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Development of a Competency Framework for the Professional Development of Different Categories of Nurses in Neonatal Practice

By

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A thesis submitted in accordance with the requirements for the degree of

PHILOSOPHIAE DOCTOR

at the

Department of Nursing Science
School of Healthcare Sciences
Faculty of Health Sciences
of the
University of Pretoria

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2019

This work is dedicated to my loving and supporting family…

Jaco for being the wind beneath my wings,

Erik and Noël for being the stars in my eyes,

my Mother for having faith in me,

and most of all

to all the neonates who touched my life.

DECLARATION

I, Mariana Scheepers, declare that this thesis entitled, “Development of a Competency Framework for the Professional Development of Different Categories of Nurses in Neonatal Practice” is my own work, and that all the sources used or quoted in this research study have been indicated and acknowledged by means of complete references. An external facilitator supported me, to limit my bias during data collection. I further declare that this work has not been submitted for any other degree at any other institution.

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Researcher’s signature

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Witness’s signature

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Date signed

Acknowledgements

First and foremost, my family. Thank you that all of you believed in me and supported me through this journey. Especially my husband and my two sons who were there every step of the way with love and encouragement.

My sincere appreciation to my promotor and co promotor for their perseverance and support.

Thank you, Santrust for the proposal development support and ongoing assistance.

Thank you NRF and Santrust for the funding I received.

Thank you to the team responsible for language and technical editing.

Abstract

DEVELOPMENT OF A COMPETENCY FRAMEWORK FOR THE PROFESSIONAL DEVELOPMENT OF DIFFERENT CATEGORIES OF NURSES IN NEONATAL PRACTICE

A unique characteristic of neonatal care is the unpredictability of illness at birth and a high-risk period of adaptation in the days thereafter. The majority of newborn infants will survive with little specialised care. However, there will always be a number of newborn infants who will need special care and if not managed properly, they may suffer serious damage or even die. Due to the high risk it is crucial for all levels of healthcare workers involved in the care of the neonates to be competent.

In the South African context, nurses play a key role in neonatal practice but they have various levels of competency as they are trained through different programmes with different levels of knowledge and skills on completion. Professional development though is expected to enhance their competencies.

A multi-method research design was used to explore and describe competencies for the professional development of different categories of nurses in neonatal practice; to develop a competency framework for professional development of these nurses and to validate the competency framework within the South African context.

The theoretical underpinning of the research included the three competency domains (professional and ethical; clinical practice and quality of care) of the South African Nursing Council, as well as Benner's novice-to-expert model.

The result of this study is a competency framework for the professional development of different categories of nurses in neonatal practice. The competency framework for professional development is expected to improve quality and accountability of nurses in neonatal practice.

Key Words**:** competency framework, different categories of nurses, knowledge and skill, neonatal practice, professional development.

TABLE OF CONTENTS

TABLE OF FIGURES

TABLE OF TABLES

CHAPTER 1– OVERVIEW OF STUDY

1.1 INTRODUCTION

The purpose of the study was to develop a competency framework to provide a structure and context for expected and required care within neonatal practice. Neonatal care starts with the birth of a baby and any baby should receive the level of care according to his or her unique needs (Fanaroff, Fanaroff and Klaus 2013:71; Fanaroff, Fanaroff and Klaus 2019:44). The nursing care and management of any newborn after birth, should be quick, systematic and within the framework of a definite protocol. “The role of the nurse is frequently to bring together all the pieces of the puzzle to ensure comprehensive, clinically excellent, and compassionate care to sick newborns and their families” (Verklan and Walden 2015:15).

A competency framework provides such structure and context to expected and required care within a specific discipline. The nurse involved with neonatal care must be alert for signs of distress and should be able to apply a variety of skills in order to assess, understand and initiate interventions appropriate to the newborns’ needs during this critical time (Klaus and Fanaroff 2013:225). The majority of newborns will survive with little special care. However, there will always be a number of newborns who will need special care and if not managed properly, they may suffer serious injury or even succumb to their injuries. What is clear is that every neonate should receive the best care there is to offer (Cronje and Grobler 2003:99; Lowdermilk, Perry, Cashion and Alden 2012:553; WHO 2014:26; Harrison and Goldenberg 2016:75).

1.2 BACKGROUND AND RATIONALE

This study was developed against the background of neonatal care across the world, neonatal care in South Africa and the principles of creating a competency framework for nurses involved in neonatal care.

1.2.1 Neonatal mortality and care initiatives

In 2006 the World Health Organisation (WHO 2006) published a report related to Neonatal and Perinatal Mortality for the year 2000. The report provided neonatal and perinatal mortality estimates by country, regional groupings as well as globally. The results indicated that more than four million babies died in the first four weeks of their life per year worldwide (WHO 2006:25; Lloyd and De Witt 2013:518). In the most underdeveloped countries the numbers were even more alarming. In Africa the risk for neonatal death was the highest, with 41 deaths per 1000 live births, in comparison to the global mortality rate being 33 per

1000 live births. A large percentage of these deaths could have been managed as preventable and treatable conditions (Millineum Development Goals Monitor 2016:n.p.).

The Millennium Developmental Goals (MDGs) was a set of goals aiming to improve human development and to reduce poverty worldwide by 2015. The year 2015 was the marked end of the MDGs. It was therefore also the end of the period that was set to address the key global problem of child mortality, addressed by goal number 4 (to reduce the under 5 mortality rates by two thirds between 1990 and 2015) (Acheampong, Ejiofor and Salinas-Miranda 2017:1428). The World Health Organization estimated that the under 5 mortality rates (U5MR) declined with an estimated 53%, but despite the remarkable progress the goal was not met (Acheampong et al. 2017:1429). The target for the neonatal mortality rate was to be reduced by two thirds which should have been 11 per 1000 live births, but globally it only declined to 19 neonatal deaths per 1000 live births (MDG Monitor 2016:n.p.). Newborn mortality comprises one third of all under 5 deaths. This number has not changed in the last decade in low and middle-income countries including South Africa (Maredza, Chola and Hofman 2016:1).

In general there have been significant changes in global health such as life expectancy, emerging global health security threats and a shift in the major causes of death and illness subsequent to the initiation of the MDGs (Chan 2016; Taylor, Williams, Magnus, Goenka and Modi 2015:1213). The Sustainable Development Goals (SDG) were agreed upon by the United Nations (UN) in the general assembly of August 2015 and adopted during The United Nations Development Summit held on the 25th of September 2015 to replace the MDGs (United Nations 2015:n.p.).

There are 17 Sustainable Development Goals and 169 targets (Figure1.1 on p16). Goal number 3 is of importance to this study, with the following embedded target to be reached by 2030: “End preventable deaths of newborns under 5 years of age and all countries aiming to reduce neonatal mortality to at least as low as 12 per 1000 births and under 5 mortality to at least as low as 25 per 1000 live births” (WHO 2019:n.p).

Figure 1-1 Seventeen sustainable development goals from the United Nations (United Nations 2019:np).

The focus of this study was on SDG 3 that addresses neonatal mortality. It is estimated that 7300 newborns die every day worldwide. Three quarters of these estimated deaths result from preventable and treatable conditions such as prematurity, neonatal infections and events around childbirth (WHO 2017:n.p.).

The Every Newborn Action Plan (WHO 2014:n.p.) is an international attempt to provide a road map which contains strategic actions from evidence based solutions to end preventable newborn deaths. This action plan was endorsed by 194 state members at the 67th World Health Assembly. The implementation of this action plan is expected to reduce neonatal mortality and stillbirth to 12 or less per 1000 live births in all countries by 2030 (WHO 2017:n.p.).

Countries with some of the highest newborn mortality rates include the Central African Republic (neonatal mortality rate of 43/1000 live births); Somalia (neonatal mortality rate of 40/1000 live births); South Sudan and Chad (neonatal mortality rate of 39/1000 live births) and Sierra Leone (neonatal mortality rate of 35/1000 live births). A country neighbouring South Africa is Lesotho with a neonatal mortality rate of 33/1000 live births (WHO 2017:n.p.). South Africa's neonatal mortality rate is 21 per 1000 life births (Rhoda, Kauchali, Velaphi, Gebhardt and Barron. 2018:9).

A unique characteristic of neonatal care is the unpredictability of illness at birth and a high-risk period of adaptation in the days thereafter (Ladewig, London and Davidson 2010:587). The neonatal period, which is the first four weeks of life, holds the highest risk of death compared to any other period in the human lifespan (Oestergaard, Inoue, Yoshida, Mahanani, Gore, Cousens, Lawn and Mathers 2011:2). Due to this high-risk period (Oestergaard et el 2011:2), there is an expectation for competent care which is directly influenced by the required competencies from the healthcare workers responsible for the care. A skilled workforce is therefore essential (Eklund and Kenner 2015:407).

Responsibilities in providing neonatal care include assessment of a neonate, problem identification and prioritising thereof, planning and intervention, as well as evaluation of the outcomes. Decision making during this process may entail the decision to refer and transfer neonates for specialised care, while assessment and interventions can occur on a continuum from basic to advanced activities. The quality of execution of these responsibilities is determined by the acquisition of knowledge and skills (referred to as professional development in this study) of the individual nurse in that particular situation (Verklan and Walden 2010:15).

Initiatives in practice to improve competencies in neonatal care outside South Africa have been developed to address specific needs found in the practice of neonatal care, based on the Every Newborn Action Plan (WHO 2014:n.p.). Two examples of attempts to reduce neonatal mortality and improve neonatal care by means of training are Essential Newborn Care (Waldemar, McClure, Chomba, Chakraborty, Hartwell, Harris, Lincetto, and Wright 2010:1068) and the Lufwanyama Neonatal Survival Project (Gill, Phiri-Mazala, Guerina, Kasimba, Mulenga, MacLeod, Waitolo, Knapp, Mirochnick, Mazimba, Fox, Sabin, Seidenberg, Simon and Hamer 2011:373). Two South African examples would be the Limpopo Initiative for Newborn Care (Malan, Greenfield, Mashao, Rhoda, Goga, Kerber, and Lawn 2014:4) and the Perinatal Education Programme (Woods 2009:9 and Woods 2015:187).

The Essential Newborn Care programme sets minimal neonatal care standards based on evidence-based guidelines, for newborn care. This course has been taught in various countries worldwide. Recently a pre-intervention / post-intervention study conducted in Zambia, revealed that Essential Newborn Care training in low risk clinics reduced the stillbirth rate, but not the primary outcomes of neonatal mortality (Waldemar et al. 2010:1064). The programme does not make provision for advanced care or management of complications or morbidity of the survivors. The focus of the competencies is aimed at lower

categories of staff working with neonates in community-based settings from birth for short term care.

Another example, the Lufwanyama Neonatal Survival Project (June 2006-November 2008), was initiated to address the lack of adequately trained and competent midwives, particularly in rural areas with limited access to healthcare. The effect of training traditional birth attendants on neonatal mortality was researched with a prospective, cluster randomised and controlled study. The results indicated that the training of the traditional birth attendants to manage common perinatal conditions significantly reduced neonatal mortality in the setting in Zambia (Gill et al. 2011:373). Their findings indicated that lower categories of health care workers can be trained to have a positive impact on a specific neonatal community. The competencies that are however, included in the programme only make provision for birth attendants for immediate emergency care and referral for further management and does not provide for the subsequent care of the high risk or ill neonate.

In 2002 the Limpopo Initiative for Newborn Care was established with the aim of improving neonatal care in the province (Malan et al. 2014:4). With this initiative, training of nurses contributed significantly to the sustained improvement in neonatal care standards. The training and involvement of enrolled nurses in daily care as well as the training of midwives to provide good basic care in the absence of a doctor proved to be valuable. The training of lower categories as well as midwives contributed to improved neonatal care in predominantly rural areas (Chopra et al. 2009:843). This initiative does not include training of advanced care or long-term care of high risk and critically ill neonates and the competencies are not described according to the different categories of nurses responsible for neonatal care.

The Perinatal Education Programme, an innovative self-study programme, has been available in South Africa since 1993. This programme offers the opportunity for self-directed learning supported by peer and group discussions. The format in each module follows a question-and-answer arrangement encouraging problem solving skills while addressing common conditions with appropriate care practices covering a range of perinatal topics (Woods 2015:187).

Inexpensive interventions, such as proper training on resuscitation, kangaroo mother care (KMC) and the prevention and management of hypothermia are feasible measures to decrease neonatal mortality in a developing country such as South Africa (Lloyd and De Witt 2013: 519).

1.2.2 Need for professional development and training in neonatal care

South Africa was committed to achieve the MDGs. The fourth MDG (MDG4) was of particular relevance to this study. The MDG4 aimed to “reduce child mortality” (Chopra et al. 2009:836). In South Africa, the Vital Registration System (VRS) showed the infant mortality rates as 26 deaths per 1000 live births in 1998 with an increase to 48 deaths per 1000 live births in 2007 (Statistics South Africa 2015:1). Between 1997 and 2004 the under 5 mortality per 1000 live births increased from 65 to 79. This rate then dropped to 40 by 2012 with a gradual decrease in the following years (Nannan, Groenewald, Pillay-van Wyk, Msemburi, Dorrington and Bradshaw 2019:481).

In South Africa neonatal care is provided by various categories of nurses in a variety of settings, including auxiliary nurses (also known as nursing assistants), enrolled nurses and professional nurses, from novices to experts. These nurses are regulated by the South African Nursing Council (SANC) and enrolled or registered in terms of the Nursing Act no. 33 of 2005 (South Africa 2005). The nursing of a patient takes place according to the scope of practice of the respective persons who are registered or enrolled under the Nursing Act (SANC 1984), which also implies the nursing of a neonate.

According to Searle, Human and Mogotlane (2009:72), the International Council of Nurses expressed their concern regarding the fact that the number of untrained and auxiliary nursing personnel far exceeds the number of professional nurses in many countries.

It is reported by the South African Nursing Council that over a period of 10 years (2007-2017) the registered nurse/registered midwife category grew with 34114 practitioners (+31%). The enrolled nurse/enrolled midwife category grew with 30870 practitioners (+71%). The enrolled nursing auxiliary category grew with 9289 practitioners (+15%). This data indicates that there are fewer registered nurses/registered midwives compared to the numbers of enrolled nurses/enrolled midwives and enrolled nursing auxiliaries (SANC 2018:1). In South Africa this is a predicament for the professional nurses who must supervise subcategories of nurses (Searle et al. 2009:72).

Despite the recommendations in the Guidelines for Maternity Care in South Africa (2015:16) to staff maternity units with the ideal critical mass of professional nurses, there are insufficient numbers of trained staff and for practical purposes units only conform to the minimum critical mass which requires a professional nurse with an assistant nurse or enrolled nurses according to Pattinson (2015:262). This indicates, according to Searle et al. (2009:73) that the public is receiving the bulk of care at the hands of persons with a low level of knowledge and skills. A study investigating the functionality of healthcare facilities in

twelve districts in South Africa related to basic and emergency obstetric care, concluded that safe maternity care was not consistently available in numerous birthing facilities (Pattinson, Makin, Pillay, Van der Broek and Moodley 2015:260).

The health care settings in which neonatal nursing care is provided, vary from community and primary clinics, to neonatal intensive care units, including midwife obstetric units, district hospitals and tertiary academic hospitals (Nolte 1998:5; Guidelines for Maternity Care in South Africa 2015:20). Neonates' (infants up to 28 days) conditions may vary from healthy to critically ill, yet all require quality neonatal assessment and care.

The quality and cost effectiveness of care is dependent on the number of staff with the appropriate skill mix of categories of workers for the provision of care (McGillis Hall 2009:5). Provision of quality care is complicated by the rising demand for health services, cost containment and shortages of health care workers (McGillis Hall 2009:5). The knowledge and skills deficit and lack of equipment add to this burden (Pattinson 2008:1302).

South Africa was one of eight countries in 2009 in which the neonatal mortality rate (NMR) was higher than its baseline data in 1990 (Lloyd and De Witt 2013:518). According to the Rapid Mortality Surveillance report (Dorrington, Bradshaw, Laubscher and Nannan 2018:i), based on the national population register (NPR) data, the target for the neonatal mortality rate (< 28 days) was determined at 11/1000 live births. The target set for 2019 was 6/1000 live births. The picture looked bleak for the infant (IMR) mortality rate which was 27/1000 live births in 2012. This number increased to 28/1000 lives births in 2013 and remained unchanged in 2014. In 2015 the number came down to 27/1000 live births but remains far from the target (Dorrington et al. 2016:i).

The literature is unclear about the reason for the the existence of the lack of structure for competencies, but it might be related to the fact that neonatal nursing is not a stand-alone speciality in South Africa. Currenty neonatal nursing is included to some extent in midwifery and paediatric nursing. Neonatal Nurses Association of Southern Africa (NNASA) has, after the 7th International Neonatal Nurses Conference and 4th National Conference, called for a clarification of competencies of different categories of nurses involved with neonatal care, which are endorsed by the Minister of Health, the Ministerial Task Team of the National Department of Health and SANC during meetings with NNASA and USANA in December 2011. In the most recent edition of Guidelines for Maternity Care in South Africa (2015:18) detailed guidelines on neonatal care are omitted and only basic care of the newborn is described.

According to the Generic Competency Framework for Advanced Nurse Practitioners (SANC 2014:1 and SANC 2013c) the need to review the scope of practice was due to the changing healthcare system in South Africa as identified by the White Paper for the Transformation of Health (Department of Health 1997) as well as the changes in the education system. Several challenges were identified including appropriateness of existing scopes of practice; cost effective categories of nurses required to deliver a high standard of care; aligning the scopes of practice of different categories of nurses in accordance with health care delivery needs and the evaluation of education and training of nurses in terms of appropriateness, cost benefit, core competencies and standards for practice (SANC 2013c). A challenge facing nursing education is to ensure that National Health Priorities are addressed in all nursing education programmes. A national health priority of relevance to the current study is the reduction of neonatal mortality in South Africa (National Department of Health Strategic Plan 2010/11-2012/13:22).

There is for the above reasons a crucial need for professional development and training in neonatal care.

1.2.3 Creating a competency framework

Neonatal care is provided to neonates over the world. Developed countries have more education structured competencies in place for neonatal education than underdeveloped or developing countries. Globally, in developed countries, neonatal competencies seem to have common domains, using research and evidence, leadership and professional development, communication, legal and ethical considerations (Turrill 2014:504). If consensus could be reached on what neonatal competencies nurses involved in neonatal care in South Africa should have, a competency framework can provide the structure to guide the professional development of these neonatal nurses.

The professional nurse is an important enabling category in the health care delivery system with characteristics of compassion, empathy, concern, sympathy and love for human beings interwoven with knowledge and skills (Searle et al. 2009:49; Human and Mogotlane 2017:22-23). In order to exhibit these characteristics of professional nursing, professional development is required.

The Scottish Neonatal Nurses Group (Royal College of Nursing 2011:2) provided the ground work for the Royal College of Nursing to develop a framework for careers and education in neonatal nursing with their competency framework for different categories of nurses in neonatal care. The competency framework provides clear recommendations for the “Qualified in Speciality” nurse (Royal College of Nursing 2011:2). The Royal College of

Nursing constructed their competence and education framework on Benner's levels of competence, which originated from the work of Dreyfus and the Dreyfus Model of Skill Acquisition (Dreyfus and Dreyfus 1980:3). The framework constructed by the Royal College of Nursing cannot be applied as is in the South African context due to the differences in nurses' training and the healthcare systems.

1.2.4 Education framework of different categories of nurses

According to SANC, quality nursing practice is based on adequate knowledge; skills/competencies; ethically and scientifically based comprehensive and holistic patient care; timeous, accurate and complete recording; optimal multi-disciplinary teamwork and networking; a therapeutic environment; accountable professional conduct and efficient management of nursing practice, clinical units and nursing services as required for professional qualification and registration according to the Standards for Nursing Practice (SANC:nd).

In the South African context, the different categories of nurses (professional nurses, enrolled nurses and nursing assistants) are trained through different programmes, exiting on different levels of knowledge and skills. SANC (South Africa 2005; SANC 2013c) stipulates the differences between the professional nurse, midwife and lower categories in terms of the care they can provide. The professional nurse can practise to the full scope of nursing, comprehensively and independently and assume accountability and responsibility for such practice. Historically, enrolled nurses were educated to practice basic nursing but in future the new cadre of staff nurses (mid-level nurse) will be able to practice general basic nursing independently and assume responsibility and accountability for such practice in terms of the SANC Regulation 786 (SANC 2013c). The auxiliary nurse carries out acts and procedures as part of a nursing regime which is initiated by the professional nurse. The auxiliary nurse (first-level nurse) is educated to provide fundamental nursing care under the direct or indirect supervision of a professional nurse according to Regulations 2598 and 786 (SANC 1984 and SANC 2013c).

The different categories of nurses are involved in different aspects of neonatal care. Midwives and advanced midwives play an important role in terms of the delivery and immediate care of neonates who can be anywhere on the health continuum at birth (Cronje and Grobler 2003:99; WHO 2014:15). Neonatal care provided by a professional nurse, professional midwife, enrolled nurse, or an auxiliary nurse can take place in various settings and on various levels of complexity (Cronje and Grobler 2003:99; Lowdermilk, Perry, Cashion and Alden 2012:553). Specialised neonatal nurses play a crucial role in the

subsequent care of critically ill or high-risk neonates in neonatal intensive care units or neonatal high care units (Maree 2007:72).

The current qualification for a professional nurse and midwife can be obtained by means of a four-year degree at a higher education institution (HEI) or a four-year diploma at a nursing education institution based on Regulation 425 (NEI) (SANC 1985a). The programmes contain information regarding the healthy neonate and some institutions include information regarding neonatal resuscitation. Current postgraduate qualifications, as well as planned new qualifications that make provision for more depth of information regarding neonatal care or for specialisation are discussed in Chapter 2.

The current enrolled nurse qualification can be obtained through a two-year programme at a nursing education institution (SANC 1993a), while the new cadre of staff nurses will be able to obtain their qualification by means of a three-year programme at a nursing education institution (SANC 2013b). An enrolled nurse can obtain the qualification of a professional nurse by adding a two-year bridging programme to the two-year enrolled nurse programme at a nursing education institution according to Regulation 683 (SANC 1989). There is limited or no contact with neonates during the training of these programmes.

Based on SANC Regulation 2176 the current qualification as an auxiliary nurse can be obtained by means of a one-year training programme at an institution recognised by SANC (SANC 1993b). With this qualification there is also limited or no contact with neonates during the training of this programme.

All these categories of nurses need competencies on different levels of complexity, which is the focus of this study, as they are working together to provide quality neonatal care.

Newly registered nurses entering the field of neonatal care may or may not have been exposed to neonatal care in their basic training. Limited exposure does allow the transfer of generic nursing competencies to their practice. These nurses, however, will not have the unique knowledge foundations relevant to the neonatal population for whom they will be caring (Turrill 2014:505).

1.2.5 Need for a neonatal competency framework

Development of the necessary competencies does not happen spontaneously or purely by formal education alone. Through practising of the profession and simulation from practice, connections are made between the knowledge base and the challenges encountered. Professional development and professional practice are interdependent since practice will not develop unless development as a professional occurs (Jasper 2006:2; Human and

Mogotlane 2017:13). According to Dreyfus and Dreyfus (1980:1) and Thomas and Kellgren (2017:229) professional development occurs on a spectrum from novice to expert, starting with novice followed by advanced beginner, then by competent performer, thereafter by proficient performer and then lastly the expert. Professional development up to the level of being competent or even being an expert in a particular area does not make a person an expert in another area (Jasper 2006:21 and Sellman 2018:2). By implication, an expert nurse working in a neonatal intensive care unit would not be considered an expert in a geriatric ward. Some of the knowledge and skills will be applied in the geriatric ward but the nurse will not be recognised by peers as an expert in geriatrics. The same applies to nurses who have recently completed their training implying that they are generally competent to be a nurse but not necessarily competent in a specialisation area such as neonatology. Furthermore, an enrolled nurse with years of experience in neonatal care, might be considered as an expert within her scope of practice, but she cannot be compared to a professional nurse who is an expert in neonatal care since the latter will have depth of knowledge and advanced skills that are not within the scope of practice of the enrolled nurse.

