospitalization each year and approximately a third (8-10 million) need intensive care to survive and thrive (WHO, 2020).

The vast majority of those who survive will survive with morbidity. Leading causes of mortality and morbidity are prematurity, infections, birth complications, congenital abnormalities and jaundice of which universal access to quality care could prevent 68% of the deaths (WHO, 2020).

In South Africa a number of 1 009 065 live births were registered in 2018 with the Department of Home Affairs (Department of Statistics, 2019). This number excludes those births that were not registered, e.g. babies of illegal immigrants or unrecorded home births, as well as stillbirths. The number of newborns who died were estimated between 12 109 and 21 190. According to Ramokolo et al. (2019) the estimated number of preterm births was 12.4 per 1000 live births in 2014. Preterm birth was the leading cause of neonatal deaths and those who survived were known for complications such as respiratory distress syndrome, necrotising enterocolitis, bronchopulmonary dysplasia, intraventricular haemorrhage, sepsis, feeding difficulties, and auditory and visual difficulties.

The public sector of South Africa has 251 district hospitals providing level I neonatal services, 48 regional hospitals providing level II services and 27 tertiary hospitals providing level III services. There are approximately 230 private sector hospitals providing similar services (Health Systems Trust, 2012). If each of these facilities has only one unit for high risk and sick neonates, it implies that there are a minimum of 556 units. The common practice in South Africa is for nursing staff to work 12-hour shifts in two teams per day and two teams per night to cover all hours in a week's time. The implication thereof is that a minimum of 2224 shift leaders are needed to cover the shifts. This estimate does not make provision for any leave.

A recommendation of CoMMiC (Committee on Morbidity and Mortality in Children-under-5-years) (in press) is for every shift leader to be a specialist: in the district hospitals the specialist might be an advanced midwife, and in the regional and tertiary hospitals they should be neonatal specialists.

In 2019 there were only 340 registered neonatal specialists on SANC's register with an additional qualification (post-registration diploma or degree), and 364 with listing (certificate) (SANC, 2020b). It is unknown how many of them are still practicing in neonatal healthcare, but it is clear that they are far less than what is needed.

A further indication of the need for specialists in neonatal care is litigations. Litigations related to complications from the neonatal period increased tremendously from 6 per year in 2013 to 129 per year in 2016 in the public sector only, with a total number of claims of 298 from 2013-2016 with an average of R3 515 million per case. The most common reasons for litigation are cerebral palsy, bronchopulmonary dysplasia and retinopathy of prematurity (McKerrow, 2016). These numbers do not include litigation against private hospitals. Petty (2014) and Freed et al. (2010) share the opinion that specialization improves competency and in turn quality of care, which is expected to reduce mortality, morbidity and litigation.

Additional evidence to support the need for specialized neonatal nurses, is the number of organizations/programs that focus on strategies and projects to reduce neonatal mortality and morbidity. These include the Sustainable Development Goals (United Nations General Assembly, 2015), Every Newborn Action Plan (ENAP) (WHO / UNICEF, 2014), Born Too Soon (WHO, 2012), Kangaroo Mother Care (WHO, 2015b), Helping Babies Breathe (HBB) (American Academy of Pediatrics, 2020a), Neonatal Resuscitation Program (NRP) (American Academy of Pediatrics, 2020b), Essential Care

for Every Baby (ECEB) (American Academy of Pediatrics, 2018a), Essential Care for Small Babies (ECSB) (American Academy of Pediatrics, 2018b), Neonatal Baby Friendly Hospital Initiative (Neo-BHFI) (Nordic and Quebec Working Group, 2015), Campaign on Accelerated Reduction of Maternal and Child Mortality in Africa (CARMMA) (Department of Health, 2015), Committee on Morbidity and Mortality in Children under 5 years (CoMMiC) (Department of Health, 2014), National Perinatal Morbidity and Mortality Committee (NaPeMMCO) (Department of Health, 2012a), Road to Health Booklet (Department of Health, 2018), Perinatal Problem Identification Program (PPIP) (Medical Research Council Unit for Maternal and Infant Health Care Strategies, 2016). In order to make an impact and to improve neonatal outcomes by decreasing neonatal mortality and morbidity, these strategies and guidelines should be implemented. The specialized neonatal nurse would play an integral and very important role in the development, implementation, management, evaluation and most importantly in the sustainability of these strategies and guidelines and advocacy for this very vulnerable population with its unique nursing care needs.