Van Niekerk (in Loubser 2008:31) states that skill shortages and the remodelling of care delivery with different skill mixes can no longer be ignored, “An optimal skill mix is 100% dependant on the utilisation of the right numbers for the right reasons at the right service level with the right skills, in all situations. In other words, competencies at all levels are the key to success”. Lower skill mixes and the proportion of professional nurses to other categories is often associated with higher rates of adverse outcomes, longer length of stay and nurse burnout according to Needleman (2017:525).

Pattinson (2015:261) refers to an ideal critical mass of professional nurses that should staff maternity units in the community health centres (CHC) based on the Guidelines for Maternity Care in South Africa (2015:14). This critical mass of nurses should include a professional nurse with a midwifery qualification as well as an advanced midwife. Currently this is not possible due to the shortage of advanced midwives in South Africa. Thus, the minimum critical mass of staff in a maternity ward in a community health centre would include professional nurses with nursing assistants or enrolled nurses. Health care providers need knowledge and skills on different levels to provide quality care of neonates, while gaps in training where staff did not know what to do or how to analyse and interpret findings might lead to serious consequences for the neonates (Baleta 2011:1304).

It is the researcher’s experience in clinical practice that in high risk areas such as labour wards, high care and neonatal intensive care units, not only trained professional nurses are employed as was the case previously. In the last few years lower categories of nurses such

as enrolled nurses and nursing assistants were employed to form part of the workforce in the departments responsible for neonatal care. Thus, different levels of skills related to neonatal care are displayed.

Acquisition of knowledge and skills in neonatal care is required to substantially reduce the high neonatal mortality rate in South Africa (Pattinson et al. 2005:6; Chopra et al. 2009:843; Pattinson 2015:261). Adequate training does not necessarily imply formally accredited qualifications. Training or other opportunities for professional development could be provided for all categories of nurses in order for them to acquire competencies and obtain expertise within their particular scope of practice to provide quality neonatal care. However, a framework for professional development is lacking; a framework with specific reference to neonatal care, that would indicate exactly what competencies can be associated with being a novice, advanced beginner, proficient, competent, or expert for each category of nurse to prevent consequences resulting in mortality or morbidity while at the same time ensuring that nursing staff function within their scope of practice.

1.2.6 Foundation for a competency framework for professional development

It is important for neonatal nurses to clarify exactly what the specific knowledge and skills (competencies) should be. The World Health Statistics 2016 (WHO 2016:46) recognise that the term “skilled” health attendant is difficult to define due to the differences in training in different countries.

According to the European Foundation for the Care of Newborn Infants’ (EFCNI 2011) White Paper, neonatology is a highly specialised medical discipline requiring theoretical and practical skills for involved staff on an individual basis, including the multidisciplinary team (EFCNI 2011), which implies a process of development from novice to expert.

Benner (1984:13) described five stages through which nurses pass in moving from being a new recruit (novice) to being an expert in the specific profession in nursing. The five levels of clinical practice start with the novice practitioner, followed by the advanced beginner, then competent practitioner, proficient practitioner and lastly the expert practitioner (Jasper 2006:2; McNeil, Ahluwalia and Randell 2019:68) These five levels have been applied in this study.

Professional development is not a stand-alone concept; it is linked to reflective practice and decision making. Recognition of knowledge and skill deficits result in opportunities for professional development. Figure 1-2 Illustrates the relationship between professional development, professional practice, reflective practice and decision making. Fontaine

(2018:340) notes that by applying a process of critical self evaluation on one's own practice leads to an understanding where one could learn from past experiences which consequently leads to a change in behaviour and perception influencing descision making as well as professional development and professional practice. Professional development, professional practice, reflective practice and decision making are interacting continously where one aspect influences the others.

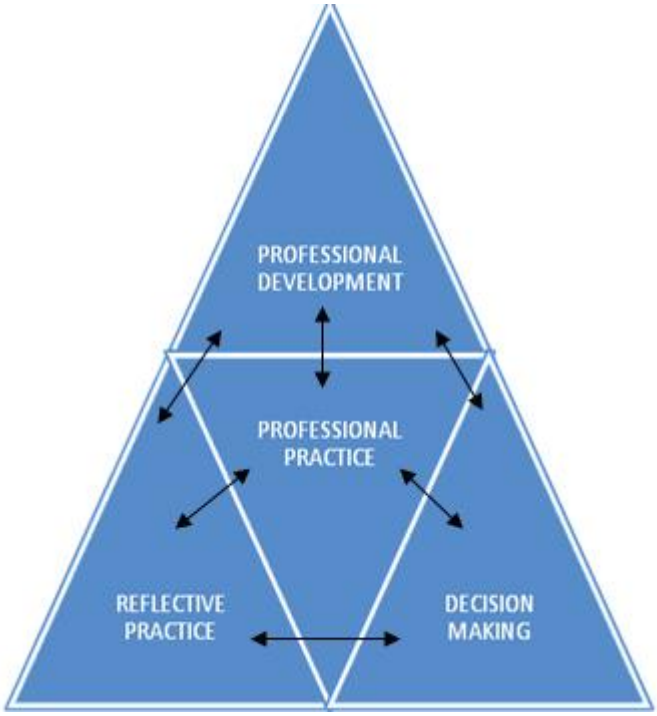


Figure 1-2 Links between professional, reflective practice and decision making (Jasper 2006:3)

The international calls for action to reduce child mortality by two-thirds by 2015 by the WHO (Rajaratnam, Marcus, Flaxman, Wang, Levin-Rector, Dwyer, Costa, Lopez and Murray 2010:1988-2008) and South African audit reports, Saving Mothers Report 2011-2013, (Pattinson 2014:v) echo the need for the provision of adequate training of nurses and monitoring of professional attitudes and ethical conduct. A call from NNASA (Annexure 1) requesting the development of a competency framework for different categories of nurses responsible for neonatal care as well as a formal appeal (Annexure 2) by the Council of International Neonatal Nurses (COINN) to the South African Nursing Council, reiterate the need for a competency framework. This is supported by evidence that developed countries with special education and training offered to nurses improve health outcomes for all; thus developing countries need specialised education and training in neonatal nursing care through detailed educational actions (Kenner, Sugrue, Mubbici, Boykova and Davidge 2009:1; Premji, Spence and Kenner 2013).

SANC published a generic competency framework for advanced nurse practitioners (SANC 2014a). SANC regulates the scope of practice of the different categories of nurses through regulations in line with the Nursing Act (South Africa 2005; SANC 2013c). The competencies listed in this document for different categories of nurses are generic and not specified for neonatal practice and need to be translated into neonatal practice.

Consensus regarding the necessary competencies of different categories of nurses in neonatal care is essential, as well as the interpretation thereof within the SANC framework of different categories (SANC 2013c), which is the focus of this study.

A competency framework refers to standardised and integrated knowledge, skills and attributes of nurses working with neonates, offering a structured description of neonatal competencies of nurses with the purpose of facilitating understanding of the requirements of different categories of nurses in neonatal practice (Tashakkori and Teddlie 2010:532A).

The Scottish Neonatal Nurses' Group (SNNG 2010:7) developed "The Competency Framework and Core Clinical Skills for Neonatal Nurses" based on several surveys related to neonatal care in Scotland. The framework was based on a career structure or pathway which could be used to advance a nursing career. The competencies derived were: communication and interpersonal relationships; personal, professional and people development; health safety and security; service development; quality; equality, diversity and rights and responsibility for patient care (SNNG 2005:7).

This competency framework cannot simply be applied in the South African context as we do not have exactly the same challenges in neonatal nursing practice. There are different categories of nurses in South Africa with different approaches to nurse education and nursing regulation. However, in a similar fashion a competency framework for the professional development of different categories of nurses in neonatal practice can be developed for South Africa. There is a need in South Africa to have neonatal competencies prioritised for the professional development of different categories of nurses in neonatal practice from the entry level which is a novice level to the specialised level which is the expert level, within the respective scopes of practice.

1.3 PROBLEM STATEMENT

The critical period of vulnerability of the newborn is in the first and following days after birth, with the first 28 days being the highest risk for mortality (Waldemar et al. 2010:1065; Michalow, Chola, McGee, Tugendhaft, Patinson, Kerber and Hofman 2015:1). The major causes of neonatal mortality are prematurity, birth related complications (birth asphyxia) and neonatal sepsis (WHO 2016:48). The World Health Statistics 2016 reported that 5.9 million

children under the age of 5 died in 2015, with a global under five mortality of 42.5% per 1000 live births and of those deaths 45% were newborns with a mortality rate of 19/1000 live births. It is reported that child mortality is the highest in Sub-Saharan Africa where 1 in 12 children die before their fifth birthday (WHO 2016:48). The Global Strategy for Women's, Children's and Adolescents' Health (2016-2030) underlines the importance of health at all ages by ending preventable mortality, promoting health and well-being and to expand enabling environments (Kuruvilla, Bustreo, Kuo, Mishra, Taylor, Fogstad et al. 2016:398). Skilled and competent neonatal nurses can provide quality care and improved health outcomes.

A lack in the prevention and management of preterm births, inadequate inpatient supportive care of ill and small newborn babies as well as inability to manage severe infections and promotion of kangaroo mother care increases newborn mortality rate (WHO 2016:48). Insufficient knowledge and skills (competency) of nurses providing neonatal care is a major cause of neonatal mortality (Pfitzer 2010). Interventions that would save newborn lives depend on training and competence of health care providers. Significant shortages of well-trained and competent health care providers complicate the ability of countries to improve life-saving newborn interventions (Pfitzer 2010). In addition, the lack of a clear competency framework to guide the professional development of nurses involved in neonatal care challenges appropriate quality care delivery.

Competency of nursing staff to provide quality neonatal care in different settings is crucial (Pattinson et al. 2005; Chopra et al. 2009:841; Sen et al. 2009:150; World Health Organization and Unicef 2010; Michalow et al. 2015:10).

It is important to have a competency framework for the professional development of different categories of nurses in neonatal practice, such as described by Benner (1984:13) or the Royal College of Nursing (2015), considering the South African context and the existing proposed competency framework of SANC (South Africa 2005; SANC 2013c). It is crucial to have a competency framework for nurses involved in neonatal care according to the particular needs of the neonates, practice and the global outcome according to the Sustainable Development Goals (Wysokińska 2017:110). Development of a competency framework can be done by reaching consensus regarding the acquisition of knowledge and skills needed for neonatal care from novice to expert of nurses from different categories within their respective scopes of practice.

1.4 CONTRIBUTION OF STUDY

This study strives to address the requests made by NNASA, later supported by COINN (Annexures 1 and 2) in the development of competencies for neonatal care in South Africa. The study is expected to contribute to the professional development of nurses involved in neonatal care in South Africa, as well as improving neonatal outcomes as part of under five mortality levels in Sub-Saharan Africa. Furthermore, it might contribute to the achievement of the SDGs by reducing the neonatal mortality in the next decade by developing a competency framework for professional development of nurses to optimise neonatal care on different levels of nursing.

The competency framework for the professional development of different categories of nurses in neonatal practice might also be translated into the Scope of Practice (South Africa 2005; SANC 2013c).

Improving neonatal practice by developing a competency framework for professional development of different categories of nurses in neonatal practice can facilitate the development of high quality skilled and competent nurses in the health care facilities in South Africa. This means that there will be nursing staff of different categories, who through appropriate training, will be qualified and have sufficient knowledge of neonatal care and the skills required to provide competent care within their scope of practice, for neonates including healthy, preterm and sick infants and their families. Neonatal nurse competencies for different categories of nurses can provide the basis for a job description including professional development as well as further advancement for the role. It has the possibility of being used as the basis for a clinical performance assessment tool and a framework for professional development of different categories of nurses in neonatal practice.

The competency framework for the professional development of different categories of nurses in neonatal practice can be used by the public and the private sector as a foundation on which to base their in-service training, as well as for development of short courses to update and assist nurses in acquiring competencies on a higher level. The competency framework for the professional development of different categories of neonatal nurses can inform policy development; for example the next edition of Guidelines for Maternity Care in South Africa as neonatal care was not included in the fourth, 2015, edition.

Formal education institutions in South Africa can benefit by incorporating the competency framework in their curricula in view of the fact that the competencies are scientifically validated and developed. Developing countries in Africa would also be able to incorporate the framework in the education and the professional development of their nurses since

neonatal mortality is a global issue. Such a competency framework will not replace initiatives such as the Essential Newborn Care (Esamai, Lockyer, Bose, Keenan, Singhal, McMillan, Bucher, Thukral, Berkelhamer, Deorari, Faremo and Niermeyer 2015:1) or the Lufwanyama Neonatal Survival Project (Gill, Phiri-Mazala, Guerina, Mulenga, MacLeod, Waitolo, Knapp, Mirochnick, Mazimba, Fox, Sabin, Seidenberg, Simon and Hamer 2011:77) but will enhance and build on them.

Making the competency framework for the professional development of nurses in neonatal practice available to the Department of Health and SANC, will support and inform training related to neonatal care and programme development. The minimum content regarding neonatal care, which should be included in various basic health programmes, can be derived from this study. The competency framework for the professional development of nurses in neonatal practice can serve as an instrument or guide to evaluate and adjust current programmes. Considering the competencies required for the professional development of different categories of nurses in neonatal care on different levels, strategies can be developed to obtain these competencies through professional development, from novice to expert in the particular category.

The framework can be used as a resource during negotiations with the South African Nursing Council and The National Department of Health regarding neonatal nursing as a speciality and the training required. In addition, it can be used as a document to be made available to clinical facilities to be used as a foundation for orientation and in-service training of neonatal nurses.

1. 5 RESEARCH QUESTION

What competencies should be included in a competency framework for the professional development of different categories of nurses in neonatal practice?

1.6 RESEARCH AIM

The development and validation of a competency framework for the professional development of different categories of nurses in neonatal practice.

1.7 RESEARCH OBJECTIVES

The research was conducted in three phases, each phase with its own objective.

1.7.1 Phase 1: Exploration and description of competencies for the professional development of different categories of nurses in neonatal practice**.**

Objective 1: To explore and describe competencies for the professional development of different categories of nurses in neonatal practice.

1.7.2 Phase 2: Development and validation of an abridged competency list**.**

Objective 2: To develop and validate an abridged competency list for the professional development of different categories of nurses in neonatal practice.

1.7.3 Phase 3A: Development of a competency framework for the professional development of different categories.

Objective 3: To develop a competency framework for the professional development of different categories.

1.7.4 Phase 3B: Refinement and validation of the competency framework for the professional development of different categories of nurses in neonatal practice**.**

1. 8. CENTRAL CONCEPTS

1.8.1 Categories of nurses

The categories of nurses will include the auxiliary nurse, enrolled nurse, midwife and professional nurse.

1.8.1.1 Auxiliary nurse

A person educated to provide elementary nursing care in the manner and to the level prescribed under section 31(1) (d) and (e) respectively in terms of the Nursing Act, Act no. 33 of 2005 (South Africa 2005; McQuoid-Manson and Dada 2009:202-203). In the context of the study the auxiliary nurse will be responsible for some aspects regarding the care of a neonate under supervision of a professional nurse in a variety of settings in primary, secondary or tertiary healthcare, in the private or public sector.

1.8.1.2 Enrolled nurse

An enrolled nurse is a nurse performing acts and procedures (basic nursing) that form part of the nursing regime planned and initiated by a professional nurse or a registered midwife and carried out under their direct control or indirect supervision according to Reg. 786 of 2013.(SANC 2013c; McQuoid-Manson and Dada 2009:201). In the context of the study the

enrolled nurse will be caring for a neonate under the supervision of a professional nurse or midwife in a variety of settings in primary, secondary or tertiary healthcare, in the private or public sector.

1.8.1.3 Midwife

A midwife is a person who is qualified and competent to independently practice midwifery care in the manner and to the level prescribed, and who is capable of assuming responsibility and accountability for such practice in terms of the Nursing Act, no. 33 of 2005 (South Africa 2005; McQuoid-Manson and Dada 2009:202), which includes assisting with a delivery (Brink and Lochner 2011:878) or caring for a newborn after the delivery in a variety of settings in primary, secondary or tertiary healthcare, in the private or public sector. In this study a midwife can be assisting with deliveries or caring for newborns after delivery in a variety of settings.

1.8.1.4 Professional nurse

A professional nurse is a person who is qualified and competent to independently practice comprehensive nursing in the manner and to the level prescribed and who is capable of assuming responsibility for such practice in terms of the Nursing Act, no. 33 of 2005 s30(1) (South Africa 2005; McQuoid-Manson and Dada 2009:202). In the context of the study the professional nurse can care for a neonate in a variety of settings in primary, secondary or tertiary healthcare, in public or private sector.

1.8.2 Competency framework

“Competency is the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values and reflection in daily practice for the benefit of the individual and the community being served” (Epstein and Hundert 2002:226). Human and Mogotlane (2017:23) define competence as “having the ability, power, authority, skill and knowledge to do what is nescessary”.

A competency framework is a system of or a combination of geometrical axes for defining a position or a set of essential nursing standards and nursing skills or relating to the adequate or appropriate competencies of a nurse to perform tasks related to neonatal practice (Brink and Lochner 2011:541).

In the context of this study a competency framework refers to standardised and integrated knowledge, skills and attributes of nurses working with neonates. The competency framework will offer a structured description of neonatal competencies of nurses with the

purpose of facilitating understanding of the requirements of nurses in neonatal practice (Tashakkori and Teddlie 2010:532). In this study a competency framework was developed for the different categories of nurses responsible for neonatal care in South Africa. Using the Dreyfus model as adapted by Benner, the competencies will be described for the different categories of nurses according to priorities to assist with professional development from novices to experts within the particular categories interpreted within the South African Nursing Council competency framework (Benner 2001:20; South Africa 2005; SANC 2013c).

1.8.3 Newborn / neonate

A newborn or neonate is a term that refers to an infant from birth through the first 28 days of life (Ladewig, London and Davidson 2010:941; Verklan and Walden 2015:77). In the context of this study a newborn includes an infant from birth to the first 28 days of life and can also be referred to as a baby, infant or neonate in hospital or in clinics.

1.8.4 Neonatal period

The neonatal period is the interval from birth through to the 28th day of life (Ladewig et al. 2010: 561; Brink and Lochner 2011:541). It represents the time of the greatest risk to the infant; approximately 65% of all deaths that occur in the first year of life happen during this 4-week period (Ladewig et al. 2010: 697; Verklan and Walden 2010:91). In the context of this study the neonatal period is the first 4 weeks or 28 days after birth in a variety of settings in primary, secondary or tertiary healthcare, in public or private sector.

1.8.5 Neonatal practice

The term neonatal practice refers to the execution of a specific discipline (Maree 2007:11). It includes the low risk births, care of normal neonates, high risk births, immediate care of high risk and critically ill neonates, as well as subsequent advanced care of high risk and critically ill neonates. It therefore includes neonatal care in primary care settings (clinics and midwife obstetric units), district hospitals and tertiary settings, and can be in public or private sector. Neonatal practice in this study refers to numerous contexts where healthcare is provided to neonates from birth until 28 days.

1.8.6 Professional development

Professional refers to “the extent to which an individual identifies with a profession and adheres to its standards” (Geyer 2013:21), which in terms of nursing includes the professional nurse, where the “professional nurse is a person who is qualified and

competent to independently practise comprehensive nursing in the manner and to the level prescribed and who is capable of assuming responsibility and accountability for such practice" as described in section 30 of the Nursing Act (South Africa 2005). Professional development means that nurses will advance themselves and will continue to develop throughout their profession, from a student nurse to an expert nurse (Jasper 2006:2; McNeil, Ahluwalia and Randell 2019:68). Professional development is achieved by reaching consensus on standards and norms (Human and Mogotlane 2017:29). Professional development in the nursing profession should therefore refer to the development of professional nurses only, but, although the other categories of nurses are not strictly speaking 'professionals', it is assumed in this study that professional development applies to the development of all categories following similar processes for the same purpose. Therefore, in the context of this study, professional development is used to describe the process of improving and increasing capabilities and competencies beyond levels of competence assumed at registration and qualification of all categories of nurses in neonatal practice.

Once a qualification has been obtained, the practitioner will start again as a novice, although on a higher level, with potential to develop to an expert on that level; for example a registered nurse could function as an expert in terms of her scope of practice as a registered nurse. If she then specialises in a particular field, she starts as a novice nurse specialist in that field with potential to continue to develop professionally to an expert nurse specialist.

The goal of professional development is to become proficient or even an expert by means of aligning education and training to a competency framework for the professional development of different categories of nurses in neonatal practice by using the five levels of novice to expert as described by Benner (2001:13).

Benner (2001:13) translated the skills and learning processes from the research model of Dreyfus and Dreyfus (Dreyfus and Dreyfus 1980:7), to clinical nursing practice in a specific novice-to-expert model which also consists of five levels:

> ***Level 1: Novice nurse*** – These beginners have no experience of the situations in which they are supposed to perform. Rules are taught and applied generally in order to assist them in their performance.
>
> ***Level 2: Advanced beginner*** – These beginners can demonstrate marginally acceptable performance in real situations. The application of formulated principles are based on their experiences.

Level 3: Competent nurse – Competence develops when a nurse observes his or her own actions in terms of long–range goals of which he or she is consciously aware. The competent nurse can formulate a plan based on abstract and analytical consideration of a problem. The competent nurse does not have enough experience to recognise a situation in terms of an overall picture or which aspects are most important.

Level 4: Proficient nurse – This nurse observes or perceives a situation as a whole and not only in separated parts. This nurse can identify when the normal does not realise.

Level 5: Expert nurse – The expert nurse has an immense background of experience and can intuitively grasp a situation. This nurse no longer relies on analysis to obtain an understanding of a situation before appropriate action is taken. The expert nurse works from a profound comprehension of the whole situation.

Moving through five different levels from novice to expert can be viewed as professional development. Neonatal practice forms part of the bigger picture of professional practice, and it is known that decisions are made based on reflecting on our knowledge and experience. There is a clear link between professional development, reflective practice and decision making (Jasper 2006:2; Canniford and Fox-Young 2015:295).

1.9 PARADIGMATIC ASSUMPTIONS

A paradigm is a framework, viewpoint or world view based on people's philosophies and assumptions about the social world and the nature of knowledge (De Vos, Strydom, Fouché and Delport 2011: 513; Polit and Beck 2017:9). This set of beliefs assumes that there are multiple realities (relativist ontology), that the knower and the respondent create or construct understandings through their own subjective views (subjectivist epistemology), and a naturalistic set of methodological findings (Creswell and Clark 2011:40). According to Chin and Kramer (2011:157) a paradigm implies "standards or criteria for assigning value or worth to both the processes and the products of a discipline as well as for the methods of knowledge development within a discipline".

The constructivist paradigm is the point of departure for this study as it accommodates the multiple realities of neonatal practice and professional development. In this study the participants were involved in all the phases of the process through consensus research. The constructivist approach is interested in an open and democratic relationship between the participants and researcher and the outcome of the research results is enhanced with participant involvement throughout the study (De Vos et al. 2011:7; Gash 2015:10; Polit and

Beck 2017:10). The ontological, epistemological and methodological assumptions will be discussed in Chapter 3.

The researcher's beliefs about a person as a human being, society, the discipline as well as general orientation about the world and the nature of research is known as meta theoretical assumptions. This also refers to the philosophical orientation of the researcher. This orientation and set of beliefs is embedded in the researcher's world view namely constructivism as described by Botma, Greef, Mulaudzi and Wright (2010:187).

The researcher values life and views human beings as creations of God. The researcher is a Christian who believes that nurses should care for the weak, frail and fragile. The vulnerability of the neonate in need of care to survive is the personal inspiration for the research as well as to help nurses to competently care for this defenceless and vulnerable group of human beings.

1.9.1 Constructivism as paradigm

The constructivism paradigm poses that there are multiple realities and that the knower and the respondent co-create understandings according to Lee (2012:405) and knowledge and meaning are subjected to human practices and experiences according to Mensah (2015:1). The constructivism paradigm is evident in neonatal practice as knowledge and meaning are being constructed on a continuous basis. In the South African context, the neonatal nurse largely depends on the neonatal unit and neonatal staff within a hospital environment to acquire and build and construct knowledge and skills. A competency framework for nurses involved in neonatal care can help the process as nurses have undergone different basic training. These neonatal nurses can be structurally guided through their learning and can become competent on every level from novice nurse to expert nurse. By building on different levels of competence, the professional development of neonatal nurses can be managed by means of a formal bi-annual individual development plan.

Humans are complex beings and have the ability to form and create their own experiences from different realities. The researcher as a constructivist, wanted to understand the unique human phenomenon of contructing meaning from experience and developing these meanings as competencies. A multi-method research approach was used to come to this understanding.

According to the Constructivism theory, there are realities that entail subjective and objective elements and the best approach is by combining them to create new knowledge and meaning. Knowledge does not materialise independently of the learner. The person is

actively participating in constructing knowledge. Participation in knowledge constructing is ensuring that the new knowledge is useable in different scenarios (Mensah 2015:2).

The principles of constructivism guided the researcher regarding the type of research methods that were used. The researcher believes that growing or developing as a person occurs as a result of one's interaction with the world. Personal development is constructed because of reactions to stimuli from the world we live in. It takes time and is an active process. Knowledge is constructed when there is an understanding of the world we live in.

New knowledge is incorporated into existing ideas. New information is merged with existing ideas and new meanings are formed (Gash 2015:10). According to Gravett (2005:20) "*Meaning is arrived at, through constructing relationships between information and facts and one's existing knowledge, resulting in coherent knowledge structures. Meaningful learning goes hand in hand with construction of an integrated conceptual framework*." Learning, as it is related to professional development, is then the construction of meaning which leads to new knowledge.

Knowledge that is organised and structured can be retrieved more effectively when required. Gravett (2005:20) notes (according to research done on the knowledge base of experts and novices) that experts know more than novices due to the experts' ability to access previous knowledge with more ease probably because the knowledge is better organised. Experts have an interconnected and integrated conceptual framework of knowledge.

Gravett (2005:21) provides a comprehensive summary of what the learning process involves as viewed from a constructivist perspective, keeping in mind that the learning leads to professional development:

> *"Learners arrive at meaning by actively selecting and cumulatively constructing their own knowledge, rather than by receiving and storing knowledge. The process of construction occurs through both individual and social activity. The learner brings an accumulated baggage of assumptions, motives, intentions, and previous knowledge to every teaching-learning situation, which forms a framework that envelops the immediate situation and determines the course and quality of learning that may take place."*

The construction of meaning is an individual and social process that leads to "shared meaning" and "co-construction" of knowledge. Nurses involved in neonatal care can contribute to new meanings of competency through the influence of social interaction and collaboration with other nurses in similar situations.

Gravett (2005:20) further explained constructivism as a view that rests on the assumption that learning is a process of constructing meaning from the learner's action in the world, or knowledge construction. Learning is making sense of something and developing ideas around it. When faced with new information the new information is understood via pre-existing knowledge framework (Gash 2015:10). New information is integrated in the existing framework or the existing knowledge structures are modified with regards to the new information. A new meaning is constructed. Construction of meaning is a personal and social process. Nurses have training but working in the neonatal care areas discussion around neonatal care concepts can develop with trained or experienced neonatal nurses consequently leading to a construction of new meaning regarding neonatal care. The knowledge that is created with this interaction is constructed by the individual nurse but influenced through social interaction and collaboration with trained or experienced neonatal nurses, to find agreement or consensus. Knowledge contributes to professional development and professional development happens over a period of time starting at the level of a novice nurse but developing to the higher level of the expert nurse.

The research question was answered by participants reaching consensus on their understanding of competency by constructing relationships between information and facts as well as their existing knowledge and experience (Gravett 2005:19). The nominal group and Delphi techniques are known as consensus research methods and participants can construct and prioritise competencies for the professional development of different categories of nurses in neonatal practice. The next section will address the ontological, epistemological, theoretical and methodological assumptions of the study.

1.9.2 Ontology

"Ontology refers to the theory of existence" (Lee 2012:406). Ontology is concerned about reality and that of human beings according to Lee (2012:406). What is the truth? How will our perceptions of the truth influence what we can know? Constructivist ontology assumes that multiple interpretations of realities exist and that the context shapes it, furthermore that truth can change and adjust. The meaning attached to truth becomes the reality (Polit and Beck 2017:10; Maree 2007:52; Brink, Van Der Walt and Van Rensburg 2012:24).

The reality of neonatal care is that many normal newborns are born, but some are born with life threatening conditions that are often not known at birth and cannot be seen at the time of birth (WHO 2014:11). It will then require a nurse with knowledge and skills as well as experience to provide care to the newborn in order for him/her to survive and develop with minimal or no complications. The next section provides a description of the reality of

neonatal care in the South African context from the researcher's observations and experiences over years of being a clinical neonatal nurse specialist.

Neonatal care is provided by different categories of nurses, each with their own knowledge level, assumptions, intentions, attitudes, beliefs and values. Neonatal care entails the care of the newborn in the first twenty-eight days after birth and the care provided is basic or advanced; multi-dimensional and dynamic. Care is directed at supporting the newborn in adjusting to extrauterine life as the newborn will experience a complex series of biological, physiological and metabolic changes. Care is provided in a coordinated and efficient manner involving neonatal nurses as well as other health care professionals. The neonatal nurse is strategic in coordinating care by understanding her own role as well as the roles of other healthcare professionals.

Neonatal care is provided in a variety of contexts with different levels of complexity. The complexity of neonatal care can range from basic newborn care to requiring specialist care, ideally in an intensive care unit with a neonatal nurse specialist in charge of the nursing care of the newborn. In South Africa there is currently no formal training for clinical neonatal nurse specialists and different categories of nurses will ultimately provide care to the newborn during this critical period, even in the neonatal intensive care unit. The focus of this study was therefore to provide a framework to structure professional development to achieve competency of these nurses involved in neonatal care on various levels.

In addition, the reality is that different categories of nurses' professional development in neonatal care extends over a range of learning experiences such as gaining informal experience through nursing all kinds of newborns, on-the-spot training, structured in-service training and formal workshops or short courses. Previously programmes were available in South Africa leading to a formal qualification as a clinical neonatal nurse specialist, but these have not been available since 2012. All of these factors contribute to a variety of nurses of different categories being at different places on the continuum from novice neonatal nurse to expert neonatal nurse.

This study will provide a framework and structure to construct competence from a novice neonatal nurse to an expert neonatal nurse. This will provide clinical and educational facilities the opportunity to develop and implement training programmes to ensure that different categories of nurses involved in neonatal care are able to look after newborns across the care continuum, based on competencies required.

1.9.3 Epistemology

“Epistemology is a theory of knowledge that explores the relationship between the inquirer and the knowable or between the knower and the responded” according to Lee (2012:407). Epistemology theorises “how things can be known” (Maree 2007:55). Understanding is created by subjective views (Denzin and Lincoln 2005: 24; Creswell and Clark 2011:40). Guba in Lee (2012:407) claims that “the borderline between ontology and epistemology is blurred and that construction is the underlying mechanism that creates both reality and knowledge and that many constructions are possible.”

Nurses involved in neonatal care shared what they believed or what was known to be their reality. There is a relationship between the knower and what was known (Maree 2007:55).

The researcher has to acknowledge her own role in the description of the realities of which she forms a part and which may therefore result in some bias. To maintain a level of objectivity, the researcher distanced herself during observations and interaction. In this study interaction played a very important role in clarifying different meanings and in reaching consensus. Different categories of nurses with different levels of expertise had to find common ground on what the competencies should be in neonatal practice. The focus of the observations by the researcher of the interaction was especially related to content that described competencies in neonatal care.

Consensus research is the methodology that will be used in this study. The researcher will conduct the research in three phases which will be described in Chapter 3 (3.6).

1.9.4 Theoretical assumptions

1.9.4.1 The South African Nursing Council Competency Framework

Nursing in South Africa is regulated by South African Nursing Council (SANC). In the profession of nursing the Nursing Act no. 33 of 2005 and SANC Reg. 786 (2013) different categories of nurses are acknowledged. South African Nursing Council provides a broad competency framework for these categories. Descriptions include three domains (professional and ethical; clinical practice and quality of care) schematically presented in Figure 1-3 (SANC: Draft Charter of Nursing Practice 2004). The competency framework that will be developed in this study will fit within the broader framework provided by South African Nursing Council, considering the future changes. The final document is the Generic Competency Framework for Advanced Nurse practitioners (2014:1).

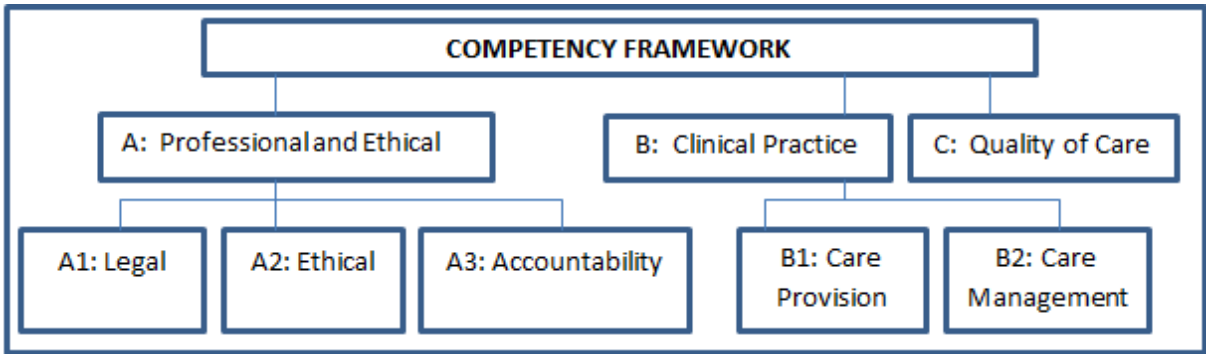


Figure 1-3 SANC: Draft Charter of Nursing Practice (SANC 2004)

In 2014 South African Nursing Council released the generic competency framework for advanced nurse practitioners (SANC: 2014a).The initial proposed and later generic competency framework (Figure 1-4) will be considered when proposing the competency framework for nurses involved in neonatal care and will be discussed in Chapter 5 (5.3).

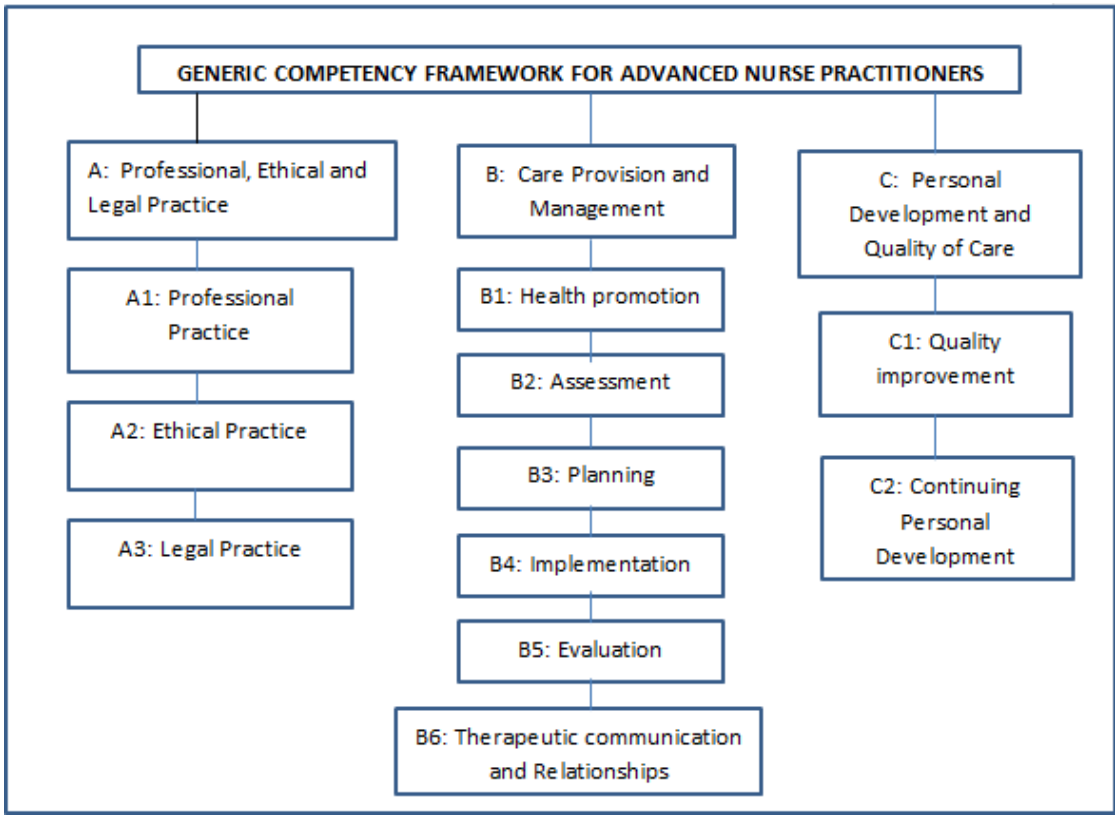


Figure 1-4 SANC: Generic Competency framework for advanced nurse practitioners (SANC 2014a)

1.9.4.2 Dreyfus Model of Skill Acquisition

The theoretical point of departure of this study is the Dreyfus Model of Skill Acquisition (Dreyfus and Dreyfus 1980:1). The Dreyfus Model of Skill Acquisition is developmental,

based on situated performance and experiential learning. Several studies of skill acquisition in nursing have been guided by this particular model. Considering the studies conducted over 21 years, the value of the Dreyfus model in understanding the needs and styles of learning at different levels of skill acquisition are demonstrated (Benner 2004:188; Bowen and Prentice 2016:144).

Dreyfus and Dreyfus (1980:1) studied the skill acquisition of selected people in order to identify common patterns of information processing which are structured into five levels of performance known as The Dreyfus Model of Skill Acquisition, also referred to as the novice-to-expert model (Benner 1984:13; Benner 2001:13; Dreyfus and Dreyfus 1980:1; Green, Lemieux and McGregor 1993:86; Benner 2004:188; Bowen and Prentice 2016:144). The five levels of performance are the novice nurse; advanced beginner; competent nurse; proficient nurse and expert nurse. The novice to expert models proclaim that people proceed through at least five stages of different perceptions of task and/ or mode of decision making as their skill improves (Green, Lemieux, McGregor 1993:86).

Skill acquisition, as interpreted from the Dreyfus model, can be in different domains (Dreyfus and Dreyfus 1980:1), which in this study are professional and ethical; clinical practice and quality of care in neonatal care as portrayed by South African Nursing Council (South Africa 2005; SANC 2013b).

Considering that Benner developed the novice-to-expert model based on the research model of Dreyfus and Dreyfus, specifically The Dreyfus Model of Skill Acquisition (Dreyfus and Dreyfus 1980:1) it should be noted that the Benner novice-to-expert model will be referred to and used in subsequent chapters.

1.9.5 Methodological assumptions

Methodology suggests a set of rules and procedures, basically guidelines that are used to guide the researcher to conduct research. These guidelines provide a structure for the investigation being conducted. According to Daly (2011:2) methodology is concerned with how we conceptualise, theorise and make conclusions utilising specific techniques or methods. Not only is methodology a set of rules and procedures used for reasoning, but it is also a form of communication. Methodology is providing a way of organising ideas and evidence as well as a language and format for communicating research results.

The methodology used in this research study is a multi-method research design with the aim of reaching consensus. The multimethod design will be used to address the issue of professional development for different categories of nurses in neonatal practice. The

research question will be answered by participants reaching consensus on their understanding of competency by constructing relationships between information and facts as well as their existing knowledge and experience.

A multi-method research design was used in this study as described by Botma et al. (2010:251) and Harvey and Holmes (2012:188) in the form of consensus research. Consensus methods refer to methods where the results are based on consensus or general agreement of the group in question, through use of the nominal group technique (NGT) and the Delphi method (McCance, Fitzsimons, Keeney, Hasson and McKenna 2007:57; Foth, Efstathiou, Vanderspank-Wright, Ufholz, Dütthorn, Zimansky and Humphrey-Murto 2016:113).

Morse (2003:190) defines a multi-method design as follows, "*This is the conduct of two or more research methods, each conducted rigorously and complete in itself, in one project. The results are then triangulated to form a comprehensive whole*."

Multi-method research originates from Campbell and Fiske's famed 1959 article on measurement and validation. The strategy derived was to systematically employ different research methods in concert with each other (Brewer and Hunter 2006: xiii and Cooper, Kinsman, Chung, Cant, Boyle, Bull 2016:475).

"A diversity of imperfections allow us to combine methods, not only to gain their individual strengths, but also to compensate for their particular faults and limitations". The multi-method approach is founded on the notion that individual methods can be flawed and not one method is identical to another. The multi-method strategy is therefore modest but powerful (Brewer and Hunter 2006:4; Cooper et al. 2016:475).

There are several ways to arrive at knowledge, but all include the possibility of error but fortunately not always the same errors. The multi-method perspective is tolerant of different methods as it appreciates multiple approaches as a scientific necessity and fallibility as a given of scientific enquiry (Brewer and Hunter 2006:186; Cooper et al. 2016:475). An advantage of the multi-method perspective is that "it teaches both humility and confidence". There is a chance of error and misinterpretation of results but then there is a chance of discovering truth because there are multiple procedures increasing the chance that truth was indeed found (Brewer and Hunter 2006:186-187; Cooper et al. 2016:475).

The multi-method design in this study consisted of three phases using different methods to address different parts of the research question as suggested by Tashakkori and Teddlie (2010:340). The principles of constructivism guided the researcher in the choices regarding

research methodology, as multiple methods research is based on the assumption that there are different truths in the world; the various objectives are linked and 'building' towards the final description of a competency framework through interaction, collaboration and consensus.

Gravett (2005:20) and Gash (2019:6) relate that constructivism is a view that rests on the assumption that learning is a process of constructing meaning from the person's action in the world, or knowledge construction, making sense of something and developing ideas around it. When faced with new information the new information is understood via a pre-existing knowledge framework. New information is integrated in the existing framework or the existing knowledge structures are modified with regards to the new information. A new meaning is constructed. Construction of meaning is a personal and social process.

The researcher witnessed nurses that have training, working in the neonatal care areas, participating in discussion around neonatal care concepts. Developing knowledge with trained or experienced neonatal nurses consequently lead to a construction of new meaning regarding neonatal care. The researcher used this knowledge that was created with this interaction influenced through social interaction and collaboration with trained and experienced neonatal nurses, to find agreement or consensus.

Consensus methods are group facilitation techniques designed to explore the level of consensus among a group of experts by combining and clarifying expert opinions. Consensus results from the group by combining different opinions into a refined agreed opinion (Campbell and Cantrill 2001:5).

Consensus methods are useful and designed to enhance decision making; facilitate the development of quality indicators or review criteria; support quality improvement and clinical governance; synthesise expert opinion or professional norms; identify, quantify and subsequently measure areas of uncertainty, controversy or incomplete evidence (Campbell and Cantrill 2001:5).

The multi method design in this study consists of three phases which address the same research question or different parts of the research question. Each phase in this design is self-contained, complete and publishable as a stand-alone article. Tashakkori and Teddlie (2003:196; 2010:340) indicate that in contrast, a mixed method design consists of one core project, which is a complete method in itself and a second project consisting of different data or analysis that is incomplete, which is not publishable apart from the core project.

The nominal group technique along with the Delphi survey are commonly used reliable formal consensus development methods (Harvey and Holmes 2012:188). However, Campbell and Cantrill (2001:5-6) argue that the nominal group technique is not a consensus technique in itself but part of the process aimed at generating and prioritising ideas and at assessing agreement. These two methods contain the views of experts on a given topic and progresses to group consensus.

1.10 RESEARCH METHODS

This section will include the research setting and overview of the methods.

1.10.1 Research setting

The research setting is the setting or the location where the research is conducted. This study was conducted in a natural, real life uncontrolled setting (Grove et al. 2013:373; Polit and Beck 2017:613). Nine nominal groups were held across three inland provinces including Gauteng (Pretoria region and Johannesburg region), North West Province and Mpumalanga. The environment was not changed or adapted for the reseach but was acceptable and accessible to the participants. The venues were also cost effective. Data collection of Phase 1 was done in the hospital environment in a room where there were no patients in the urban public and private settings. Five nominal groups with participants who were made up of registered nurses, midwives, nurse educators and nurse specialists were conducted in the private hospital setting and two interviews were conducted with enrolled nurses in the private hospital setting. Two nominal groups were conducted in the public hospital setting. One group included registered nurses, midwives, nurse educators and nurse specialists and one group included enrolled nurses. Table 1-1 provides an outline of the nominal groups and interviews in terms of the institution and the participants.

1.10.2 Overview of methods

A brief overview of the research methods is included in Table 1-1 and will be discussed in depth in Chapter 3.

Table 1-1 Overview of research methods and methodology

PHASES	OBJECTIVES	METHOD-OLOGY	POPULATION/ UNIT OF ANALYSIS	SAMPLE	DATA COLLECTION	DATA ANALYSIS	TRUSTWORTHINES VALIDITY/ RELIABILITY
PHASE 1 Exploration and description of competencies	**OBJECTIVE** To explore and describe competencies for the professional development of different categories of nurses in neonatal practice.	Consensus research through qualitative design	Different categories of nurses in neonatal practice (enrolled nurses, registered nurses and midwives, specialist groups	Purposive sampling: - Minimum of two NGT sessions per category (nursing assistants, enrolled nurses, professional nurses and midwives, specialist groups) involved in neonatal care. Number of NGT sessions can increase depending on data saturation and interested participants. - Private and Public hospital sector - Different levels of care (primary / secondary and tertiary) - Gauteng (Pretoria and Johannesburg) - North West Province - Mpumalanga	Nominal group technique (NGT) and interviews	Thematic analysis	TRUSTWORTHINESS - Credibility - Transferability - Triangulation - Dependability - Confirmability
PHASES	**OBJECTIVES**	**METHOD-OLOGY**	**UNIT OF ANALYSIS**	**SAMPLE**	**DATA COLLECTION**	**DATA ANALYSIS**	**TRUSTWORTHINES VALIDITY/ RELIABILITY**
PHASE 2 Development and validation of an abridged competency list	**OBJECTIVE** To develop and validate an abridged competency list for the professional development of different categories of nurses in neonatal practice.	Qualitative: inductive and deductive reasoning	Information generated from Phase 1 and Literature Control	Results from Phase 1 Literature to include national and international data on competencies in neonatal practice	Previous Phase and literature control	Inductive and deductive reasoning.	TRUSTWORTHINESS - Credibility - Transferability - Triangulation - Dependability - Confirmability
PHASES	**OBJECTIVES**	**METHOD-OLOGY**	**POPULATION/ UNIT OF ANALYSIS**	**SAMPLE**	**DATA COLLECTION**	**DATA ANALYSIS**	**TRUSTWORTHINES VALIDITY/ RELIABILITY**
PHASE 3A Development of a competency framework for the professional development of different categories	**OBJECTIVE** To develop a competency framework for the professional development of different categories.	Qualitative : inductive and deductive reasoning	Neonatal experts With experts based on findings from Phase 1 & 2 and literature information from Phase 1, 2 and a literature control	Purposive sampling: Neonatal experts	Delpi method	Consensus	TRUSTWORTHINESS - Credibility - Transferability - Triangulation - Dependability - Confirmability
PHASE 3B Refinement and validation of the competency framework for the professional development of different categories of nurses in neonatal practice	**OBJECTIVE** To validate the competency framework for the professional development of different categories of nurses in neonatal practice.	Quantitative - consensus	Neonatal experts	Purposive sampling: Neonatal experts	Delpi method	Consensus	TRUSTWORTHINESS - Credibility - Transferability - Triangulation - Dependability - Confirmability

The reseach was done in three phases. The last phase had two parts (A and B). Each of the phases had its own objective and methodology.