If we continue with business as usual we will see the same results, namely an unchanged neonatal mortality rate and increasing litigation. In order to achieve the national neonatal mortality target of 6:1000, emulation of countries that have achieved marked reductions in neonatal mortality rates, is required. This requires ensuring the provision of adequate numbers of frontline workers who are skilled in preterm infant care, effective implementation of basic low cost interventions, improving supplies of life-saving commodities and equipment and scaling-up of neonatal intensive care.

***Criteria 4: The focus of the specialty is a defined population that demonstrates recurrent problems and phenomena that lie within the discipline and practice of nursing.***

The population is preterm and ill neonates, including those in need of surgery, and their families. The need is very clear by the advancement and number of dedicated neonatal intensive care units and neonatal high care units available worldwide in developing and developed countries since the mid 1900s (Whitfield et al., 2004).

It is also evident with the specialized knowledge that is extensively described in literature, including but not limited to websites such as the Cochrane Neonatal Library (<http://neonatal.cochrane.org/>), Neonatology on the Web (<http://www.neonatology.org/>), Neonatal Care Academy (<https://neonatalcareacademy.com/>), NICUniversity (<http://www.nicuniversity.org/>), Academy of Neonatal Nursing (<http://www.nicuniversity.org/>), a dedicated neonatal online forum, 99NICU (<https://99nicu.org/>); Evidence-Based Neonatology (<https://ebneo.org/>) and more.

The existence of the Council of International Neonatal Nurses (COINN, 2020) and more than 30 existing neonatal nursing organizations is a further indication of the specialized knowledge, activities and interest related to neonatal nursing as a specialty. Examples of neonatal organizations are the National Association of Neonatal Nurses, USA (<http://nann.org/>), Academy of Neonatal Nursing, USA (<https://www.academyonline.org/>), Neonatal Nurses Association, UK (<https://nna.org.uk/>), Australian College of Neonatal Nurses (<https://www.acnn.org.au/>), Japan Academy of Neonatal Nursing ([https://center6.umin.ac.jp/gakkai/gakkai/2020/e\\_A01745.htm](https://center6.umin.ac.jp/gakkai/gakkai/2020/e_A01745.htm)). The Neonatal Nurses

Association of South Africa (<https://nnasa.org.za/>) is an active association affiliated with COINN.

It is therefore clear that the focus is on a specific vulnerable population within nursing.

***Criteria 5: The specialty practice is based on a core body of nursing knowledge that is being continually expanded and refined by research. Mechanisms exist for supporting, reviewing and disseminating research.***

Neonatal nursing specialization is not a new discipline, but a well-established body of knowledge that is continually expanded and refined by research. This is evident by the discussion related to the previous criteria in terms of websites, organizations and activities or projects dedicated to neonatal nursing care. Further evidence is the existence of at least seven international peer-reviewed journals dedicated to neonatal nursing; a variety of neonatal nursing textbooks; and numerous essays, dissertations and theses being published from postgraduate research in neonatal nursing, both globally and in South Africa.

Furthermore, if “neonatal nursing” is searched on the Google Scholar peer reviewed search engine, the search results were 564 000 (accessed on 11 September 2016) and increased to 931 000 (accessed on 8 August 2020). This provides a glimpse of the amount of information available as part of the body of knowledge.

***Criteria 6: The specialty has established educational and practice standards that are congruent with those of the profession and are set by a recognized nursing body.***

Neonatal nursing is recognized as a specialization in many countries worldwide, with COINN and neonatal nursing associations contributing to position statements, collaboration and development of educational and practice standards available.

An international neonatal competency framework has been formulated by COINN (Jones et al., 2019). Formal neonatal competency frameworks are also available from the Royal College of Nursing (2016), Scottish Neonatal Nurse Group (2010), Australian College of Neonatal Nurses (2019), the Pan London Competency Working Group (2014) and the European Foundation for the Care of Newborn Infants (2018).