1.11 TRUSTWORTHINESS

Trustworthiness refers to establishing the value and authenticity of research findings, in other words the extent to which the findings of the study are true to the objectives. The findings accurately reflect the aim and/or objectives of the study (Holloway 2008:237; Polit and Beck 2017:559). The strategies that were employed to establish trustworthiness as suggested by Lincoln and Guba (1985, in Holloway 2008:238; Polit and Beck 2017:559) included credibility (triangulation, prolonged immersion with information and literature control), transferability (thick description), dependability (consistency of data with audit trail) and confirmability (by representing the reality and contextualising the study). Table 1-1 provides an overview of the research methods and indicates where the strategies are applied. These aspects of trustworthiness will be discussed in detail in Chapter 3 (3.3).

1.12 ETHICAL AND LEGAL CONSIDERATIONS

“Ethics is a set of moral principles which is suggested by an individual or a group, is subsequently widely accepted, and which offers rules and behavioural expectations about the most correct conduct towards experimental subjects and respondents, employers, sponsors, other researchers, assistants and students” (De Vos et al. 2011:114; Polit and Beck 2017:727). The researcher used ethical guidelines as standards to evaluate her conduct. These ethical aspects were considered continuously and not only at one point in time. The researcher internalised ethical principles to such an extent that ethical principles guided decision making and became the norm and way of life in the treatment of the participants. (De Vos et al. 2011:114; Polit and Beck 2017:137).

“Nursing research requires not only expertise and diligence but also honesty and integrity” (Grove, Burns and Gray 2013:159; Polit and Beck 2017:137). Simple ethical principles should be considered in research that involves humans in order to protect humans with the application of three ethical principles. In this study the researcher applied the three ethical principles emanating from the Belmont report (Grove et al. 2013:162; Polit and Beck 2017:139).

The ethical principles, namely beneficence, respect for human dignity and justice that were considered in this study will be discussed in detail in Chapter 3.

1.13 STUDY OUTLINE

The study consists of the following chapters:

Chapter 1: Overview of study

Chapter 2: Literature review

Chapter 3: Research methodology

Chapter 4: Findings of Phase 1

Chapter 5: Formulation and validation of the competency list and framework (Phase 2 and Phase 3A & B)

Chapter 6: Conclusion and recommendations

1.14 SUMMARY

This chapter served as an overview of the study. The aim of the study was to develop a competency framework for the professional development of different categories of nurses in neonatal practice through consensus research.

The literature surrounding competency frameworks, professional development, neonatal practice and more aspects regarding neonatal care will be discussed in Chapter 2.

CHAPTER 2 – LITERATURE REVIEW

2.1 INTRODUCTION

Chapter 1 provided an overview of the study aimed at the development of a competency framework for the professional development of different categories of nurses in neonatal practice. This study was guided by Benner's Novice to Expert model of skill acquisition as well as the broad competency framework provided by the SANC in the context of professional development of different categories of nurses involved in neonatal care.

The literature review was conducted to generate an understanding about what is known about global neonatal health, South African health care systems, neonatal nursing education, competency frameworks and professional development.

Bloom's taxonomy was also explored in order to understand the different levels of learning and will be discussed in Chapter 5.

2.2 GLOBAL NEONATAL HEALTH

United Nations Children's Fund, formerly United Nations International Children's Emergency Fund (UNICEF) (2018:1) reports that globally 2.6 million newborns died in 2016 (7000 every day). Neoantal deaths accounted for 46 % of all under-five deaths, increasing from 41% in 2000. The neonatal mortality rate fell by 49% from 37 deaths per 1000 live births in 1990 to 19 deaths per 1000 live births in 2016. It is evident from the statistics that progress has been made towards reducing neonatal mortality worldwide despite the Millennium Development Goals not being met by 2015. Infant health outcomes are also vastly different between low- and high-income countries and one solution does not work to reduce mortality everywhere (Ramaswamy, Kallam, Kopic, Pujic and Owen 2016:2).

2.2.1 Neonatal mortality, Millennium Development Goals and Sustainable Development Goals

Neonatal death is defined by the World Health Organisation as death amongst live births with death occurring at less than 28 days (Pathirana; Munoz; Abbing-Karahagopiane; Bhatf; Harris; Kapoor; Keenei; Mangili; Padula; Pandel; Pool; Pourmalek; Varricchioo; Kochhar; Cutlanda and The Brighton Collaboration Neonatal Death Working Group 2016: 6027).

The main causes of neonatal death in low resource areas are asphyxia, sepsis/infection and complications of preterm birth. Congenital anomalies are less commonly a cause in low-income countries compared to high and middle-income countries (McClure, Bose, Garces, Esamai, Goudar, Patel, Chomba, Pasha, Tshefu, Kodkany, Saleem, Carlo, Derman,

Hibberd, Liechty, Hambidge, Krebs, Bauserman, Koso-Thomas, Moore, Wallace, Jobe and Goldenberg 2015:6).

Most newborn deaths occur in low and middle-income countries and two thirds of all neonatal mortalities are reported from 12 countries; six being Sub-Saharan Africa (World Health Organization 2014:12). Considering the landscape of child deaths worldwide in 2012, the number of child deaths under 5 years has declined by about 50% (from 90 deaths per 1000 live births to 48 deaths per 1000 live births in 2012). The neonatal mortality rate has however only decreased with 37% (from 33 deaths per 1000 live births to 21 deaths per 1000 live births) over the same period and represented in 2012, 44% of the total child mortality (World Health Organization 2014:9), illustrated in Figure 2-1 below.

Neonatal deaths account for 44% of the total child mortality as illustrated in Figure 2-1 and the 44% of the child mortality is comprised of complications from preterm birth, intrapartum-related causes, sepsis or meningitis, pneumonia, congentital, tetanus, diarrhoea and other (WHO Global Health Observatory, 2014(19) in WHO 2014:12). Complications that arise from preterm birth make up 35% as reflected in Figure 2-1. Competent and skilled neonatal nurses are required to manage these complications that might arise and which could include nursing care of a neonatate on a ventilator.

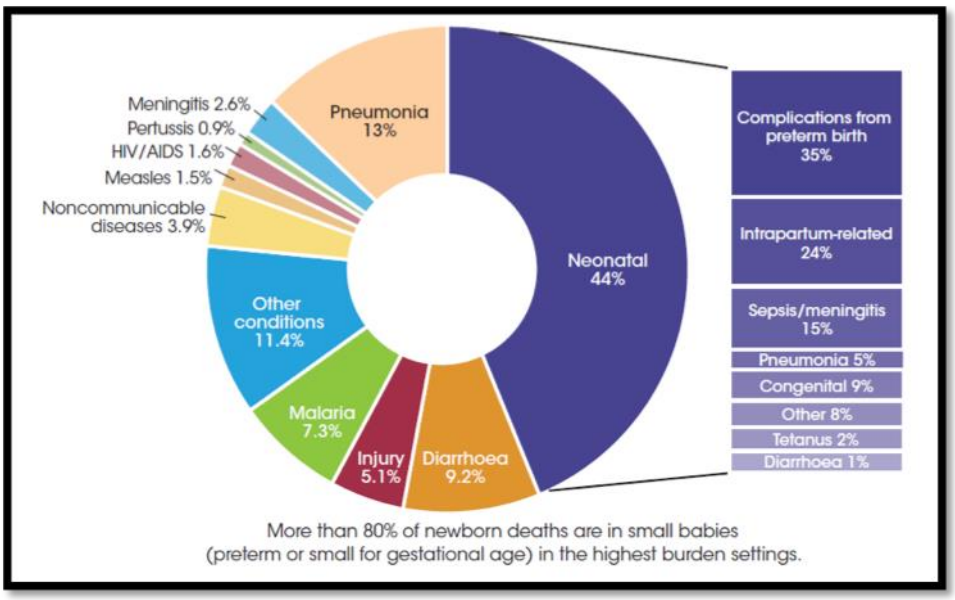


Figure 2-1 Causes of death in children under 5 years of age in 2012 (WHO Global Health Observatory, 2014(19) in WHO 2014:12).

In 2016, child mortality dropped from 93 per 1000 live births to 41 per 1000 lives births as reported by the World Health Organization (WHO 2018:5). The highest risk of death is still in

the first month of life with the majority of deaths occuring in the first week of life. As in 2012, the majority of causes of death included prematurity, intrapartum related causes such as birth asphyxia and birth trauma and lastly neonatal sepsis (WHO 2018:5).

Neonatal causes of death are of great importance when trying to reduce the total number of child deaths under 5 years.

The Millennium Development Goals were a vision for the new millennium that translated to a set of ambitious and powerful goals established with the aim of ending poverty and improving the lives of the most vulnerable. Building on the momentum generated by the millennium development goals the opportunity was created to adopt the big and bold agenda of global goals for sustainable development (UN 2015).

The Millennium Development Goals were developed in 2000 when 147 world leaders came together committing their nations to address eight goals related to the eradication of poverty, hunger and disease with time bound targets. The Millennium Development Goals' eighth aim was to reduce child mortality by two thirds considering statistical data from 1990. The key to achieving the millennium development goals involved inter alia, the implementation of sound and cost-effective interventions based on good science and practical experience. Long term investment was required and training and retention of human resources were fundamental (Sachs and Arthur 2005: 347). Human development and the promotion of health were structured around the Millennium Development Goals in the following years. The desire to make positive changes to global health was present worldwide (Conroy and Gilmore 2017:357). The target date to meet the set goals was 2015. In developing countries significant progress was made towards achieving the eight Millennium Development Goals but it was variable across regions, countries and goals (Sachs 2012: 2206).

During the Millennium Development Goals period a decrease in child mortality was celebrated. Between 1990 and 2012 the under-five mortality rate (U5MR) decreased from 12.6 million to 6.6 million (Berkley, Dybul Godal and Lake 2014:e22-e23). It is, however, true that six million children still die before their 5th birthday. Compared to 1990 statistics child mortality decreased by 53% but remains too high for children post the Millennium Development Goals. The under-five mortality declined in the last 15 years but the annual rate of reduction (ARR) in the global neonatal mortality rate (NMR) is lagging behind the post neonatal U5MR. This implies that neonatal mortality was 2.9 million per year during the 2012 reporting period. Proportionally deaths occurring within 28 days after birth increased to 44% of under five deaths (Berkley et al. e22-e23; Conroy and Gilmore 2017:357).

The target date for the Millennium Development Goals was researched and despite the progress made towards decreasing the under five deaths, among the eight goals, globally the agenda to reduce neonatal mortality remains uncompleted. A new agenda taking the world to 2030 was agreed in September 2015 at the United Nations Sustainable Development Summit in New York. The Sustainable Development Goals are following on the Millennium Development Goals and target issues related to poverty, climate change, gender inequality and health. They are not limited to poor underdeveloped countries but address broader global concerns (Conroy and Gilmore 2017: 357).

Evidence suggests that neonatal care in a low resource setting does not need to be expensive, as 70% of neonatal deaths are preventable. Appropriate management of sepsis, cord care, resuscitation, exclusive and early breast feeding and skin to skin care are examples of interventions that can contribute to the reduction in neonatal mortality (Conroy and Gilmore 2017: 357). More than 80% of all newborn deaths happen in Asia or Sub-Saharan Africa and are the consequence of preventable and treatable causes such as complications due to prematurity, intra-partum related neonatal deaths (birth asphyxia) and neonatal infections (sepsis, meningitis, pneumonia and diarrhoea). Better quality of care around the time of birth, together with competent and skilled healthcare workers in an environment with basic and essential requirements can save lives (WHO 2014:6-13).

Babies born prematurely and/or small for gestational age face a huge risk of dying or having disabilities, which might be a result of inadequate care during and around labour and in the neonatal period (WHO 2014:13). Should a preterm infant survive the first four weeks of its life, they face the risks of post neonatal mortality, long term neurodevelopmental impairment, stunting and increased vulnerability to non-communicable diseases (Domingues, Nakamura-Pereira, Theme-Filha, Moreira, Leal, Gama, Esteves-Pereira, Dias and Torres 2016:127) Four million term and near term neonates have life threatening conditions such as intra-partum related brain injury, severe bacterial infection and pathological jaundice. The survivors with neurodevelopmental impairment are estimated to be more than a million per year. It is not only the neonatal care that becomes a priority but the follow-up care, early detection, intervention and rehabilitation of affected babies (WHO 2014:13).

After years of research, tracking of progress and data analysis, during the Millennium Development Goals period, effective interventions are suggested by the World Health Organization (WHO) to help reduce neonatal mortality. The ambitious aim of the Sustainable Development Goals for child health is to end preventable deaths of newborns and children under the age of five (Conroy and Gilmore 2017: 357). The emphasis is around the time of birth and the first week of life. Interventions include skilled care at birth and essential

newborn care (WHO 2014:15). Essential newborn care is aimed at reaching every newborn in the community, especially rural and isolated areas by making appropriate and timeous referral to secondary and tertiary hospitals for hospital delivery where comprehensive emergency obstetric care, newborn care and advanced neonatal care can be provided (WHO 2014:15).

Every newborn needs to be reached at the time when they are most vulnerable, during labour and birth as well as in the first days of life. This key message set out in the action plan "Every newborn" (WHO 2014:6) is that 3 million neonates could be saved by investing in quality care around the time of birth and special care for small and sick newborns.

The third goal of the Sustainable Developmental Goals is to "ensure healthy lives and promote well-being for all ages". These Sustainable Developmental Goals address the still remaining preventable under five child deaths (United Nations Development Programme: nd). The target every country will be working towards is a neonatal mortality rate of no higher than 12 deaths per 1000 live births and an under five mortality rate of 25 deaths per 1000 live births by the year 2030.

2.2.2 Recommendations for care globally

The Every Newborn action plan (WHO 2014:6) was developed in order to provide a clear guideline on how to improve newborn health and to prevent still births by 2035. This plan builds on the United Nations Secretary General's global strategy for women's and children's health and The Every Woman Every Child movement by providing support and leadership to countries on how to strengthen newborn health. A key message of the Every Newborn action plan is that the solutions to address the main causes of newborn death are known. Improving the quality of care around the time of birth will save the most lives, but educated health care workers who are adequately equipped are required (WHO 2014:6).

Effective interventions around the time of birth are required to save newborn lives. Care for the mothers is also required and different packages on the continuum of care are available. The Every Newborn action plan focuses, however, on skilled care at birth and the provision of essential newborn care. Skilled care at birth as well as essential newborn care should be available at community level, first and secondary hospital level and should include referral to tertiary facility levels (WHO 2014:15).

"*The packages of care with the greatest impact on ending preventable neonatal deaths and still births include: care during labour, around birth and the first week of life; and care for the small and the sick newborn*" (WHO 2014:15).

Figure 2-2 below provides a visual representation of the continuum of care as described in the Every Newborn Action Plan. This action plan describes what care should be provided during adolescence and before pregnancy at community, first and secondary facility and lastly on referral and academic facility level of care. The action plan then proceeds with the pregnancy stage, also on three levels of care. The focus of this Every Newborn Action Plan is, however, the labour and birth stage, labour and the first week of life stage as well as the postnatal stage. Figure 2-2 highlights the focus areas in blue. In order to save 3 million lives per year skilled care is required. Skilled care is required when a baby is born during a normal uncomplicated delivery at home or during an obstetric emergency. Skilled essential care or emergency care is also required for every newborn including sick or small newborns. The suggested care interventions are discussed in Table 2-1. The package or bundle of care which is referred to in Figure 2-2, is a collection of interventions which should be carried out, such as essential newborn care.

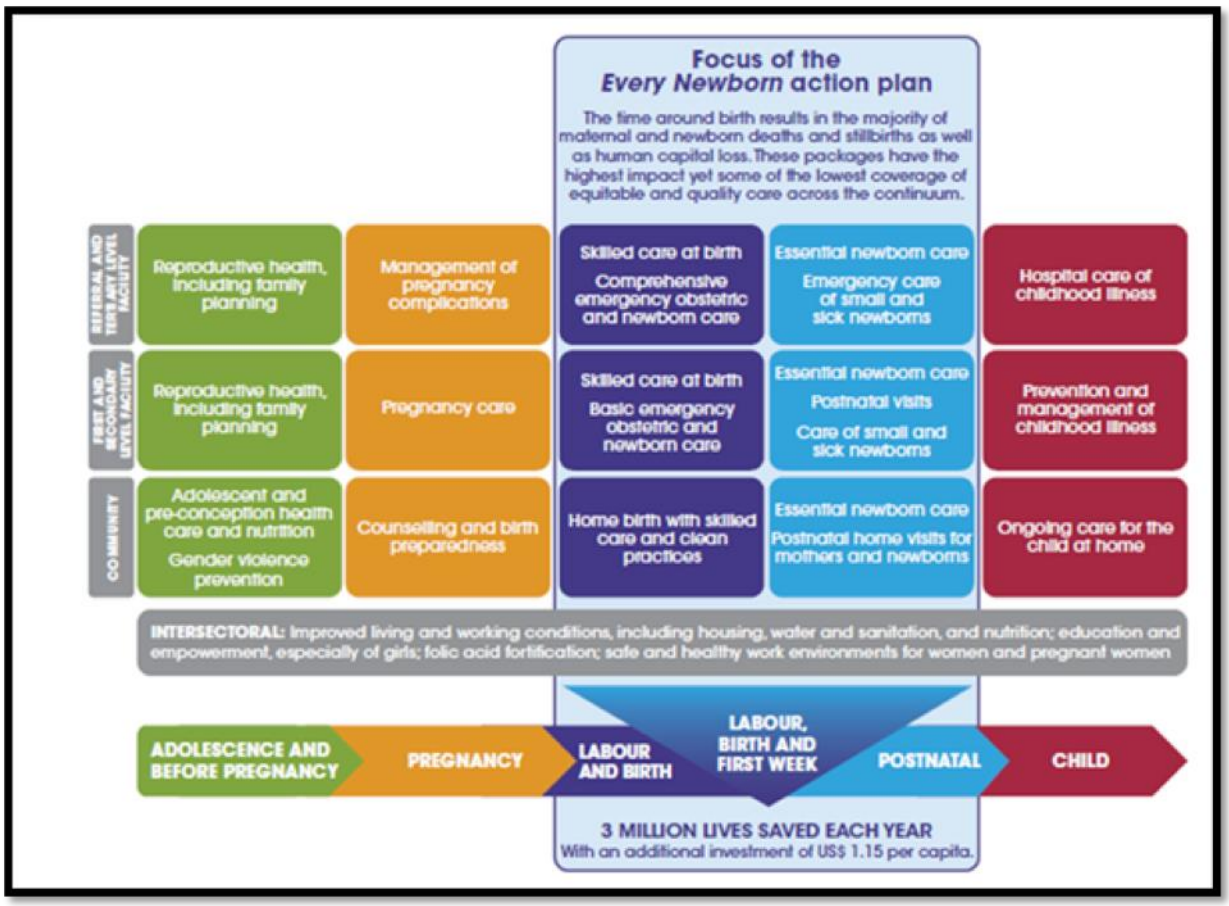


Figure 2-2 Packages in the continuum of care (WHO 2014:15)

The different packages or bundles of care include but are not limited to the care summarised in Table 2-1 and take into consideration that the mother and the neonate are treated and managed as a functional unit (WHO 2014:15). The relation between Figure 2-2 and Table

2-1 is that Table 2-1 expands on and explains what interventions are required whereas Figure 2-2 only summarises the interventions. Care during labour, around birth and in the first week after birth require competent neonatal nurses to ensure that appropriate and timeous care is provided to the small, sick and compromised neonate.

Table 1-1 Package of care with interventions (WHO 2014:16)

PACKAGE	INTERVENTIONS WITHIN PACKAGE
Care during labour, around birth and in the first week after birth.	Skilled care at birth Basic and comprehensive obstetric care Management of preterm births - Use of antenatal corticosteroids Essential newborn care - hygienic care - thermal control - support for breast feeding - newborn resuscitation
Care of small and sick neonates	Interventions to deal with complications arising - kangaroo mother care - antibiotic treatment for infections - cup and nasogastric tube feeding - intravenous fluids - infection prevention and management - safe oxygen therapy - case management of jaundice - surfactant and respiratory support
Post natal care	Early intervention and exclusive breast feeding Prevention of hypothermia Clean postnatal practices Appropriate cord care Close observation for 24 hours At least 3 postnatal contacts - day 3 (48-72 hours) - day 7 - day 14 - 6 weeks after birth

The *Every Newborn Action Plan* has five strategic objectives to meet the vision and two goals, based on six guiding principles of country leadership; human rights; integration; equity; accountability and innovation (WHO 2014:7).

Vision: *"A world in which there are no preventable deaths of newborns or stillbirths, where every pregnancy is wanted, every birth is celebrated, and women, babies and children survive, thrive and reach their full potential."*

Goal 1: *"By 2035 all countries should reach the target of 10 or less newborn deaths per 1000 live births and continue to reduce death and disability, ensuring that no newborn is left behind."*

Goal 2: *"By 2035, all countries will reach the target of 10 or less stillbirths per 1000 total births and continue to close equity gaps."*

Strategic objectives:

- Strengthen and invest in care during labour, birth and the first day and week of life.
- Improve the quality of maternal and newborn care.
- Reach every woman and newborn to reduce inequities.
- Harness the power of parents, families and communities.
- Count every newborn through measurement, programme-tracking and accountability. (WHO 2014:7-20).

The "*Every Newborn action plan"* and the *"Every Woman Every Child"* concepts were integrated, and this amalgamation broadened goals. The outcome was the Every Newborn Impact Framework, shown in Figure 2-3. This framework includes all packages for reproductive, maternal, newborn, child and adolescent health placing the emphasis on the care of women and babies during labour, birth and the first week of life, including the care of small and sick newborns. If there is improvement in coverage and quality of care, mortality targets will be achieved (WHO 2014:39).

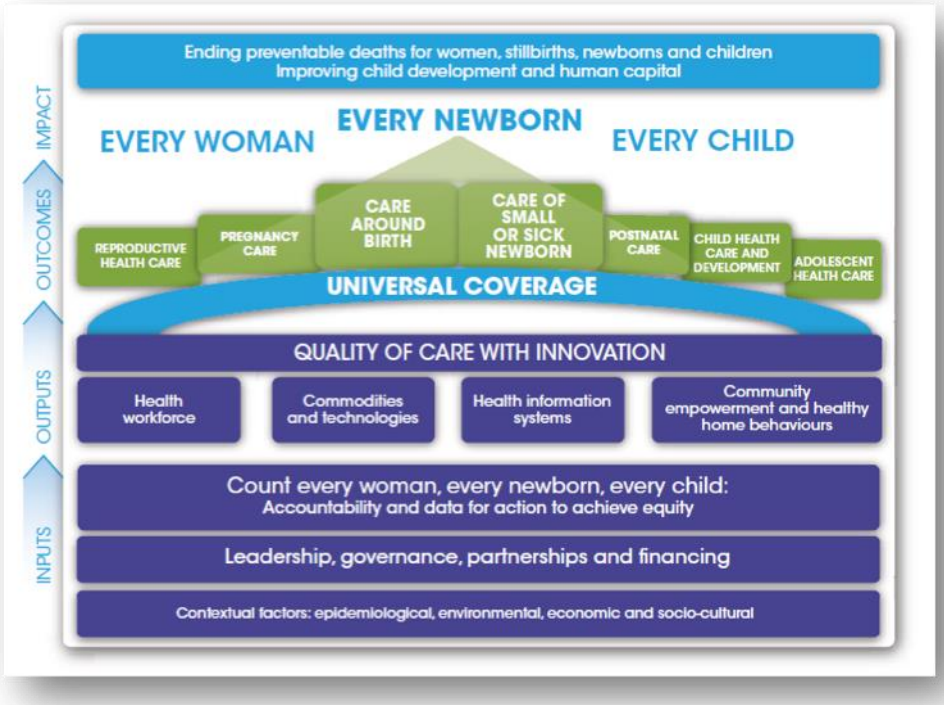


Figure 2-3 Every Newborn Impact Framework (WHO 2014:39)

The Essential Newborn Care (ENC) programme is a similar programme to the Every Newborn action plan as seen in figure 2-3 the Every Newborn Impact Framework, developed by the WHO targeting health workers working or intending to work in a primary-level facility with mothers and neonates between birth and the first seven days after birth. It is expected that the health workers will have completed a secondary level of education and have some level of health-care training.

The Essential Newborn Care Trainer's Course Guide is run over four or five days and is available online. The programme covers five modules starting with the care of the neonate around birth, followed by examination of the neonate and care of the neonate until discharge. The last two sessions cover special situations such as breastfeeding difficulties and lastly, optional sessions which can include kangaroo mother care and giving of injections (Essential Newborn Care Course Trainer's Guide: 10).

The Essential Newborn Care programme is aimed at a low level of neonatal care and provides very basic information to a lower skilled health worker. This low category of nurse is not included in the study and can benefit from this programme in the future. The recommendation for neonatal care in South Africa will be discussed in section 2.3.4.

2.3 SOUTH AFRICAN HEALTHCARE SYSTEMS

2.3.1 Nursing qualifications related to neonatal care in the South African context

In South Africa nursing and midwifery professions are practiced by registered or enrolled persons in terms of the Nursing Act (Act 33 of 2005). There are different categories of nurses starting with basic nursing qualifications. Professional nurses registered by the South African Nursing Council may proceed to obtaining additional qualifications, subject to the minimum requirements of Higher Education Institutions. A description of the different categories of nurses that can be registered or enrolled at the South African Nursing Council is given below.

2.3.1.1 Basic nursing qualifications

Formal nursing education that leads to a qualification to practice as a nurse or a midwife may only be provided by a South African Nursing Council accredited training school. Accreditation is based on a prescribed curriculum, providers of the education, clinical facilities, methods and duration of training. Education is strictly controlled by the South African Nursing Council (Human and Mogotlane 2017:128). A four-year comprehensive programme or two-year bridging programme can be completed in order to be registered as a nurse and midwife.

The following categories of registration are available at the South African Nursing Council:

- Registered nurses
- Registered midwives
- Registered students
- Registered student midwives

Registered midwives and registered student midwives attend to both mother and neonate in the neonatal period which also falls in the puerperium, according to the South African Nursing Council (SANC) regulations relating the conditions under wich Registered Midwives and Enrolled Midwives may carry on their profession (R2488:1990). They also provide health education and should be able to recognise abnormalities that may occur as well as intervene where applicable in these circumstances. The regulation (R2488:1990) also states that the Registered Midwives and Enrolled Midwives must refer and call for medical assistance in cases of illnesses, abnormalities or complications during pregnancy, labour, puerperium or if found in the child. Registered Midwives and Enrolled Midwives must be able to recognise and manage the following conditions of the neonate until medical assistance arrives according to the regulation that informs their practice:

- foetal distress
- injuries received during birth
- malformation or deformity (whether endangering life or not)
- undue feebleness, whether the child is premature or not
- inflammation of or any discharge from the eyes
- serious skin eruptions, especially those marked by the formation of watery blisters
- inflammation of or haemorrhage from the umbilicus
- jaundice
- convulsions
- neonatal haemorrhage

Registered nurses and by implication registered students are involved with patient care throughout the lifespan, including the neonatal period. The excecution of a programme of treatment, medication administration, prevention of disease, supervision and maintenance of oxygen delivery, maintenance of fluid and electrolytes as well as acid base balance are but a few examples of expected care that needs to be provided according to the Scope of Practice of Registered Nurses (R2598:1991). In order to function as registered nurses, student nurses are placed in the neonatal intensive care units or nurseries to get the relevant knowledge and skills.

The following categories for enrolment are available at the South African Nursing Council:

- Enrolled nurses
- Enrolled midwives
- Enrolled nursing auxiliaries
- Enrolled pupil nurses (currently phasing out)
- Enrolled pupil nursing auxiliaries (currently phasing out)

The scopes of practice for enrolled nurses and enrolled nursing auxiliaries are also specified under Regulation (R2598:1984) as ammended in 1991. The main difference between enrolled categories and registered categories is that they work under the direct or indirect supervision of the registered nurse. All categories, including student and pupil nurses, are

placed in midwifery units, neonatal intensive care units and nurseries during their training and thereafter.

2.3.1.2 Additional, post basic or specialist nursing qualifications

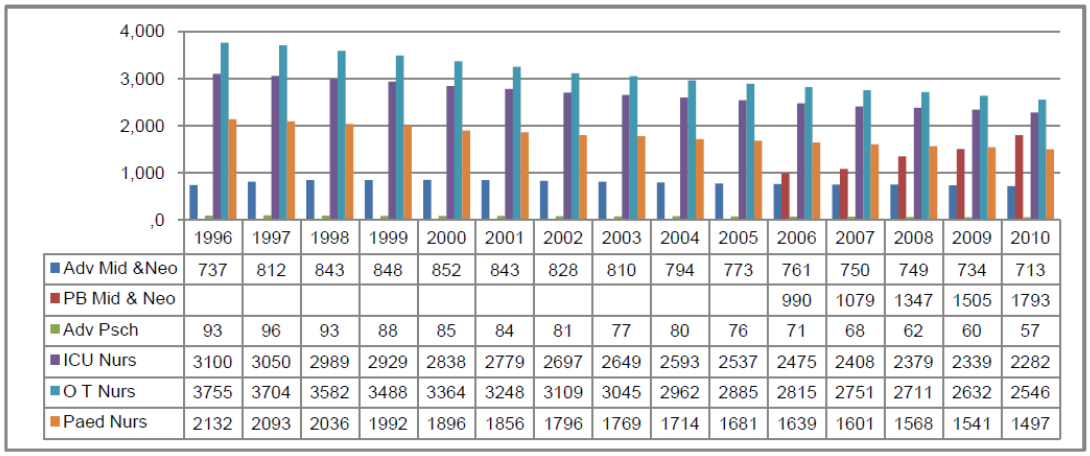
A post basic course can also be referred to as an additional or specialist qualification. The post basic course extends over a minimum duration of 44 academic weeks and leads to the registration of an additional qualification in clinical nursing fields. The clinical nurse specialist is a registered nurse with additional knowledge and skills. Currently the clinical nurse specialists have registered additional qualifications with the South African Nursing Council under R212 (Regulations Relating to the Course in Clinical Nursing Science Leading to Registration of an Additional Qualification). Within the clinical nursing sciences, the following study directions are available:

- Child Nursing Science;
- Community Nursing Science;
- Gerontological Nursing Science;
- Medical and Surgical Nursing Science;
- Midwifery and Neonatal Nursing Science;
- Occupational Health Nursing Science;
- Psychiatric Nursing Science

Previously neonatal nursing was registered as an additional qualification under medical and surgical nursing science. This training was, however, discontinued. In Chapter 2 section 2.5 neonatal nursing education was discussed as well as the need for and recognition of neonatal nursing as a specialisation or study direction. Each programme has a compulsory component (nursing dynamics for 1 academic year), common to all programmes and an elective component (capita selecta) which is determined by the clinical field which may include an area of specialisation for a period of two academic years.

During 5-7 April 2011, South Africa had arranged its first national Nursing Summit. The aim of the summit was to “reconstruct and revitalize the nursing profession for a long and healthy life for all South Africans” (SANC 2013a). Seven problem areas were identified and nursing education and training were noted among the problem areas. The contributions from the nursing summit were combined in a “Nursing Compact” which provided a summary of the concerns, decisions and recommendations emanating from the summit. The Minister of Health, Dr A. Motsoaledi, appointed a ministerial task team to refine and address the recommendations contained in the Nursing Compact. The work of the ministerial task team

provided the foundation for the strategic plan for nurse education, training and practice. A situation analysis conducted into the healthcare reformation in South Africa (SANC 2013a: 17) revealed a decrease in the production of nurses with specialist qualifications and in particular clinical specialisations as presented in Figure 2-4. A steady decline can be seen from 1996 to 2010. Advanced midwives, child care nurses and family practice nurses are mentioned as much needed specialisations. These particular specialities require nurses to have the ability to perform a clinical assessment, formulate a nursing diagnosis, manage treatment and to have clinical care skills.



	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Adv Mid &Neo	737	812	843	848	852	843	828	810	794	773	761	750	749	734	713
PB Mid & Neo											990	1079	1347	1505	1793
Adv Psch	93	96	93	88	85	84	81	77	80	76	71	68	62	60	57
ICU Nurs	3100	3050	2989	2929	2838	2779	2697	2649	2593	2537	2475	2408	2379	2339	2282
O T Nurs	3755	3704	3582	3488	3364	3248	3109	3045	2962	2885	2815	2751	2711	2632	2546
Paed Nurs	2132	2093	2036	1992	1896	1856	1796	1769	1714	1681	1639	1601	1568	1541	1497

Figure 2-4 Nursing specialist qualifications 1996 - 2010 (SANC:2018)

Of interest, in view of Figure 2-4, is that neonatal nursing is not depicted as a stand-alone qualification. Neonatal nursing is linked with advanced midwifery or with post basic midwifery. Thus the neonatology qualification can only be obtained as part of a midwifery qualification. In 2010 it was reported by the South African Nursing Council that there was a total of 191 neonatal nurses on the register, compared to a total of 277 in 2013 that completed an additional qualification in neonatal nursing as listed in the register (SANC 2018).

Only 86 neonatal nurses were trained over a period of three years, less than an average of 29 neonatal nurses per year for the whole of South Africa (SANC stats: 2010 and SANC stats: 2013). South African Nursing Council statistics of 2017 indicate on the “Registrations and listed Qualifications - Calender year 2017” that there was a total of 352 neonatal nurses registered in 2016 and 348 neonatal nurses in 2017 for the Medical and Surgical Nursing Science: Neonatal Nursing. The Certificate in Neonatal Nursing indicates a total of 224 neonatal nurses in 2016 and 218 neonatal nurses in 2017(SANC 2018).

The numbers of neonatal trained nurses are not reflected in Figure 2-4 to be able to appreciate the number of qualified neonatal nurses that were trained in the period between 1996 and 2010 in South Africa. In order to see the number of neonatal trained nurses in South Africa the South African Nursing Council provides information on training per year, or by higher education institutions or by specific programmes.

Table 2-2 provides information on numbers of nurses registered with an additional qualification in neonatal nursing. These numbers are very low considering the number of other clinical specialties as seen in Figure 2-4. Considering the evidence retrieved from South African Nursing Council, statistics for neonatal training in 2014, 2015, 2016 and 2017, reveal that a small number of nurses were registered with an additional qualification in neonatal nursing. Given that there is a decrease in the training of nurses with specialist qualifications as seen in the Table 2-2, there is a need for increased training in specialist care (SANC 2013a: 38).

Table 2-2 Registrations of additional qualifications with the South African Nursing Council over a period of 3 years.

Number of persons trained for the calender year		**2014**	**2015**	**2016**	**2017**	**Total**
University of Johannesburg	Medical and Surgical Nursing Science: Neonatal Nursing	11	1	5	1	18
University of Pretoria	Medical and Surgical Nursing Science: Neonatal Nursing	16	1	17	1	35
Total number of additional qualifications registered between 2014-2017						53

The University of Johannesburg and the University of Pretoria were the only two higher education institutions that contributed towards the formal training of neonatal nurses in order to register an additional qualification in Medical and Surgical Nursing Science:Neonatal Nursing.

The Medical and Surgical Nursing Science:Neonatal Nursing programmes advanced from being a certificate in early 1990-2000.

Table 2-3, provides a comparison of the different nurse categories as they currently stand in South Africa. The comparison indicates the different responsibilities of the different categories but also the similarities between the different categories.

Table 2-3 Comparison of the previous scope of practice of 4 different categories of nurses

Registered Nurse	Registered Midwife	Enrolled Midwife	Enrolled Nurse
(R425/R683/R212)	**(R254)**	**(R2489)**	**(R2175)**
(a) The **diagnosing** of a health need and the prescribing, provision and execution of a nursing regimen to meet the need of a patient or group of patients or, where necessary, by referral to a registered person;	(a) the **diagnosing** of a health need and the facilitation of the attainment of optimum physical and mental health for the mother and child by the prescribing, provision and execution of a midwifery regimen or, where necessary, referral to a registered person or by obtaining the assistance of a registered person, as the case may be;	(a) The **identification** of a health need and the promotion of the health of the mother and child by means of examination and advice during, and supervision over and handling of, normal pregnancy, uncomplicated labour and normal puerperium;	(a) The **carrying out** of nursing care to fulfil the health needs of a patient or a group of patients;
(b) the **execution** of a program of treatment or medication prescribed by a registered person for a patient;	(b) the **execution** of a programme of treatment or medication prescribed by a registered person;	(b) the **promotion or maintenance** of hygiene and physical comfort and the **reassurance** of the mother and child;	(b) **caring** for a patient, and **executing a nursing care plan** for a patient, including the **monitoring** of vital signs and the **observation** of reactions to medication and treatment;
(c) the **treatment** and care of and the administration of medicine to a patient, including the **monitoring** of the patient's vital signs and of his reaction to disease conditions, trauma, stress, anxiety, medication and treatment;	(c) the **prevention** of disease relating to pregnancy, labour and the puerperium and the promotion of health and family planning by **teaching and counselling** individuals, families and groups of persons, by **implementation** of family planning skills and by **monitoring** the health status of the mother and child;	(c) the **promotion** of exercise, rest and sleep;	(c) the **prevention** of disease and the promotion of health and family planning by means of **information to** individuals and groups;
(d) the **prevention** of disease and **promotion** of health and family planning by teaching to and **counselling** with individuals and groups of persons;	(d) the **monitoring** of- (i) the progress of pregnancy, labour and the puerperium; (ii) the vital signs of the mother and child; (iii) the reaction of the mother and child to disease conditions, trauma, stress, anxiety, medication and treatment;	(d) the **control, promotion** and **maintenance** of the following in the mother and child: (i) Respiratory functions; (ii) intake and output functions; (iii) blood pressure, temperature, pulse rate and foetal heart;	(d) the **promotion and maintenance** of the hygiene, physical comfort and **reassurance** of a patient;
(e) the **prescribing,**	(e) the **prevention** of	(e) the **promotion,**	(e) the **promotion**

Registered Nurse	Registered Midwife	Enrolled Midwife	Enrolled Nurse
(R425/R683/R212)	**(R254)**	**(R2489)**	**(R2175)**
promotion or maintenance of hygiene, physical comfort **and re-assurance** of the patient;	complications relating to pregnancy, labour and the puerperium including: (i) the performance of an episiotomy (ii) the suturing of first and second degree tears or an episiotomy; (iii) the administration of a local anaesthetic;	**maintenance and improvement** of the nutritional status of the mother and child;	**and maintenance** of exercise, rest and sleep with a view to the healing and rehabilitation of a patient;
(f) the **promotion** of exercise, rest and sleep with a view to healing and rehabilitation of a patient;	(f) the **administration** of medicine to the mother or child;	(f) the **promotion** of breastfeeding;	(f) the **prevention** of physical deformity and other complications in a patient;
(g) the **facilitation** of body mechanics and the **prevention** of bodily deformities in a patient in the execution of the nursing regimen;	(g) the **prescribing, promotion or maintenance** of hygiene, physical comfort and reassurance of the mother and child;	(g) the **provision of information** on health and family planning;	(g) the **supervision over and maintenance** of a supply of oxygen to a patient;
(h) the **supervision over and maintenance** of a supply of oxygen to a patient;	(h) the **promotion** of exercise, including ante-natal and post-natal exercises, rest and sleep;	(h) the **care** of a dying patient, a recently deceased patient and a stillborn infant.	(h) the **supervision over and maintenance** of the fluid balance of a patient;
(i) the **supervision over and maintenance** of fluid, electrolyte and acid base balance of a patient;	(i) the **facilitation** of body mechanics and the prevention of bodily deformities in the execution of the midwifery regimen;		(i) the **promotion** of the healing of wounds and fractures, the protection of the skin and the maintenance of sensory functions in a patient;
(j) the **facilitation** of the healing of wounds and fractures, the protection of the skin and the maintenance of sensory functions in a patient;	(j) the **supervision over and maintenance** of a supply of oxygen to the mother and child;		(j) the **promotion and maintenance** of the body regulatory mechanisms and functions in a patient;
(k) the **facilitation of the maintenance** of bodily regulatory mechanisms and functions in a patient;	(k) the **supervision over and maintenance** of fluid, electrolyte and acid base balance of the mother and child;		(k) the **feeding** of a patient;
(l) the **facilitation** of the maintenance of nutrition of a patient;	(l) the **facilitation** of the healing of wounds, the protection of the skin and the maintenance of sensory		(l) **the promotion and maintenance** of elimination in a patient;

Registered Nurse	Registered Midwife	Enrolled Midwife	Enrolled Nurse
(R425/R683/R212)	**(R254)**	**(R2489)**	**(R2175)**
	functions in the mother and child;		
(m) the **supervision over and maintenance** of elimination by a patient;	(m) the **facilitation of the maintenance** of bodily regulatory mechanisms and functions in the mother and child;		(m) the **promotion** of communication by and with a patient in the execution of nursing care;
(n) the **facilitation** of communication by and with a patient in the execution of the nursing regimen;	(n) **the facilitation, maintenance** and, where necessary, the improvement of the nutritional status of the mother and child;		(n) the **promotion** of the attainment of optimal health in the individual, the family, groups and the community;
(o) the **facilitation** of the attainment of optimum health for the individual, the family, groups and the community in the execution of the nursing regimen;	(o) the **promotion** of breastfeeding;		(o) the **promotion and maintenance** of an environment in which the physical and mental health of a patient are promoted;
(p) the **establishment and maintenance, in the execution** of the nursing regimen, of an environment in which the physical and mental health of a patient is promoted;	(p) the **supervision over and maintenance** of elimination by the mother and child;		(p) **preparation for and assistance** with diagnostic and therapeutic acts by a registered person;
(q) **preparation for and assistance** with operative, diagnostic and therapeutic acts for the patient;	(q) the **facilitation** of communication by and with the mother and father or family in the execution of the midwifery regimen;		(q) **preparation for and assistance** with surgical procedures and anaesthetic;
(r) the **co-ordination** of the health care regimens provided for the patient by other categories of health personnel;	(r) the **establishment and maintenance, in the execution** of the midwifery regimen, of an environment in which the physical and mental health of mother and child is promoted;		(r) **care** of a dying patient and a recently deceased patient.
(s) the **provision** of effective patient advocacy to enable the patient to obtain the health care he needs;	(s) **preparation for and assistance** with operative, diagnostic and therapeutic acts for the mother and child;		
(t) **care** of the dying patient and the care of a recently deceased patient within the execution of the nursing regimen.	(t) the **co-ordination** of the health care regimens provided for the mother and child by other categories of health personnel;		

Registered Nurse	Registered Midwife	Enrolled Midwife	Enrolled Nurse
(R425/R683/R212)	**(R254)**	**(R2489)**	**(R2175)**
	(u) the **provision** of effective advocacy to enable the mother and child to obtain the health care they need;		
	(v) **care** of the dying patient and a recently deceased patient within the execution of the midwifery regimen.		

It is clear that the registered nurse and the registered midwife are diagnosing, planning, co-ordinating, executing, supervising and facilitating the care of patients. They can also be responsible for actions performed by the enrolled nurse and these actions are included in their scope of practice. The enrolled nurses on the other hand are limited to, among other actions, monitoring and reassuring patients and carrying out the nursing plan as planned by the registered nurse. Ultimately the four categories of nurses are responsible for caring for patients on different levels but addressing the same needs.

In the following section the different levels of healthcare delivery in South Africa will be discussed. In every level of healthcare different facilities should be available in order to provide specific functions by specified staff members. A visual representation of the private and public sector will be provided to allow for a better understanding of the health care delivery systems in South Africa.

2.3.2 Levels of healthcare delivery in South Africa

In order to have an efficient and functioning health care service, different levels of healthcare are required. Not all conditions warrant the highest level of care. The availability of levels of care allows the most vulnerable of populations to receive the care they need. The referral system should function with clear protocols for management, patient referrals, transport and various categories of health professionals (South African Maternity Guidelines 2015: 20).

Healthcare in South Africa is currently divided into two main sectors which coexist parallel to each other, comprising the public and private healthcare sector (Makgatho 2015:4).

The public health care sector is essentially state funded. Health care provided in clinics is free of charge and services provided in hospitals require a small fee based on the patient's ability to pay for the service (Makgatho 2015:3). The different levels of healthcare are illustrated in Figure 2-7 and summarised in Table 2-4.

In order to have an efficient and functioning health care service, levels of healthcare should address the community's needs. A short description of the different levels of care is provided based on those described in Guidelines for Maternity Care in South Africa (2015: 20).

2.3.2.1 Tertiary hospital

Tertiary or central hospitals provide specialist and sub-specialist care in several regional hospitals. These hospitals are training hospitals for healthcare workers and research activities. Regional services can be provided.

2.3.2.2 Regional hospital

Services rendered at the regional hospital are at a general specialist level. The regional hospital receives referrals from the district services and training and research activity is evident. The provision of some district services may occur within the local sub-district. Teams are lead by experienced specialists in the medical disciplines such as general surgery, orthopaedics, general medicine, paediatrics, obstetrics and gynaecology, family medicine, radiology and anaesthetics. The regional hospital is the base hospital for a health region that includes several districts. Regional hospitals can offer district hospital services and are the base specialist healthcare facility for clinics and community centres in a particular geographical area.

2.3.2.3 District hospital

Services provided at district hospitals include trauma and emergency care, in-patient and out-patient visits, paediatrics and obstetric care. There may be some of the following specialists employed; specialist family physicians, obstetricians, gynaecologists and paediatricians.

2.3.2.4 Community health centre

This comprehensive healthcare service operates 24 hours and there is an obstetric unit that is run by midwives. If it offers only a maternity service, it can also be called a midwife obstetric unit (MOU). Other services such as emergency care, minor ailments, chronic diseases and promotive services are usually also available.

2.3.2.5 Clinic

A clinic is a healthcare facility that functions on weekdays during working hours (07h00-16h00 or 08h00-17h00). Several activities such as antennal care, family planning, child health and management of chronic diseases can be included in the clinic's service delivery.