In South Africa, a competency framework has been developed by the Neonatal Nurses Association of South Africa (2019) with collaboration from various universities. A motivation as well as the competency framework were presented to the SANC at different occasions in 2016, 2017 and 2019, but the SANC decided not to recognize neonatal nursing as a specialization on its own.

***Criteria 7: The specialty adheres to the licensure/registration requirements for the general nurse.***

Globally, registration as a general nurse with the relevant statutory body, is a pre-requisite for training and registration as a specialist in neonatal nursing. The current challenge in South Africa is that the SANC as the statutory body does not recognize neonatal nursing as a specialty area within nursing, but regards it as a subsection of other specialties, including the midwife specialist, pediatric and adolescent critical care, child nursing or even adult critical care.

***Criteria 8: Specialty expertise is obtained through a professionally approved advanced education program that leads to a recognized qualification. The program is administered by a nurse.***

Internationally, advanced training in the specialty of neonatal nursing is available; however, this is not the case in all countries. In most cases the required education

program for specialization in neonatal nursing is a master's degree or other postgraduate program. The entry requirements for the programs in neonatal training to obtain licensing are commonly to be registered as a general nurse with the relevant statutory body, to have appropriate experience in neonatal nursing and access to accredited / appropriate facility(ies) for practical training. Successful completion of training should lead to licensing with the relevant statutory body as a specialist in neonatal nursing. Different countries have different names for the qualification.

In South Africa, neonatal nursing was initially presented as a listed course (a 6 to 12 month short course) with 364 registered nurses still being listed in neonatal nursing (SANC, 2020). From 2001 until 2012, 352 registered nurses obtained a post-basic diploma or coursework master's degree in neonatal nursing. In 2019 there were 340 persons registered with the additional neonatal nursing qualification (SANC, 2020). It is not known how many of the neonatal nurses listed or registered are still working in neonatal intensive care units. The only neonatal training left in South Africa currently is a neonatal module as part of advanced midwifery and paediatric / child nursing, and in-service training opportunities at the various institutions.

The competency framework for neonatal that was submitted to the SANC, is developed as a postgraduate diploma to be presented by universities with nursing departments or nursing schools in collaboration with accredited public and private healthcare facilities. The minimum requirements should be a bachelor's degree or similar qualification, appropriate experience and access to accredited facility(ies) for work integrated learning (NNASA, 2019).

***Criteria 9: The specialty has a credentialing process determined by the profession or in accordance with the national practice for other professions.***



Neonatal nursing resides as a specialty under the umbrella of a number of countries' nursing or nursing and midwifery council where they are credentialed after obtaining a post-registration diploma or master's degree. They are recognized as clinical nurse specialists / advanced neonatal practitioners in the USA (Registered Nursing Organization, 2020); neonatal nurses in Australia (Australian College of Neonatal Nurses, 2020), neonatal nurses in Europe (European Foundation for the Care of Newborn Infants (2018), and Advanced Practice Nurse: Nurse Practitioner or Clinical Nurse Specialist in Canada (Canadian Association of Neonatal Nurses, 2011) as examples.

They are not yet credentialed as neonatal nurse / midwife in the UK although they receive specialized training and are employed as neonatal nurses / midwives (Royal College of Nursing, 2016; Nursing and Midwifery Council, UK, 2020).

In South Africa the specialty in neonatal nursing was previously recognized for credentialing by the SANC as the statutory body as discussed in the previous section.

***Criteria 10: Practitioners (nurses) are recognized and represented within a specialty association or a branch of the national nurses' association.***

Globally there are more than 30 dedicated neonatal nurses' associations. In South Africa the NNASA was founded in 2007 and is a member of the COINN who links and supports neonatal nursing associations globally.

On national level NNASA is part of the Professional Societies of South Africa, and is affiliated with the Society of Midwives of South Africa (SOMSA), United South African Neonatal Association (USANA) and South African Pediatric Association

(SAPA). NNASA is currently in the process of negotiation for affiliation with the Critical Care Society of South Africa.