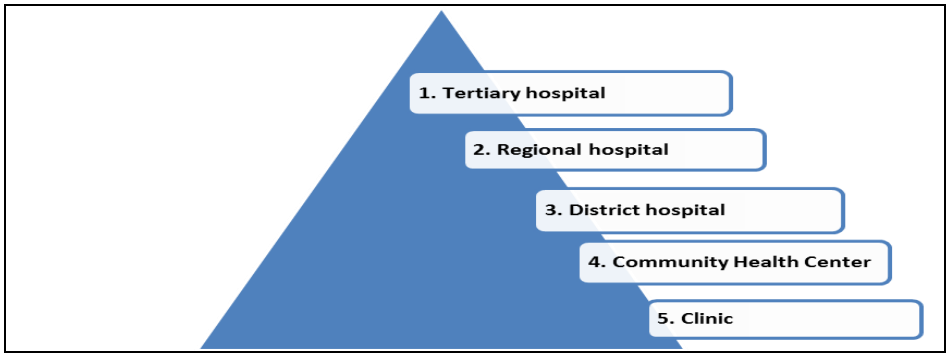


Figure 2-5 Different levels of healthcare (Makgatho 2015:3-5)

2.3.3 Staffing in the different levels of healthcare

The staffing of every level is important to ensure the optimal functioning of the particular level of healthcare. The functions and facilities range from basic to advanced healthcare. At every level of care, professional nurses and enrolled nurses form part of the staffing. From the Community Health Centre level upwards the professional nurse, who might not have a midwifery qualification, is replaced with a midwife. Different career pathways allow nurses to become general nurses without a basic midwifery qualification (Guidelines for Maternity Care in South Africa: 2015:20).

A brief description of the staffing at the different levels of healthcare is provided below.

2.3.3.1 Nurses

Nurses are people registered in a particular category in terms of section 31 of the Nursing Act (South Africa 2005) in order to practice nursing and/or midwifery. Nursing is a caring profession which supports, treats and cares for a health care user in order to achieve or maintain health, alternatively cares for a health care user to ensure comfort and death with dignity (McQuoid-Mason and Dada 2009: 202).

Professional/registered nurses are people who are qualified and competent to independently practice comprehensive nursing care in the manner and to the level prescribed by the Nursing Act (South Africa 2005) and who are capable of assuming responsibility and accountability for such practice. The registered nurse performs scientifically based physical, chemical, psychological, social and technological applicable health care (McQuoid-Mason and Dada 2009:202-204). Midwives and advanced midwives perform acts or procedures that apply to the practice of midwifery which relate to the mother and child during pregnancy (McQuoid-Mason and Dada 2009:188).

Enrolled nurses are nurses that are involved with acts or procedures that form part of the nursing regime planned and initiated by a registered nurse or registered midwife and carried out under their direct control or indirect supervision (McQuoid-Mason and Dada 2009:201). Nursing assistants or auxiliary nurses are people educated to provide elementary care in the manner and level prescribed in the Nursing Act (South Africa 2005). The enrolled nursing assistant's practice entails carrying out certain acts and procedures as part of a nursing regime planned and initiated by a registered nurse or midwife under their direct and indirect supervision (McQuoid-Mason and Dada 2009:201).

2.3.3.2 Community healthcare workers

Community healthcare workers are recognised in South Africa to be important in primary health care. These community healthcare workers provide integrated health and social care to households by forming a link between government, services and poor communities (Nxumalo, Goudge and Manderson 2016:62).

2.3.3.3 Visiting/ resident/ full time dietician

The dietician is an expert on diet and human nutrition. A patient's diet can be altered based on their medical condition and individual needs. The dietician may visit at certain times or may be employed on a full time basis by the Department of Health for the particular level of care.

2.3.3.4 Visiting/ resident/ full time medical officer

Medical officers are essentially general practitioners who have completed their mandatory internship and community service and who are qualified to practice general medicine but have not specialised. They work in hospitals and are supervised by specialists.

2.3.3.5 Visiting/ resident/ full time specialist obstetricians

A specialist is a doctor who has passed his / her registrar examinations and is qualified in a speciality such as obstetrics and gynaecology. The specialist differs from a sub-specialist who has also specialised in a sub-discipline e.g. neonatology within the field of paediatrics.

Table 2-4 Summary of levels of healthcare (Guidelines for Maternity Care in South Africa: 2015:20-23)

	Functions	Staffing	Facilities
Clinic	- Antenatal care (low and intermediate risk) - Point of care blood and urine testing - Post-natal follow up visits - Contraceptive services	- Professional nurses - Enrolled nurses - Nursing assistants - Community health workers - Visiting medical officer	- Necessities to run an antenatal clinic - Equipment and drugs to manage obstetric emergencies - Sterile packs for unscheduled deliveries - Reliable transport for emergency transfer - Effective communication system - Contraceptive scheduling including insertion of IUCDs
Community health care centre (CHC)	- Antenatal care (low and intermediate risk) - Basic emergency obstetric care - 24 hour labour and delivery for low risk women - Comprehensive contraceptive care - Referral of problems to hospital - Management of emergencies	- Advanced midwives - Midwives - Enrolled nurses - Nursing assistants - Community health workers - Visiting or resident dietician - Visiting or resident medical officer	- Necessities to run an antenatal clinic - Equipment to run a low risk labour ward - Hand held Doppler instrument for foetal heart auscultation
District hospital (DH)	- Antenatal care for high risk women - Antenatal ultrasound - Treatment of pregnancy problems/ admission to hospital - Comprehensive emergency obstetric care / caesarean section/ blood transfusion - 24 hour Labour and delivery including caesarean section	- Advanced midwives - Midwives - Enrolled nurses - Nursing assistants - Social workers - Dietician	- Necessities to run an antenatal clinic including ultra-sound scanner - Equipment to run high risk labour ward including vacuum extractor/ cardiotocograph (CTG) machine/ pulse oximeters / intravenous fluid pumps - 24 hour laboratory service

	Functions	Staffing	Facilities
	- Regional and general anaesthetics - Essential special investigations - Postnatal and post-operative care - Contraceptive services/ postpartum and elective tubal ligation - Referral centre for clinic and community healthcare centre in the district - Supervision of clinics and community healthcare centre in district - Referral of complicated problems to regional and tertiary hospitals - Counselling and support services - Genetic screening and counselling services	- Full time medical officers - Visiting specialist obstetricians	- Anthropometric equipment - Emergency blood - Equipment and drugs for obstetric emergencies including a fully equipped resuscitation trolley and defibrillator - Fully equipped operating theatre - X-ray facilities - Reliable transport service for emergency transfer to regional or tertiary hospitals - A mother's waiting area in rural areas with poor transport infrastructure
Regional hospital (RH)	- All district hospital functions including a blood bank - Management of severely ill pregnant women - Specialist supervision of the care of pregnant women - Prenatal diagnosis, e.g. genetic amniocentesis - Multidisciplinary care - other specialties/ dietetics/ physiotherapy etc. - Referral centre for district hospitals and if appropriate clinics in the region - Supervision and support for district hospitals and clinics	- Advanced midwives - Midwives - Enrolled nurses - Nursing assistants - Dietician - Full time medical officers - Full time specialist obstetricians	- All the facilities required in a district hospital - High-care area providing short-term assisted ventilation
Provincial	- All regional hospital functions	- Advanced midwives	- All the facilities required in level 1 district and level 2

	Functions	Staffing	Facilities
Tertiary hospital (PT)	- Specialist combined clinics, e.g. cardiac and diabetic pregnancy clinics - Advanced prenatal diagnosis such as chorion villus sampling and cordocentesis - Management of extremely ill or difficult obstetric patients - Supervision and support for district and regional hospitals - Responsibility for policy and protocols in the regions served	- Midwives - Enrolled nurses - Nursing assistants - Full time medical officers -Full time specialist obstetricians - Including sub-specialty skills	regional hospitals - Specialised equipment for the management of very ill or difficult obstetric patients
National Central hospital (NC)	Renders very high specialised tertiary and quaternary service on a national basis and provides a platform for training healthcare workers for high cost and low volume services		

The private healthcare sector involves a network of private organisations consisting of healthcare financing, healthcare services and providers of consumables and technology as illustrated in Figure 2-6. There are also non-profit organisations, advocacy groups and private-public partnerships. Private healthcare services are fairly expensive and only accessible to a small proportion of the population who can afford to pay for the services and insurance (Makgatho 2015:3).

Private hospitals are typically part of a network of hospitals owned by a for-profit or non-profit company. These hospitals are spread over South Africa and provide a range of facilities to meet the local population's needs. Private hospitals are equipped with high technology in multi-disciplinary hospitals, community hospitals and specialised stand-alone facilities. The staffing in private hospitals is mostly the same as in the five different levels of care facilities. Bosch (2009:55) describes the nursing workforce characteristics in a neonatal intensive care unit of a private hospital as 60.10% registered professional nurses; 31.70% registered enrolled nurses and 5.50% nursing assistants and care workers.

The public sector caters for the larger part of the population that cannot afford private healthcare services. This imbalance of healthcare services has an impact on quality and timeous delivery of the healthcare service (Makgatho 2015:3). Doctors, nurses and allied service providers working in the private sector are trained in the public sector. The private sector is only allowed to train nurses and emergency care services if the training facilities comply with the requirements as determined by the nursing act (Nursing Act no. 33 of 2005). Furthermore, it is common to find full time public sector employees working additional hours in the private sector to supplement their income (Makgatho 2015:3). The training of all different categories of nurses is regulated by the South African Nursing Council (SANC) by means of the Nursing Act (Nursing Act no. 33 of 2005). The proposed competency framework for nurses involved in neonatal care could support training of nurses in both public and private settings.

A brief explanation of the differences between public and private healthcare services ensues to allow a better understanding of the healthcare setting in South Africa. Babies can be born in one of five different levels of healthcare facilities. These facilities are government funded. A private facility is an alternative in the dual healthcare system in South Africa, if medical insurance (or private funds), in the form of a medical aid is available. The full cost of care for the mother and the neonate is usually covered by a medical aid; any shortfall is paid by the member. Whether

provided in a private or public setting, the cost of neonatal care is high and in both instances, requires appropriate care by competent nurses

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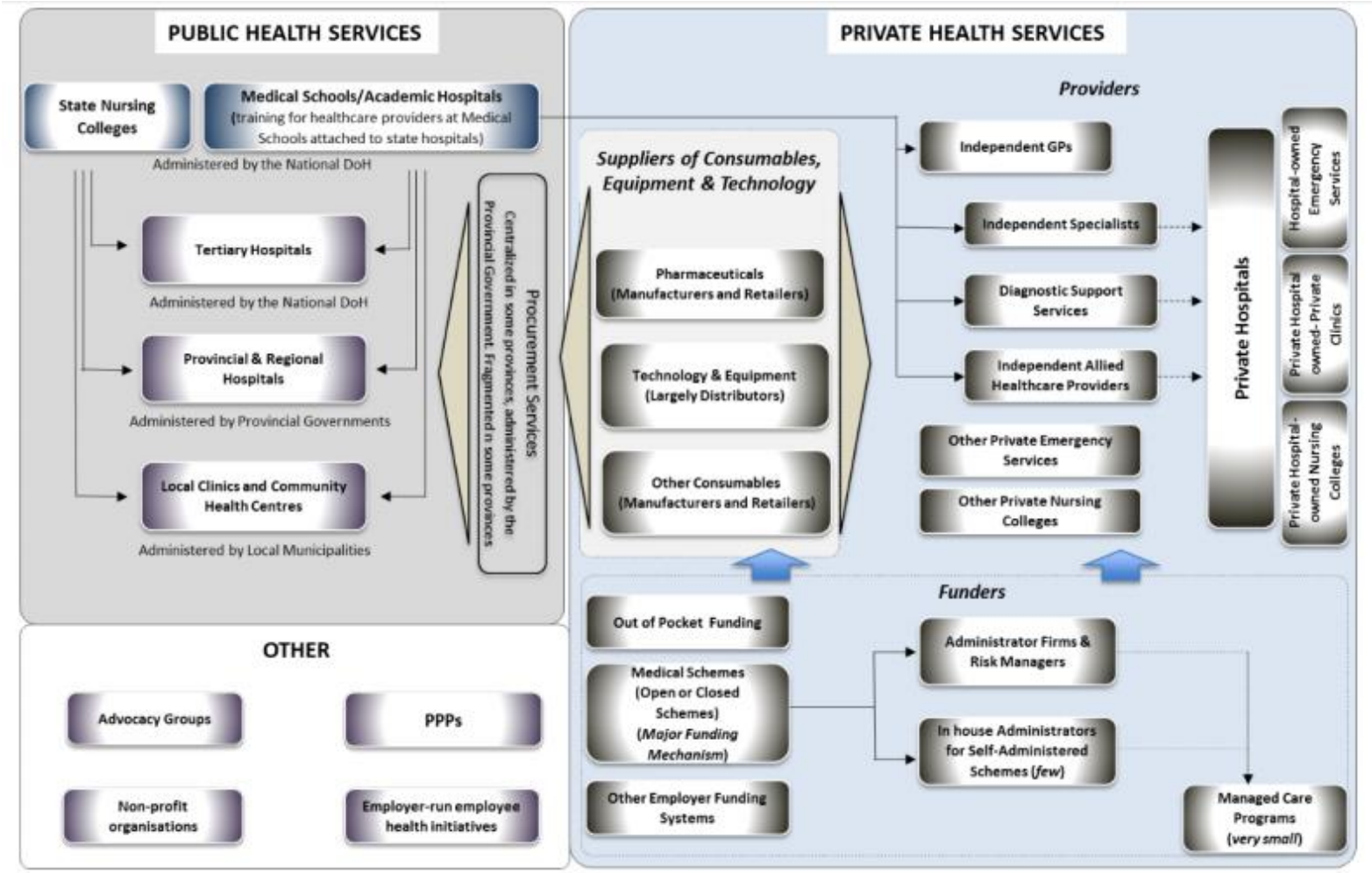


Figure 2-6 Public and private healthcare sector in South Africa (Makgatho 2015:4) [with permission]

Pattison (2015:261) interprets a safe maternity unit as a facility where there are sufficient healthcare providers with the knowledge and skill to perform all the actions required by a woman in labour as well as being able to manage complications by either treating or by stabilisation and referral. Maternal services are managed at the lowest possible level of care, such as a clinic or a community healthcare centre, but a rapid transfer must be possible in the event that complications occur. It is ideal for women with uncomplicated pregnancies to be managed in a facility close to their home.

The "CSIR Guidelines for the Provision of Social Facilities in South African Settlements" (First Edition: CSIR August 2012) as discussed in the Saving Babies Report (2012-2013) provide norms for the provision and planning of social facility investment, constructed on the population numbers.

The following number of hospitals are suggested for South Africa based on population estimates from Stats SA for 2013 (Saving Babies report 2012-2013:9):

- 22 tertiary hospitals – level 3 (South Africa has 22)
- 30 regional hospitals – level 2 (South Africa has 30)
- Between 59 and 177 district hospitals – level 1 (South Africa has 188)

According to the Saving Babies report (2012-2013), it seems as if healthcare facilities in South Africa are sufficient, the challenge, however, lying in the adequate staffing of these facilities. If there are insufficient numbers of healthcare staff to service the facilities, the quality of healthcare will, in due course, suffer, (Pattinson and Rhoda 2014:9 in Saving Babies report of 2012-2013:9).

2.3.4 Causes of neonatal deaths in South Africa

The Saving Babies Report (2012-2013) indicates that most births occur in district hospitals in South Africa. Unfortunately, most neonatal deaths also occur at this level. In 2011 the Government Gazette listed 188 district hospitals, 42 regional hospitals,12 provincial tertiary hospitals and 10 central hospitals (Pattinson and Rhoda 2014:12).

The causes of early neonatal death for babies of 500g+ were immaturity related followed by hypoxia, infection and congenital abnormalities. The causes of early neonatal death for babies of 1000g+ were hypoxia related followed by immaturity related, infection and congenital abnormalities.

Figure 2-7 provides a summary of final causes of early neonatal deaths expressed per number of deaths per level of care per annum for 500g and more as well as 1000g and more (Saving Babies report 2012-2013:18).

(**CHC: COMMUNITY HEALTHCARE CENTRE/ DH:DISTRICT HOSPITAL/ REGIONAL HOSPITAL/ PT: PROVINCIAL TERTIARY HOSPITAL/ NC: NATIONAL CENTRAL HOSPITAL/ SA: SOUTH AFRICA**)

Estimated numbers using DHIS birth data	CHC	DH	RH	PT	NC	SA
ENND number 500g+						
Congenital abnormalities	17	262	225	135	161	800
Hypoxia	90	1383	779	325	241	2818
Immaturity related	94	1881	1597	559	620	4751
Infection	26	165	240	150	145	726
Miscellaneous	21	184	127	51	36	419
Trauma	4	28	18	11	2	63
Unknown cause of death	13	84	37	21	30	185
Total	265	3987	3022	1253	1233	9760
ENND number 1000g+						
Congenital abnormalities	17	254	206	114	147	738
Hypoxia	86	1355	757	289	224	2711
Immaturity related	36	979	587	162	182	1946
Infection	24	152	188	109	107	580
Miscellaneous	20	177	103	42	29	371
Trauma	3	27	16	9	1	56
Unknown cause of death	11	79	32	18	22	162
Total	196	3023	1889	743	712	6563

Figure 2-7 Final causes of early neonatal deaths (ENND) (Saving Babies report 2012-2013:18)

In the Millennium Development Goal 4 report, statistics are provided by Statistics South Africa (2015), and demonstrated the major causes of neonatal mortality in South Africa to be birth asphyxia, preterm birth and infections.

Pattinson and Rhoda (2014:29) list some avoidable factors such as inadequate facilities (including equipment in neonatal unit/nursery), inadequate neonatal management plans, no access to a neonatal ICU bed with ventilator, inadequate neonatal monitoring, antenatal steroid not given and inadequate neonatal resuscitation. These factors can account for missed opportunities to provide care and / or for the provision of sub-standard care. The findings in this report are very similar to those appearing in the 2010-2011 Saving Babies report (2012-2013). Many of the same challenges still impact the delivery of healthcare. The recommendations made in 2011 were to implement the recommendations which were summarised in the mnemonic “HHAPINESS” (**H**ealth system improvement; **H**ealth care provider training; Reduce deaths due to **A**sphyxia; Reduce deaths due to **P**rematurity; Reduce deaths due to **I**nfection; this is incorporated in the **Ne**onatal **S**urvival **S**trategy),

which will be discussed later in this chapter. Recommendations made in 2015 at the 6th National Child Health Priorities Conference held in Pietermaritzburg, Dr Natasha Rhoda, Chairperson the National Perinatal Morbidity and Mortality Committee (NaPeMMCO) echoed the 2011 recommendations in 2015.

2.3.5 Recommendations for neonatal care in South Africa

The Sustainable Development Goals (SDG) feauture in the National Development Plan (NDP) when it addresses the social determinants of health (Barron and Padarath 2017:81). Sustainable Development Goal 3 is formulated as “ensure healthy lives and well-being for all ages”. This goal still includes the focus of neonatal health (Barron and Padarath 2017: 216). Although the wording of the Sustainable Development Goals, subsequent to the Millineum Development Goals has been reformulated to be more inclusive, there is still a focus on neonatal care when recommendations were made in 2011 and 2015 by the National Perinatal Morbidity and Mortality Committee (NaPeMMCO).

Recommendations for neonatal and maternal care were made in 2011 and again in 2015 (Rhoda unpublished - conference presentation), by the National Perinatal Morbidity and Mortality Committee (NaPeMMCO). The recommendations can be summarised by using the mnemonic *HHAPINESS*:

- **H**ealth system improvement
- **H**ealth care provider training
- Reduce deaths due to **A**sphyxia
- Reduce deaths due to **P**rematurity
- Reduce deaths due to **I**nfection
- This is incorporated in the **Ne**onatal **S**urvival **S**trategy

In order for the “*HHAPINESS*” recommendations to function effectively, they need to be built on three corner stones, namely:

- Knowledgeable and skilled healthcare providers.
- Appropriately resourced healthcare facilities including human resources and equipment.
- Rapid inter-facility transfer.

Attention should also be paid to how the recommendations will be executed and who will be doing the work, summarised as the 5 “Cs”. The 5 “Cs” are derived from the first letter in the words in the left column of Figure 2-8; namely, care, coverage, CPAP, contraception and community involvement *(*Pattinson and Rhoda 2014:33).

How	Who
Care: Commitment to quality	- DCSTs to improve clinical governance, clinical supervision, response to local audit findings, and leadership functions - HCP to make themselves available for training and to participate in drills - Managers to ensure emergency drills performed regularly
Coverage	- District managers to ensure all effective interventions are implemented in maternity, especially for the poorest section of the population - EMS to ensure transport home to institution and between institutions
CPAP	- CEOs and district managers rationalise resources to ensure skills and facilities available 24/7 - HCP have skills institute nasal CPAP
Contraception	- All HCP to motivate people to prevent unwanted pregnancies - Managers to ensure various modalities are always available - WBOTs to identify women requiring contraception, and refer
Community involvement	- Health facility management to engage with community health committees - WBOTs convey the essential maternity and baby care messages to all pregnant and postnatal women

Figure 2-8 The 5 "C" (Saving Babies report 2012-2013 and Pattinson and Rhoda 2014:33)

The 5 "Cs" refer to how the above-mentioned recommendations to improve neonatal and maternal care should be implemented and who will be responsible for their implementation.

According to Pattinson and Rhoda (2014:28), the effect of the implementation of the recommendations can be monitored and evaluated by assessing the emergency obstetric signal functions. A signal function is an action that can be executed to save a neonate's life such as thermal protection, infection prevention, HIV treatment if mother is HIV positive, resuscitation, kangaroo mother care and safe administration of oxygen (Saving Babies report 2012-2013:28). The emergency obstetric signal functions can be linked to neonatal emergency signal functions as some of the major neonatal emergency signal functions occur in the antenatal period adapted from Gabrysch, Civitelli, Edmond, Mathai and Ali (2012:2).

The signal functions include general requirements for a healthcare facility starting with an around the clock service delivery every day, adequate numbers of skilled providers, referral to higher levels of care and reliable electricity, water supply, clean toilets and heating in cold temperatures. The summary is portrayed in Figure 2-9.

Dimensions of Facility Care	Obstetric	Neonatal
General requirements for health facility		
	Service availability 24/7	
	Skilled providers in sufficient numbers	
	Referral service to higher-level care, communication tools	
	Reliable electricity and water supply, heating in cold climates, clean toilets	
A. Routine care (for all mothers and babies)		
	Monitoring and management of labour using partograph	Thermal protection
	Infection prevention measures (hand-washing, gloves)	Immediate and exclusive breastfeeding
	Active management of third stage of labour (AMTSL)	Infection prevention including hygienic cord care
	HIV and TB Screening and treatment	PMTCT if HIV-positive mother
B. Basic emergency care (for mothers and babies with complications)		
	Parenteral magnesium sulphate for (pre-) eclampsia	Antibiotics for preterm or prolonged PROM to prevent infection
	Assisted vaginal delivery	Corticosteroids in preterm labour
	Parenteral antibiotics for maternal infection	Resuscitation with bag and mask of non-breathing baby
	Parenteral oxytocic drugs for haemorrhage	KMC for premature/very small babies
	Manual removal of placenta for retained placenta	Alternative feeding if baby unable to breastfeed
	Removal of retained products of conception	Injectable antibiotics for neonatal sepsis
	ARVs for mother	
C. Comprehensive emergency care (functions in addition to Basic)		
	Surgery (e.g., C-section) including anaesthesia	Intravenous fluids
	Blood transfusion	Safe administration of oxygen

Figure 2-9 Obstetric and neonatal signal functions (Saving Babies report 2012-2013; Pattinson and Rhoda 2014:34)

The Department of Health summarised the key steps to prevent maternal, neonatal and child mortality recommended by the ministerial committees. Figure 2-10 illustrates the areas that must be the focus of interventions to reduce deaths and how this can be achieved in terms of training for healthcare workers and strengthening of systems. (Rhoda unpublished-conference presentation: 2015).

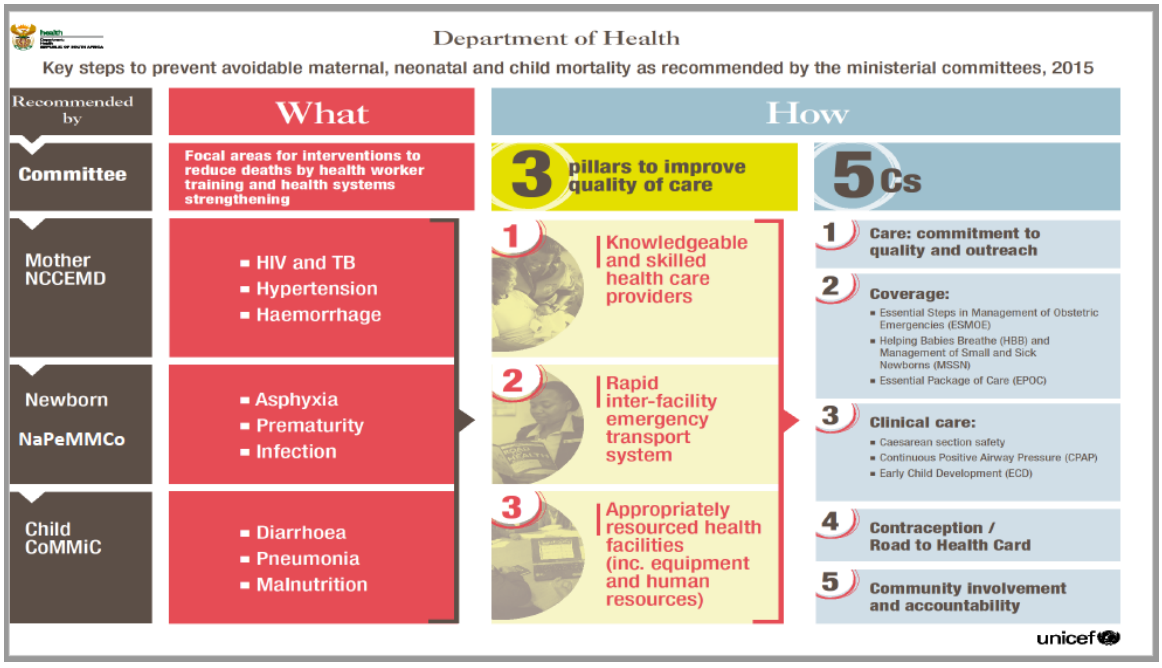


Figure 2-10 Key steps to prevent maternal, neonatal and child mortality (Rhoda unpublished- conference presentation: 2015)

Skilled healthcare providers working in the right environment can prevent, detect and treat complications according to Gabrysch et al. (2012: e1001340). There is a need for competent and skilled neonatal nurses to function within their categories to form the three pillars to improve the quality of care by providing 'appropriate human resources' as indicated in Figure 2-10. Competent neonatal nurses will be able to identify the need for rapid inter-facility emergency transfers to appropriately equipped health facilities.

In view of the information on the hospitals as well as content from the recommendations obtained from the Saving Babies report (Saving Babies report 2012-2013), there are specific and essential skills and competencies involved in caring for newborns and their mothers.

To improve child survival, the impact of neonatal mortality on the under-five mortality cannot be ignored. The focus should be on the implementation of recommendations effecting the neonatal period as specified by the National Perinatal Mortality and Morbidity Committee (NaPeMMCo). If attention is given to the main causes of perinatal deaths (prematurity, asphyxia and infection) and the recommendations by the National Perinatal Mortality and Morbidity Committee a substantial difference can be made to the survival of neonates in South Africa (Statistics South Africa 2015).

The recommendations made by National Perinatal Morbidity and Mortality Committee (NaPeMMCO) summarised as *HHAPINESS* (National Perinatal Morbidity and Mortality Committee Short report 2014) are targeting the same goals as the international action plan (WHO 2014:39), but based on South Africa's unique needs and Neonatal Survival strategies. One of the pillars on which improving the quality of healthcare and influencing the survival of neonates in South Africa is based, is knowledgeable, skilled and competent healthcare workers.

2.4 NEONATAL NURSING EDUCATION

The Council of International Neonatal Nurses released a position statement in 2015 which represents the Council's views on neonatal nursing education. The Neonatal Nurses Association of Southern Africa (NNASA) is a member of this international body which represents neonatal nurses in many countries world wide (COINN 2013). The Council of International Neonatal Nurses is committed to the facilitation of education of neonatal nurses worldwide, as illustrated in the exerpt of the position statement (Figure 2-11).

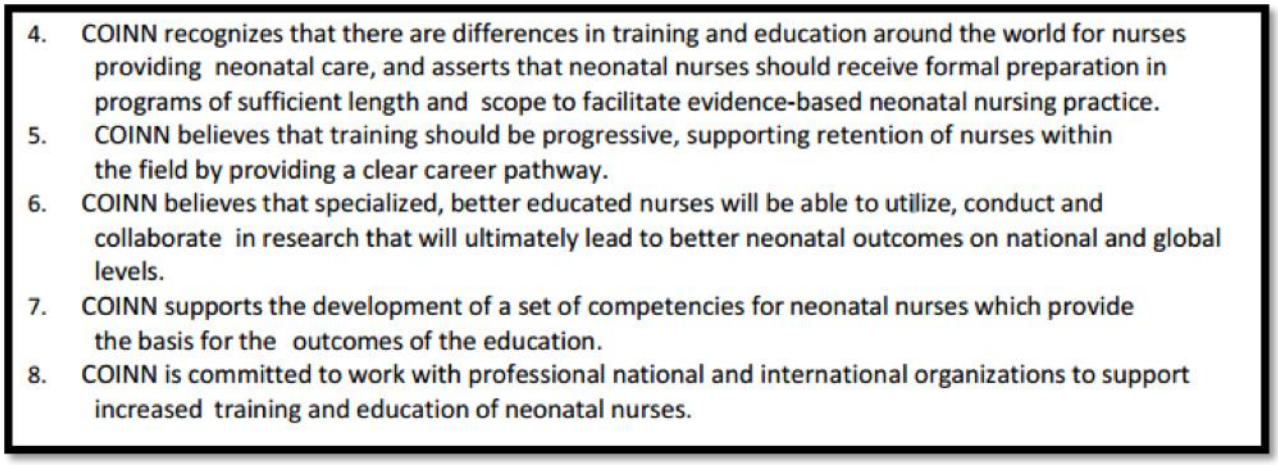

4. COINN recognizes that there are differences in training and education around the world for nurses providing neonatal care, and asserts that neonatal nurses should receive formal preparation in programs of sufficient length and scope to facilitate evidence-based neonatal nursing practice.
5. COINN believes that training should be progressive, supporting retention of nurses within the field by providing a clear career pathway.
6. COINN believes that specialized, better educated nurses will be able to utilize, conduct and collaborate in research that will ultimately lead to better neonatal outcomes on national and global levels.
7. COINN supports the development of a set of competencies for neonatal nurses which provide the basis for the outcomes of the education.
8. COINN is committed to work with professional national and international organizations to support increased training and education of neonatal nurses.

Figure 2-11 Excerpt from the Position Statement published by the Council of International Neonatal Nurses

The Council of International Neonatal Nurses acknowledges the differences that exist in the understanding of what constitutes basic, essential and advanced care of the newborn. The Council also acknowledges the unique challenges different countries experience related to neonatal nursing education. The aim of this study is therefore to develop and validate a competency framework for the professional development of different categories of nurses in neonatal practice which is aligned to the position statement of the Council of International Neonatal Nurses.

The Council of International Neonatal Nurses submitted a formal letter to the South African Nursing Council to request recognition of neonatal nursing as a specialisation within nursing (Annexure 5).

2.5 COMPETENCY FRAMEWORKS

Competency suggests that a person is in possession of a required skill, the knowledge, a qualification or capacity qualified to perform a particular job or task (dictionary.com:nd). Competence is defined by Roach (1992) in Kiefer, Davies, Gibson, Middleton, Munday, Shalet, Shepherd and Yeah (2015:1) as, “The state of having the knowledge, judgment, skills, energy, experience and motivation to respond adequately to the demands of one’s professional responsibilities” and by “being able to demonstrate that the knowledge, values and skills learned can be integrated into practice”, (Carraccio, Wolfsthal, Englander, Ferentz and Martin (2002) in Kiefer et al. (2015:1). This relates closely to the definition that “Competency is the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values and reflection in daily practice for the benefit of the individual and the community being served” (Epstein and Hundert 2002:226).

Considering these definitions, competency relates to a person's (in this context a nurse involved in neonatal care) ability to function multidimensionally and at a high standard.

A competency framework is a structural arrangement formulated to enclose neonatal competencies in an orderly fashion.

By using a conceptual framework, competencies can be organised and structured in a layout that supports the professional development of different categories of nurses in neonatal practice. Various frameworks important and relevant to this study will be discussed in the following sections.

2.5.1 International competency frameworks and practice standards

In 2005 the Scottish Neonatal Nurses Group worked on designing neonatal nurse competency levels. Scotland has since developed a comprehensive career and development framework for healthcare support workers providing neonatal care in hospital settings. This career and development framework complements the existing framework for neonatal nurses in Scotland. Building on the ground work done by the Scottish Neonatal Nurses Group, the Royal College of Nursing developed a competency framework for neonatal nursing in the United Kingdom. The framework reflects entry qualifications on every level, continuing professional education for contemporary practice and the requirements to allow progression to the next level (Royal college of Nursing 2016: 5).

In 1995 the Australian Neonatal Nurses Association identified the need to develop competency standards directly related to neonatal nursing practice (Norris and Reid 2007:5). The vision was then that the competency standards would be used as a framework for the development of neonatal nursing curricula and competency based clinical practice assessment tools. The developed standards were reassessed in 2001 and again in 2006. The revision in 2006 was done by the Australian neonatal nurse work force as well as academics. The standards were refined over a period of twelve months (Norris and Reid 2007:5).

The Australian Nursing and Midwifery Council (ANMC) define competency as "an attribute of a person that results in effective performance" in Norris and Reid (2007:6). In 2006 competence was defined as "the combination of skills, knowledge, attitudes, values and abilities that underpin effective and/or superior performance in a profession/occupational area" and a person would then be competent if he/she demonstrated "competence across all the domains of competencies applicable to the (midwife), at a standard that is judged to be appropriate for the level of nurse being assessed (Norris and Reid 2007:6).

Another example of standards that were set for neonatal nurses was published in the Neonatal Nursing: Scope and Standards of Practice 2nd Edition and is from the National Association of Neonatal Nurses (NANN) in the United States of America. This guide addresses 16 practice standards to which all registered nurses in neonatal nursing are held accountable. The guide offers specific competencies required for each standard. In the guide there are two main sections of which the first addresses standards of practice for neonatal care, including standards such as assessment, diagnosis, planning, implementation and coordination of care to mention a few. The second section addresses standards of professional performance for neonatal nursing and includes standards addressing ethics, education, evidence-based practice and research and quality of practice among others.

During the development of the Royal College of Nursing competency framework one of the main concerns that were addressed by the representation of four countries within the United Kingdom during 2008, was that if nurses undertook additional education in order to be acknowledged as a specialist, all should have the same level of knowledge and skills. In order to ensure fairness in the expectations of neonatal nurses at different levels or stages of their career and in different geographical locations, the development of a competency framework was recommended by the Royal College of Nursing (Royal College of Nursing Competences 2011).

The Pan-London Educator group identified a need to develop a competency document that would provide a career pathway for the neonatal staff, identify the knowledge and skills related to the career pathway and at the same time serve as evidence of career development and achievement. This competency framework has similarities when compared to both the Scottish Neonatal Nurses' Group and the Royal College of Nursing competency frameworks. However, known as the London Band 5 Neonatal Competency Framework, it is unique as it links competency to a financial grade (Rohan, Browne, Morgan and Vino-Job 2015:237). Band 5 refers to pay bands that describe the remuneration of entry level nurses in the United Kingdom.

An increased need for high standard neonatal services, adequate staffing numbers and competency through education formed the foundation for this neonatal competency document which was used in London (in the United Kingdom) hospitals. The purpose of the competency document was not only aimed at improving neonatal care, but also at providing a job description as well as person specification, training needs and care pathways for staff in neonatal care.

Nursing educators and representatives were selected from different networks and formed the Pan-London Educator Group. From the beginning of their work, views differed on what

competencies should be included as it was acknowledged that there was a variation in the different levels of care that were provided in different neonatal units. Petty (2014) poses that there are many aspects related to competency and that there is no consensus regarding the definition of competency, but does, however, acknowledge that competency assessment is required to standardise and develop neonatal nursing practice. Some of the conclusions reached by the group indicated that a broad range of competencies would be required to allow for variations in expectations and that not all of the competencies could be completed in every unit because units differed in the level of care they provided. Subsequent to the completion of the draft document it was circulated to senior nurses and subsequently endorsed (Rohan et al. 2015:239). The main competencies are presented in Table 5-1 in chapter 5 (Association and National Association of Neonatal Nurses 2013).

2.5.2 South African Nursing Council (SANC) Competency Framework

Nurses in South Africa are trained on different levels and the level determines the functions of the nurse (SANC position statement: 2012). The scope of practice Reg 786 (SANC 2013c) provides a broad competency framework on which the development of a competency framework for the professional development of different categories of nurses in neonatal practice will be based, in order to align with South African Nursing Council.

Every category of nurses, enrolled or registered under the nursing act (South Africa 2005) has a scope of practice in South Africa. In order to meet the changes and challenges of the twenty first century the scope of practice has been revised as summarised in Figure 2-12 (Geyer 2013:55). The revised scope of practice illustrates the broad framework that informs the practice of nurses. It consists mainly of three sections namely, professional and ethical, clinical practice and quality of care. This framework was used as the structure on which the competency framework for nurses involved in neonatal care was developed in this study.

The scope of practice of all nurses and midwives relates to the acknowledgement of professional rights and responsibilities as well as public accountability. An unwritten social contract between the community and the profession exists. All nurses are bound to apply their specific knowledge and competence in order to provide safe, competent and ethical care and in return for a high social status for the profession. It is an obligation for all nurses to maintain a high standard of competence at all times (Geyer 2013:43).

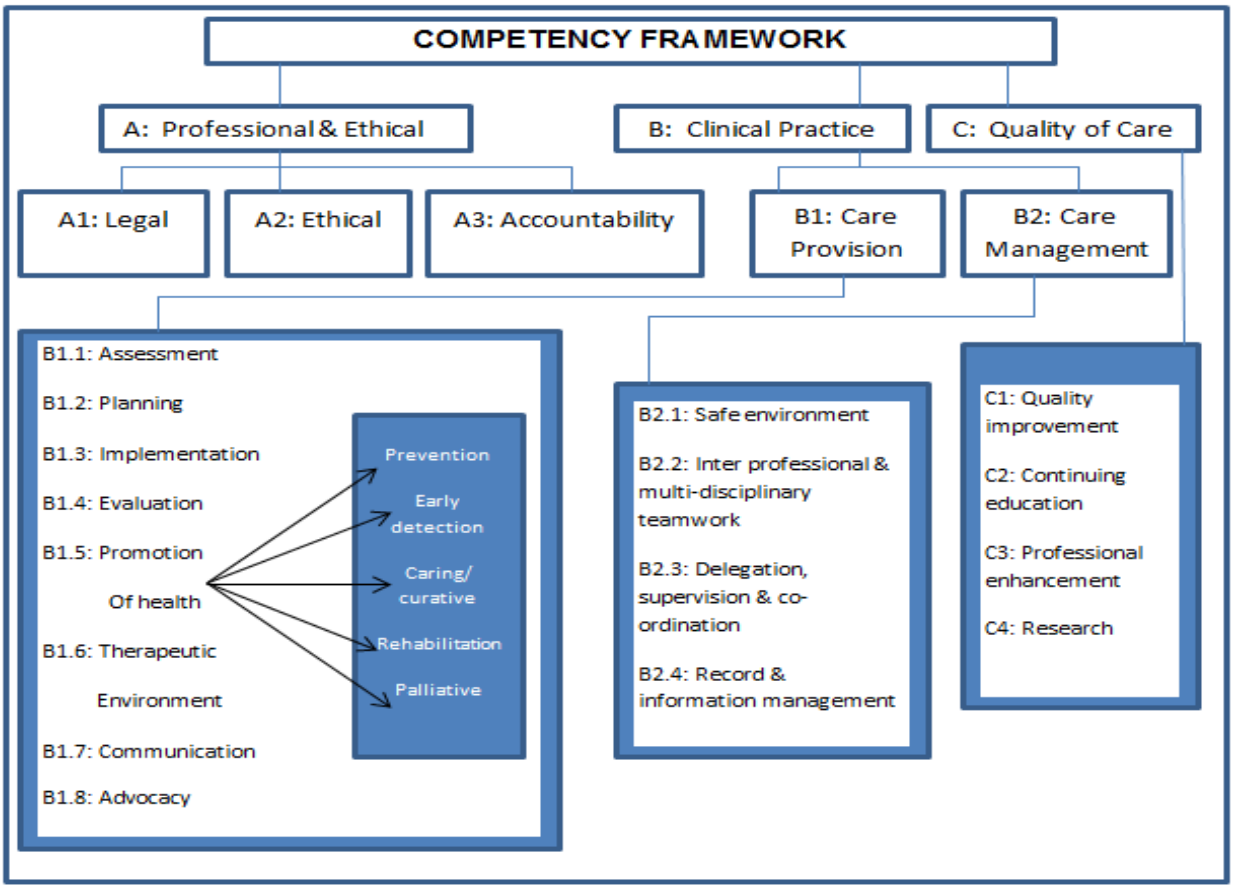


Figure 2-12 Framework of the revised scope of practice for nurses and midwives (Geyer 2013:55).

Many different specialist groups have developed competency frameworks globally. The common denominator in these developments is to allow nurses to demonstrate their function on different levels to ensure that patients receive the appropriate care. It is anticipated that nurses will be able to improve professional development (Kiefer et al. 2015:1). A competency framework is active; it allows growth and development of nurses within the speciality.

2.6 MODEL OF SKILL ACQUISITION

In the original work of Dreyfus and Dreyfus (1980:4) they describe how a student passes through five stages of development while acquiring a certain skill (Table 2-5). By using the aid of instructors or instructor manuals the nurse can learn more efficiently and will not need to rely on trial and error. In cases of dangerous activities such as aircraft piloting where lives are at stake, it is reasonable to expect a certain amount of skill acquisition before the pilot can operate unaccompanied.

Concrete experience plays an important role and it has been demonstrated that a subject's performance drastically improves if the selected task relates to his or her experience (Dreyfus and Dreyfus 1980:8). The five stages they developed are:

Table 2-5 A Five-Stage Model of The Mental Activities Involved In Directed Skill Acquisition

Skill level **Mental function**	**Stage 1 NOVICE**	**Stage 2 COMPETENT**	**Stage 3 PROFICIENT**	**Stage 4 EXPERT**	**Stage 5 MASTER**
Recollection	Non-situational	Situational	Situational	Situational	Situational
Recognition	Decomposed	Decomposed	Holistic	Holistic	Holistic
Decision	Analytical	Analytical	Analytical	Intuitive	Intuitive
Awareness	Monitoring	Monitoring	Monitoring	Monitoring	Absorbed

The interpretation of Table 2-5 should consider the following as directed by Dreyfus and Dreyfus (1980:16):

- The development in the "recollection" field becomes situational when experience-based similarity recognition is achieved.
- The development in the "recognition" field becomes holistic when the performer perceives similarity in terms of whole situations. This is accompanied by the recognition of salience (the fact of being important to or connected with what is happening or being discussed).
- In the third row the performer refines whole situations to the point that unique decisions intuitively accompany situation recognition without need of conscious calculation.
- In the fourth and last row, the analytical mind relieved of its monitoring role in producing and evaluating performance is quieted in order to allow the performer to become completely absorbed in his performance.

An awareness of the student's developmental stages is required to allow facilitation of the student to the next stage (Dreyfus and Dreyfus 1980:16). The competency framework for the professional development of different categories of nurses in neonatal practice will make use of the five stages of development whereby neonatal nurses will practice recollection, recognition, decision making and awareness to move from being a novice to becoming an expert.

Benner (1984) applied this model of skill acquisition to provide a “lucid, colourful description of nursing practice as rendered by expert nurses” (Benner 1984: v).

The Dreyfus model of skill acquisition (1980) was discussed in Chapter 1, as introduction and background to Benner’s novice to expert model which was used in this study.

2.7 BENNER’S NOVICE TO EXPERT MODEL

The aim of Benner’s work (Benner 2001:v) was to study experiential learning in nursing practice and to examine skill acquisition based on clinical learning and articulate knowledge embedded in nursing practice. The different levels in Benner’s interpretation and application (Benner 1984) of the Dreyfus and Dreyfus model is:

> Level 1: Novice nurse – These beginners have no experience of the situations in which they are supposed to perform. Rules are taught and applied generally in order to assist them in their performance.
>
> Level 2: Advanced beginner nurse – These beginners can demonstrate marginally acceptable performance in real situations. The application of formulated principles is based on their experiences.
>
> Level 3: Competent nurse – Competence develops when a nurse observes his or her own actions in terms of long-range goals of which he or she is consciously aware. The competent nurse can formulate a plan based on abstract and analytical consideration of a problem. The competent nurse does not have enough experience to recognise a situation in terms of an overall picture or which aspects are most important.
>
> Level 4: Proficient nurse – This nurse observes or perceives a situation as a whole and not only in separated parts. This nurse can identify when the normal does not realise.
>
> Level 5: Expert nurse – The expert nurse has an immense background of experience and can intuitively grasp a situation. This nurse no longer relies on analysis to obtain an understanding of a situation before appropriate action is taken. The expert nurse works from a profound comprehension of the whole situation (Jasper 2006:21).

Theory can be taught in Nursing Education Institutions but it is required that the newly qualified nurse applies the theory that was studied. A nurse needs to apply knowledge in a real world on real patients in order to become competent and to practice with competence. As a new nurse gains “hands-on” experience the learning curve starts. The rate at which

every nurse acquires new skills will vary and competency frameworks should be uniquely tailored.

Neonatal nursing is a specialty that provides a bridge between midwifery and paediatric nursing with a focus on the first 28 days postnatal (ACNN 2012: 5) and nurses involved in neonatal care should be allowed to gain different levels of skills related specifically to neonatal nursing.

2.8 PROFESSIONAL DEVELOPMENT

Nurses are responsible and accountable for their own nursing practice and have a duty to maintain their competence by independently updating their skills and knowledge. The International Council of Nurses supports lifelong learning that allows nurses to meet the changing needs of their patients in the face of the development of technology as well as changes in the population demographics (Geyer 2013:115).

Continuous professional development, the maintenance of competence and the updating of skill and knowledge is required for the protection of the public (Geyer 2013:115) and in the context of this study the vulnerable population we know as neonates.