In some countries (and supported by COINN) there is a career pathway available for neonatal nurse specialists. In South Africa however, this is not possible since the change in framework for specialist nurses registered with the SANC in 2011. This status presented a situation where registered nurses with an additional qualification in the field of neonatal nursing, either by means of certificate courses, diplomas, post-basic and/or master's degrees, were unable to follow a professional career path in the field of neonatal nursing. The universities and nursing colleges ceased to present training in this field, since their training was subject to recognition by the SANC, which in turn failed to understand the importance of this specialty. Furthermore, neonatal nursing is influenced by the similar factors causing nursing to be in a crisis as stipulated by Rispel (2015), especially staff shortages, declining interest in the profession, the multiplicity of health sector reforms, and the burden of disease (in this case mostly related to prematurity).

As mentioned previously, neonatal mortality and morbidity did not decrease to the targets as set by the Millennium Developmental Goals or the Sustainable Development Goals, and the lack of neonatal nurse specialists may well have contributed to this poor outcome.

## **DISCUSSION**

Neonatal mortality has been and remains a global issue with developing countries being worse affected than developed countries (Rhoda, et al., 2018). The Millennium Development Goals were set with one of the targets (Development Goal #4) to reduce

neonatal mortality by two thirds by 2015 (WHO, 2000), which were not met. That was followed by the Sustainable Development Goals with one of the targets to reduce neonatal mortality to less than 12 per 1000 live births by 2030 (United Nations General Assembly, 2015).

In South Africa the neonatal mortality rate varies from 12 to 21 per 1000 live births, depending on which report is quoted (Rhoda, et al., 2018). Approximately 10-25% of these deaths were associated with healthcare provider avoidable factors, with the biggest problem being in the district hospitals (Pattinson & Rhoda, 2014). The high neonatal mortality rate persists in spite of all the activities and programs indicated earlier. The situation is worsened by the staff shortage and the implication that medical officers and registered nurses who did not have any or limited neonatal training often have to take charge of neonatal intensive care units caring for very sick neonates. The staff mix is further complicated by limited registered nurses and the use of enrolled nurses, auxiliary nurses and even careworkers in the NICU, and the use of agency (temporary) staff.

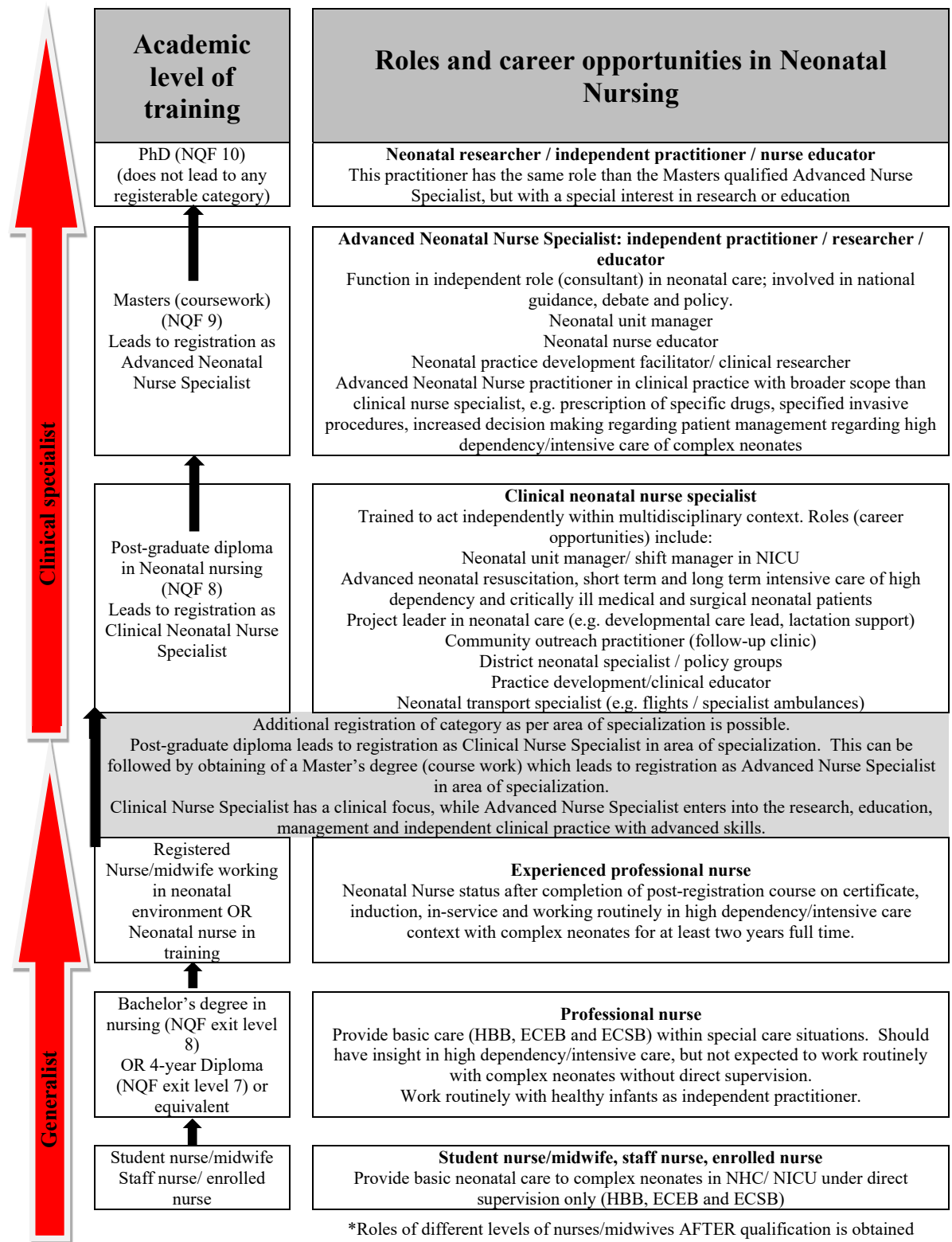
In order to cope with the number of preterm and ill neonates, the Department of Health of South Africa (2012b) provided guidelines for the availability and types of neonatal beds based on the number of deliveries in the catchment area of the hospital. For every 1000 annual deliveries, there should be 3-4 beds for level I services, 2-3 beds for high care (level II) and 0.5 beds for intensive or highly specialized care (level III). Based on these guidelines South Africa should have 3000-4000 level I beds, 2000-3000 level II beds and 505 level III beds, which is a total of 5505-7505 neonatal beds.

In 2013 there was a call from Premji et al. for neonatal nursing specialization in developing countries as a scaling-up strategy to improve neonatal survival. The authors indicate that “Specialized training in neonatal nursing can provide frontline skilled

nursing care to prevent adverse outcomes for both the vulnerable infant and their family” (Premji, et al., 2013:4).

In this publication it is argued that the South African context demands specialized neonatal nurses to improve neonatal outcomes. The resources for education are available in terms of a developed neonatal competency framework for a postgraduate diploma; a keen interest from professional nurses working in neonatal intensive care units to undergo formal training; universities interested to present the program; health institutions eager to collaborate in training of neonatal nurses and expressing a need to appoint at neonatal trained unit managers and shift leaders; a national neonatal association prepared and equipped to assist with the process and contribution of education material; and the support from the COINN (NNASA, 2019). It is also supported by the Department of Health (2013:136) stating “Several aspects such as ...neonatal care are specialty practice areas identified in South Africa which are not presently accommodated by the educational and qualifications framework in South Africa nor recognized by the SANC for registration, and need consideration.” The main outstanding requirements are the willingness of the SANC to approve neonatal nursing as a stand-alone specialization, to engage with the neonatal association on the competency framework and to accredit the relevant facilities for training. Thereafter accreditation can be requested from the Council on Higher Education and registration by the South African Qualifications Authority.

**Figure 2: Potential career opportunities in neonatal nursing**



## CONCLUSION

Neonatal nursing meets all the criteria stipulated by the ICN (2009) and is acknowledged as such in many countries. There is a desperate need for clinical neonatal nurse specialists in South Africa as argued in this publication. They are expected to contribute to the improvement of neonatal outcomes. The impact can be evaluated by monitoring the trends in neonatal mortality and morbidity, as well as trends in reported incidents related to neonatal care.

Implications for nursing policy include the resolution of the current situation regarding recognition of neonatal nurse specialists by the SANC and to re-instate neonatal nursing as a stand-alone specialty in nursing. Recognizing this specialty in nursing will address the national policy and strategy to train and deploy these specialists in the different areas they can serve, and career pathways need to be formalized. Potential career opportunities for neonatal nurses in South Africa is included as Figure 2.

The main implication for nursing practice will be the availability of skilled neonatal nurses to work as part of the interprofessional team taking care of very sick and preterm infants, and taking lead in informed evidence-based neonatal care. They will be in a better position to make clinical decisions amidst the staff shortage experienced.

The implication for nursing education will be the addition of the neonatal specialty at postgraduate level presented by universities. The curriculum will be standardized with collaboration between the different universities and the NNASA, aligned with the international neonatal competency framework endorsed by COINN.

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## Competency framework for neonatal nurses

<b>A. Professional, ethical and legal practice</b>
<b>A1: Professional practice</b>
<ul style="list-style-type: none"> <li>• Display professional autonomy, accountability and responsibility within scope of practice</li> <li>• Practice reflectively and evidence-based</li> <li>• Act as a role model and leader</li> <li>• Function as part of, or coordinate an interprofessional healthcare team</li> </ul>
<b>A2: Ethical practice</b>
<ul style="list-style-type: none"> <li>• Adhere to ethical principles and bio-ethical decision making in practice, and facilitate ethical awareness e.g. through presenting workshops</li> <li>• Protect human rights and advocate for neonates and their families</li> <li>• Facilitate sensitivity to cultural, religious, language, professional and technological diversity in neonatal care</li> </ul>
<b>A3: Legal practice</b>
<ul style="list-style-type: none"> <li>• Ensure compliance with relevant acts, regulations, policies, guidelines, protocols and algorithms</li> </ul>
<b>B. Care provision and care management</b>
<b>B1: Health promotion</b>
<ul style="list-style-type: none"> <li>• Create awareness, provide care and health education, and implement the following: <ul style="list-style-type: none"> <li>- Understanding of the continuum of care and the need to advocate for improved family planning, maternal health, antenatal and intrapartum care in order to improve neonatal outcomes</li> <li>- Essential care of every baby (ECEB)* for neonates with common illnesses</li> <li>- Prevention of disability of very preterm and critically ill neonates</li> <li>- Hygiene and infection prevention</li> <li>- Developmental care (including skin-to-skin care)</li> <li>- Exclusive breastfeeding</li> <li>- Immunization</li> </ul> </li> </ul>
<b>B2, 3 and 4: Assessment, diagnosis, planning and implementation</b>
<ul style="list-style-type: none"> <li>• Possess the following prior knowledge to enable competency in neonatal care: <ul style="list-style-type: none"> <li>- Principles and application of the nursing process in neonatal practice, and creating a safe, secure and therapeutic environment for preterm, very preterm, ill and critically ill neonates.</li> <li>- Foetal and neonatal development, anatomy, physiology, pathophysiology and genetic disorders of a preterm, very preterm, ill and critically ill neonate of at least the following systems: respiratory, cardiovascular; neurological; endocrine; musculoskeletal; genitourinary; gastrointestinal; hematological; integumentary; eyes; and ears</li> <li>- Principles and application of neonatal pharmacology and medication management</li> <li>- Principles and application of developmental care (including the “Golden hour”, skin-to-skin care, kangaroo care and facilitation of bonding and attachment)</li> </ul> </li> <li>• Assess and diagnose the different systems of a preterm, very preterm, ill and critically ill neonate as related to: <ul style="list-style-type: none"> <li>- history taking (family history, pregnancy, birth, postnatal); physical assessment (inspection, palpation, auscultation and percussion; reflexes, gestational age assessment); vital data (APGAR at birth, temperature, respiration, heart rate and pattern, oxygen saturation and carbon dioxide monitoring, blood pressure, blood glucose, pain assessment), diagnostic investigations (acid-base balance, fluid and electrolyte balance, hematological investigations, electrocardiography, amplitude-integrated electroencephalography, radiographic investigations, eye screening, hearing assessment, drug levels and more)</li> </ul> </li> <li>• Conduct basic and advanced resuscitation of neonates.</li> <li>• Plan and implement care of the preterm, very preterm, ill and critically ill neonate (including, but not limited to essential care of small babies (ECSB)*, advanced medical and surgical neonatal nursing care, palliative care and medication management) related to the following systems: <ul style="list-style-type: none"> <li>- Respiratory system, including prevention of olfactory overstimulation, management of structural and acquired respiratory defects (e.g. surfactant therapy, non-invasive ventilation, intubation and invasive ventilation and oscillation, care of underwater drainage)</li> <li>- Cardiovascular system, including blood pressure maintenance and management of conduction disorders and structural cardiac defects</li> <li>- Neurological-, endocrine- and musculoskeletal system, including developmental care, management of birth complications, intracranial hemorrhage, structural and conduction defects and endocrine disorders, post-operative care, and initiation and maintenance of therapeutic cooling</li> <li>- Pain management including non-pharmaceutical and pharmaceutical pain management</li> <li>- Genitourinary system, fluid and electrolyte homeostasis and management of genital and renal defects (including catheterization, obtaining and maintaining vascular access)</li> <li>- Gastrointestinal system, including blood glucose homeostasis, feeding, nutrition and elimination, metabolic homeostasis, and management of metabolic disorders, structural defects (congenital and acquired) of the mouth, throat, stomach, liver, intestines and anus</li> </ul> </li> </ul>

<ul style="list-style-type: none"> <li>- Hematological system management of blood disorders of red blood cells and platelets, and disorders related to immunity and communicable diseases</li> <li>- Integumentary system, including protection of premature skin integrity, thermoregulation, implementation of skin-to-skin care and management of preterm, congenital and acquired skin disorders</li> <li>- Eyes, including prevention of blindness and management of eye disorders</li> <li>- Ears, including prevention of hearing loss and vestibular disturbances, management of structural and acquired ear defects and hearing loss</li> <li>- Complex multi-organ disorders</li> </ul>
<ul style="list-style-type: none"> <li>• Transport preterm, very preterm, ill and critically ill neonates (including skin-to-skin transport) internally in institution, or by means of ambulance or being airlifted</li> </ul>
<ul style="list-style-type: none"> <li>• Demonstrate technical competence and give input into the development of specifications and evaluation of equipment and consumables</li> </ul>
<b>B5: Evaluation, recording and information management</b>
<ul style="list-style-type: none"> <li>• Develop or obtain, maintain, store and audit nursing care documents and digital information, records of investigations and treatment, personal information, administrative processes and human resource and systems management</li> </ul>
<b>B6: Therapeutic communication and relationships</b>
<ul style="list-style-type: none"> <li>• Take the lead with implementation of family-centered / family-integrated neonatal care, alternative and transcultural care, and inter-professional teamwork</li> </ul>
<b>C. Personal development and quality of care</b>
<b>C1: Quality improvement</b>
<ul style="list-style-type: none"> <li>• Assess, plan, implement and evaluate quality improvement processes and initiatives to address neonatal mortality and morbidity</li> </ul>
<ul style="list-style-type: none"> <li>• Translate research findings into practice to contribute to setting standards and development of best practice guidelines and policies</li> </ul>
<ul style="list-style-type: none"> <li>• Manage human and material resources, including but not limited to budget, equipment, staffing, environment and service delivery</li> </ul>
<ul style="list-style-type: none"> <li>• Contribute to staff development and nursing practice through education</li> </ul>
<b>C2: Continuing personal development</b>
<ul style="list-style-type: none"> <li>• Engage in a culture of lifelong learning and continuous professional development and active involvement in a professional association</li> </ul>

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