2.9 SUMMARY

This chapter provided a deeper understanding of the concepts that are relevant to this research commencing with global neonatal health including neonatal mortality, Millennium Development Goals and Sustainable Development Goals. The discussion flowed to recommendations for care globally. Considering the global picture on neonatal nursing, a better understanding of the South African Healthcare system was required. Information on the nursing qualifications in South Africa was shared including basic and post basic nurse training, related to neonatal care. While understanding the different nurse categories the levels of health care delivery in South Africa required some discussion including the staffing levels of the health care system. The specific causes of neonatal deaths in South Africa as well as the recommendations for care were described. The last part of the chapter was dedicated to neonatal nurse education. Globally, competency frameworks are available to guide the education of neonatal nurses. South Africa, however, does not have an applicable neonatal competency framework to guide the training of neonatal nurses.

The model of Skill Acquisition and Benner's Novice to expert Model was discussed as ways of building on previous knowledge which untimately leads to professional development.

In Chapter 3, the research design and methodology of this study will be discussed.

CHAPTER 3 – RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

In the previous chapter the literature relating to the research was discussed. In this chapter the paradigm, research design and methodology that was used to answer the research question: “What competencies should be included in a competency framework for the professional development of different categories of nurses in neonatal practice?” will be discussed

The overall aim of the study was the development and validation of a competency framework for the professional development of different categories of nurses in neonatal practice. The study was done in three phases, of which the objectives were, to explore and describe competencies for the professional development of different categories of nurses in neonatal practice (Phase 1); to develop a competency framework for the professional development of different categories of nurses in neonatal practice (Phase 2) and to validate the competency framework for the professional development of different categories of nurses in neonatal practice (Phase 3).

3.2 RESEARCH DESIGN AND METHODS

The multi-method research approach is a strategy where the weaknesses and limitations of research methods are dealt with by deliberate combination of different types of methods within the same study (Stange, Miller, Crabtree and O'Connor 1994: 278; and Cooper et al. 2016: 475). Multiple methods suggest that both qualitative and quantitative approaches were used to obtain data in order to develop a competency framework (Cooper, Kinsman, Chung, Cant, Boyle, Bull, Cameron, Connell, Kim, McInnes, McKay, Nankervis, Penz and Rotter 2016:1). By using a multi-method research design the researcher was able to use more than one method to address the research problem (Creswell and Plano Clark 2018:13). A multi-method research design was used in the form of various methods of consensus research and review of literature in order to address the aim and objectives of the study. The development of the competency framework was done in different phases and each phase required a different method. The research phases and the objectives of each phase are illustrated in Table 3-1.

Table 3-1 Illustration of the research process

MULTI-METHOD DESIGN, USING CONSENSUS APPROACH, INDUCTIVE and DEDUCTIVE REASONING

PHASES OF STUDY	TECHNIQUES/PROCESS	OUTCOME
PHASE 1 Exploration and description competencies for the professional development of different categories of nurses in neonatal practice	Nominal group technique x 7 Interviews x 2	Themes related to neonatal competencies from neonatal nursing staff's view (Table 4-14)
PHASE 2 Development and validation of an abridged competency list	Themes of neonatal competencies + Literature of existing neonatal competency frameworks = Table of comparative neonatal competencies (Table 5-2) Abridged list of neonatal competencies + Delphi technique x 3 rounds = Confirmed abridged competencies (Table 5-4)	Table of comparative neonatal competencies + Literature related to neonatal care = Abridged list of neonatal competencies (Table 5-4)
PHASE 3 A Development of a competency framework for the professional development of different categories of nurses in neonatal practice	Findings from Phase 1, literature control, abridged competency list Delphi technique x 3 rounds	Confirmed neonatal competencies + SANC framework = Draft competency framework: Neonatal nurse specialist, professional nurse and enrolled nurse (Table 5-5 ; Table 5-6; Table 5-7)
PHASE 3 B Refinement and validation of the competency framework for the professional development of different categories of nurses in neonatal practice	Draft competency framework: enrolled nurse, professional nurse and neonatal nurse specialist + Benner + Delphi technique x 3 rounds	Confirmed neonatal competency framework and expert consensus

Draft competency framework + Benner framework

=

Validated neonatal competency framework for professional development of the enrolled nurse, professional nurse and neonatal specialist

(Table 5-9 ; Table 5-10 ; Table 5-11)

3.2.1 Phase 1: Exploration and description of competencies for professional development of different categories of nurses in neonatal practice

The objective in Phase 1 was to explore and describe competencies for the professional development of different categories of nurses in neonatal practice. The nominal group technique was selected as a preferred method to generate items and to reach consensus for the items to be included in the the second phase of the study.

The first phase utilised the nominal group technique as the preferred consensus method. The term nominal suggests that the group is formed in name only as they do not interact as they would have in a typical small group discussion. The nominal group technique usually has several steps or phases ending with priority voting. The purpose of using the first phase of the nominal group technique in this study was to reach consensus on the items that were generated rather than voting on their priority (McCance; Fitzsimons; Keeney; Hasson and McKenna 2007:60; and Foth, Efstathiou, Vanderspank-Wright, Ufholz, Dütthorn, Zimansky and Humphrey-Murto 2016:114).

3.2.1.1 Population and sampling

Different categories of nurses in neonatal practice (enrolled nurses, professional nurses / midwives and specialist groups) formed the population. Spesialist groups consisted of nurses with additional qualifications in speciality areas such as midwifery and neonatal nursing. A non-probability sampling method, purposive sampling, was used because the researcher wanted to deliberately include participants involved with neonatal care from healthy to critically ill neonates.

The inclusion criteria were as follows:

- Ability to communicate in English;
- Volunteer to participate;
- Older than 18 allowing participants to give consent to participate;

And they should be from one of the following categories:

- Enrolled nurses with experience working with neonates in a primary health care setting, district hospital, tertiary hospital or private hospital;
- Professional nurses and midwives with experience working with neonates in a primary health care setting, district hospital, tertiary hospital or private hospital;
- Specialists in neonatal nursing, including professional nurses with an additional qualification in Medical and Surgical Nursing Science: Neonatal Nursing or Paediatric Critical Care Nursing; Child Nursing; Advanced Midwifery and Neonatal Nursing, working in a tertiary hospital or private hospital;
- Specialists from nursing education institutions providing educational programmes related to / or including aspects of neonatal practice.

3.2.1.2 Data collection

Ethical approval from the Ethics Committee of the University of Pretoria (93/2012 Annexure B) and written permission from stakeholders (Annexures C and D) was sought and was obtained before data collection commenced. During Phase 1 the nominal group technique (NGT) was used to explore and describe the competencies for the professional development of different categories of nurses in neonatal practice.

3.2.1.3 Nominal Group Technique

The nominal group technique is a structured variation of a small group discussion (Foth et al. 2016: 114) where conversation domination by one person is prevented and passive group members are encouraged to participate. Van de Ven and Delbecq (1972:338) regarded the nominal group technique as a problem-solving method. Considering the work of Harvey and Holmes (2012:190), based on the consensual description of the problem the nominal group technique will be used to determine what competencies nurses involved in neonatal care should have. The nominal group technique was developed in the late 1960s from social-psychological studies of decision conferences in the NASA aerospace field and environmental studies by programme planners (Van de Ven and Delbecq 1972:338; Campbell and Cantrill 2001:5 and Humphrey-Murto, Varpio, Gonsalves and Wood 2017:15).

Subsequent to the development of the nominal group technique it has been used in a wide range of fields and for many different purposes. The nominal group technique routine was found to be successful in many different ways such as the generation and clarification of ideas; providing a voice to all participants; bridging the gap between researchers and

clinicians; identifying needs; providing direction for research; determining research priorities; exploring factors as well as helping design frameworks by involving participants in discussion, debating and ranking recommendations that impact care (Harvey and Holmes 2012:189).

The nominal group technique can generate both quantitative and qualitative data. Combining content analysis and scoring and rating methods during data analysis provides in-depth exploration of a problem and enriches evidence-based practice (Tashakkori and Teddlie 2010: 589).

The nominal group technique has an important and distinct element, namely a structured face-to-face meeting. This nominal group technique meeting provides an orderly structure to obtain relevant and reliable qualitative information from a group of experts. The nominal group technique was applicable to this study as it provided a platform for different categories of nurses to share their views and reach consensus on competencies needed for the professional development in neonatal practice.

The most common use of the nominal group technique is to explore and generate ideas and to prioritise and collate the ideas of participants. Harvey and Holmes (2012:193) list benefits such as allowing experts to meet in person as well as establishing collaborative relationships. The nominal group technique addressed the research topic in a comprehensive fashion and in a bid to collect a large amount of information in a short period. The nominal group technique is an effective method to achieve consensus in general and a shared passion amongst experts (Harvey and Holmes 2012:189-190; Waggoner, Carline and Durning 2016:664). This exercise has a constructivist flair as experts build on their knowledge while interacting with other experts.

There are some benefits that support the use of the nominal group technique. It is time efficient, being a single occasion process; it is cost effective and a research grant enabled the provision of refreshments; it did not require preparation from the participants; it allowed in session, completion and dissemination of results to group promoting satisfaction with participation; it gave equal representation to all members and encouraged group participation regardless of specific disciplines or levels of appointment.

In this study the nominal groups held consisted of professional nurses and enrolled nurses respectively who were involved in neonatal care (Table 3-2). Their specific views and expertise were required in order to explore and describe competencies of different categories of nurses in neonatal practice. The nominal group technique is an effective

method for achieving consensus in general and a shared passion amongst experts (Harvey and Holmes 2012:189-190 and Waggoner, Carline and Durning 2016: 664).

Table 3-2 Outline of nominal groups and interviews

Nominal groups and Interviews that were conducted		
Group number	Institution (private/public hospital setting)	Participants
Group 1 NGT	Private	Registered nurses Midwives Nurse educators Specialists
Group 3 NGT	Private	Registered nurses Midwives Nurse educators Specialists
Group 4 NGT	Private	Registered nurses Midwives Nurse educators Specialists
Group 6 NGT	Private	Registered nurses Midwives Nurse educators Specialists
Group 7 NGT	Private	Registered nurses Midwives Nurse educators Specialists
Group 8 NGT	Public	Enrolled nurses
Group 9 NGT	Public	Registered nurses Midwives Nurse educators Specialists
Group 2 Interview	Private	Enrolled nurses
Group 5 Interview	Private	Enrolled nurses

Nine nominal groups were held across three inland provinces including Gauteng (Pretoria region and Johannesburg regions), North West Province and Mpumalanga.

The researcher approached the institutions, in writing, requesting permission to conduct research on their premises. After approval (Annexures C and D) was received the individual participants were recruited by the researcher herself. An invitation to participate was given verbally or in electronic format (e-mail). In instances where the participants did not have email access, written information regarding the study was provided to them to enable them to decide whether or not they wanted to participate. At least eight participants were invited per group.

Different categories of nurses from the public and private sectors from different levels were invited. The number of group sessions was dependant on data saturation. Each group

consisted of participants from a particular category of nurses available at the time scheduled for the nominal group. Registered nurses and enrolled nurses were accommodated in separate nominal groups to prevent the lower category nurses from feeling intimidated. Registered nurses (professional nurses and midwives; specialists in neonatal nursing) and enrolled nurses formed the sample. The nominal groups included up to seven participants per group. The group, however, proceeded with the number of people that could be released from the wards at the given time without disrupting the services. In two instances the number of participants was very few. Group 2 had 1 participant and group 5 had 2 participants, and in those instances, interviews were conducted. Seven nominal groups and two interviews were conducted.

The nominal groups were facilitated by an experienced reseacher. An experienced researcher outside the speciality field of neonatal nursing was chosen to prevent any bias during the data collection process. The facilitator was competent in the facilitation of small groups and had experience in the facilitation of nominal group techniques. This facilitation enabled the researcher to observe the group interactions and take field notes.

The protocol for conducting the nominal group technique in this study was adapted according to the descriptions by Harvey and Holmes (2012:191), Botma et al. (2010:251) and Foth et al. (2016:114). The nominal group technique meetings were all conducted by the same facilitator. The researcher welcomed all the participants and introduced the facilitator for the session. The nominal group technique meetings were all conducted following the same process as explained in the next section. Refreshments were made available to the participants at the beginning of every session.

Botma et al. (2010:251) as well as Foth et al. (2016: 114) propose that the nominal group technique has four phases namely generating of ideas, round robin, clarification of ideas and lastly voting of ideas.

Harvey and Holmes (2012:191) suggest 5 steps including an introduction and explanation, silent generation of ideas, round robin, group discussion and voting and ranking as illustrated in Figure 3-1. Foth et al. (2016:114) used similar steps. The steps are discusssed in the following sections, while the findings are discussed in Chapter 4.

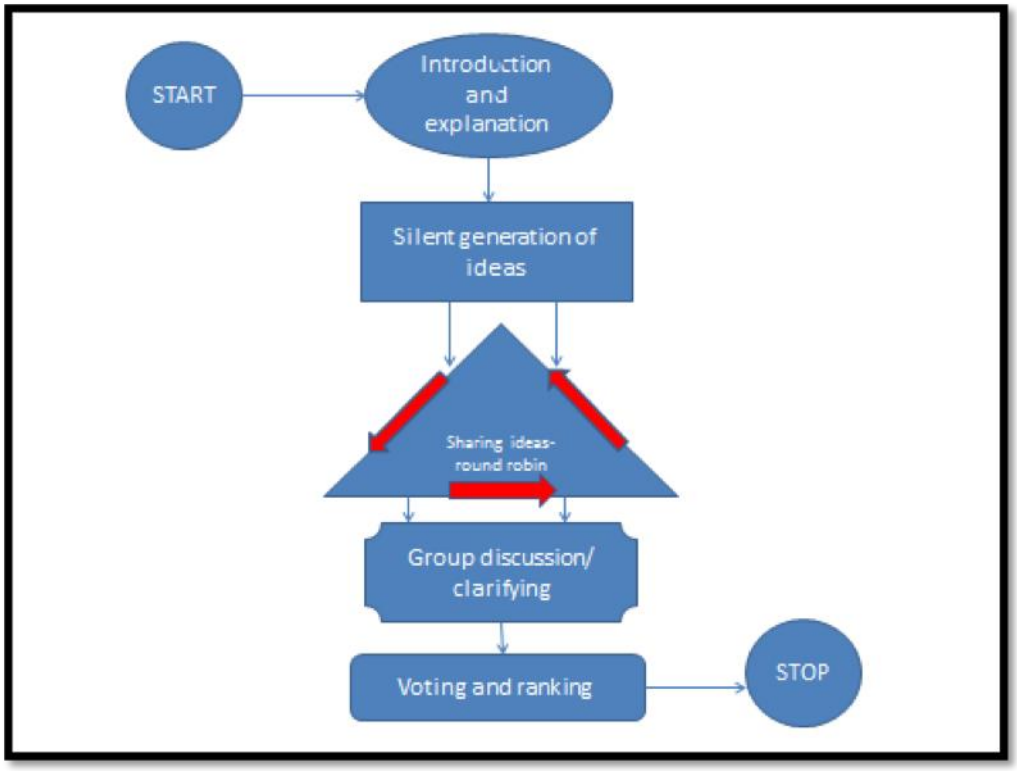


Figure 3-1 Visual representation of the steps in the nominal group technique (Harvey and Holmes 2012:191).

Step 1: Introduction and explanation

A brief introduction to the study was provided, referring to the participant information letter that each participant received (Annexure B). The purpose of the nominal group technique was clarified and additional information was provided such as confirmation that the study received ethical approval from the University of Pretoria and the institutions involved in the study. Participant consent was obtained. Privacy and confidentiality were discussed and confirmed. The group was seated according to participant choice and did not influence their participation. The researcher did not instruct where and next to whom the participants had to sit. In all the different venues seating was created that gave the impression of sitting around a round table even if the table was square. The researcher had to work with furniture available in the different venues to recreate similar seating arrangements in each venue. It was requested that English be used for all discussions and questions, as described in the inclusion criteria in order to show respect towards all participants and to ensure that they were all included in the group discussions.

Step 2: Silent generation of ideas

The second step in the protocol was the silent generation of ideas (competencies). Different coloured "sticky notes" and different coloured pens were provided. Each participant was invited to choose a paper and pen in the colour of their choice. The participants were asked to write down all their ideas on the sticky notes after considering the following question that was visually presented:

"What competencies should a nurse involved with neonatal care/practice have?"

This question was visible to all participants while they were generating ideas. The question was printed in a large font on an A4 page. The page was laminated and several copies were placed on the table and one copy was on the white board. The instruction was to write down one idea on one sticky note. There was no limit to the number of sticky notes that were used.

A clarification of terms used in the context of the study was provided to the groups. The following definitions were provided to ensure that the participants understood the terms that were used in the question that was asked:

Competency

"Competency is the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values and reflection in daily practice for the benefit of the individual and the community being served" (Epstein and Hundert 2002: 226-235; and Human and Mogotlane 2017:23).

Neonatal practice

The term practice refers to the execution of a specific discipline (Maree 2007:11). Neonatal practice in this study refers to numerous contexts where healthcare is provided to neonates from birth until 28 days and longer if required. It includes low risk births, care of normal neonates, high risk births, immediate care of high risk and critically ill neonates, as well as subsequent advanced care of high risk and critically ill neonates.

It was reiterated that generation of ideas should be done in silence. No discussion or consultation among participants was allowed. This is required to ensure that one dominant participant does not unduly influence the group (Humphrey-Murto et al. 2017:15).

Step 3: Clarification of items and sharing of ideas (Round Robin)

The participants were invited to share their ideas by using a “round robin” technique. Every participant had an opportunity to present an idea on a sticky note. This continued until all ideas were shared. No debate or opinions around individual contributions were allowed until all ideas were shared. The sticky notes were affixed onto a large paper. Similar ideas were clustered and organised by the participants, as the participants shared the ideas. The facilitator clarified items in every cluster to ensure that the participants agreed on the items that were included. An item could only be deleted if the whole group agreed that it was a duplicate of another.

Step 4: Group discussion / clarifying

The fourth step in the process was a group discussion. Participants were invited to ask for verbal explanations or further detail about ideas that were produced. All participants had an equal opportunity to participate and one person was not permitted to dominate the discussions. The facilitator aimed to keep the discussions neutral to avoid judgement and criticism. Dominant and passive personalities formed part of all the groups. The facilitator maintained a balance between the different personalities but at the same time ensured that all participants could make knowledgeable contributions. The fourth step concluded when the categorised ideas were provided with different “cluster names” which were agreed by all participants. The facilitator assisted the participants to compile the priority list by allowing each participant to voice what they perceived to be most important. The participants had the opportunity to explain their views which were either agreed by the other participants or if not, were allowed to expand on the explanation. The facilitator assisted the participants to reach consensus by allowing each participant a fair opportunity to voice their opinion. At the close of each session, the participants understood each motivation and could agree with one another.

Step 5: Voting and ranking

Step five in the protocol was the voting and ranking of the recorded ideas under the cluster names. Consensus conversations followed where each participant had the opportunity to rank what they perceived as the most important competency. The group was asked to negotiate what they considered as the most important cluster and work through the different clusters to the lesser important clusters. One person would be invited to nominate a particular cluster name. This was discussed and the participants could agree or disagree and then move to the next cluster. This consensus conversation was repeated until all the participants voiced “…yes, I agree...”.

The ranking via consensus conversation worked well and it is with certainty that the priority lists mirrored what the participants agreed to as discussed in Chapter 4. This form of discussion was duplicated in all the different nominal groups that were conducted.

The least rated ideas were identified and the groups reached consensus that all ideas (competencies) had to be included. The researcher did not limit the number of ideas (competencies).

Closure and departure of the nominal groups.

The nominal group was ended after a final opportunity was provided for participants to mention any other item which might have been forgotten during the formal steps. The item was then added separately. If there were no items, the facilitator declared that the group was concluded. All the participants were thanked for their participation and they were free to leave. The average time required per group was between 90 and 120 minutes.

Consolidation of information collected during the nominal groups.

The data that was generated during the nominal groups was collected by the researcher. The researcher immediately took pictures of the flip chart pages with sticky notes on, to ensure that the correct sticky notes remained on the relevant pages. The data that was collected was written up in table format and is recorded in Table 4-6 - Table 4-14 in Chapter 4.

The researcher compared her field notes to the data that was generated to confirm that all of the items generated were indeed included. The field notes also enabled the researcher to verify that the themes that were identified during step 3 of the nominal group were true to the discussion. This process was done within the first week after the groups were held to ensure that the information was still fresh in the mind of the researcher.

During the data collection in steps 1 to 5, qualitative data analysis occurred. The purpose of qualitative data analysis is to provide structure and produce meaning from collected data according to Polit and Beck (2012:556) and Polit and Beck (2017:530). Data collection and analysis can occur simultaneously. The search for important themes started the moment data collection commenced (Polit and Beck 20172:530). The nominal group technique integrated data collections and data analysis.

3.2.1.4 Interviews

During two planned nominal groups, only one and two participants arrived respectively. This implied that the nominal group could not proceed as planned. The researcher then

conducted semi-structured interviews following a similar process as to what had been planned for the nominal groups. Semi-structured interviews are interviews that are designed around one or more open ended questions (Grove et al. 2013:271). During the interviews the researcher posed the same question to the participants that was asked to the participants of the other nominal groups that were conducted. The same information and clarification provided to the nominal groups was repeated to the interview participants. The information provided by the participants was written up on a flip chart by the interviewer and the information was prioritised. The participants agreed that the items recorded on the flip chart reflected the discussion. The main difference between the nominal groups and the interviews was the limited discussion that could take place about the different competencies identified.

3.2.2 Phase 2: Development of a competency framework

During phase 2, the objective was to develop the competency framework for the professional development of different categories of nurses in neonatal practice. The competency framework was formulated and developed by means of inductive and deductive reasoning. The South African Nursing Council's competency framework (SANC 2004) was referred to and interpreted within the context of the Benner Model (1984) together with data from Phase 1 and related literature.

3.2.2.1 Unit of analysis

During Phase 2 a literature control was conducted which was guided by the findings of Phase 1 (Brink et al. 2018:105). The findings of Phase 1 were related to the existing body of knowledge related to neonatal competencies. The literature control was done to enable the researcher to consider, compare and contrast the findings from this study to other similar studies. According to Moule and Goodman (2009:206) in Qheku (2015:34) "the process is suitable for the inductive process of qualitative research, as the literature does not direct the study but provides supporting evidence".

The researcher could identify similar findings as well as unique findings surfacing from this study. The literature control was used to confirm content and other relevant literature such as South African Nursing Council publications, existing competency frameworks and related publications available on, but not limited to Google Scholar, Pubmed, Medline and CINAHL. The words that were used to do the searches were related firstly to the objective of the second Phase. The researcher used phrases like "neonatal competency framework"; "neonatal competency"; "competency framework" and "neonatal framework".

The researcher included all information that was related and relevant to the search phrases that were used.

The type of information that was studied related to “neonatal competency framework”; “neonatal competency”; “competency framework” and “neonatal framework” included facts, statistics and research findings; theories and interpretations; methods and procedures; opinions, beliefs and view points and anecdotes, clinical impressions or narrations of incidents and situations.

3.2.2.2 The inclusion criteria for the literature control

The language of the literature had to be English to enable the researcher to understand the content. Literature was collected via the University of Pretoria library site as this was accessible to the researcher and included Libraries Worldwide as well as the University of Pretoria Libraries. All formats of literature were explored including but not limited to articles, chapters in books, printed books as well as eBooks and journals. Key words that were used included combinations of neonatal; competency and framework used separately as well as in combinations. The researcher included recent literature that was published in the last five years, but the searches included all years to ensure that the researcher did not exclude relevant information. The literature was collected over the period of the study, to ensure that recent information could also be included if it was found to be relevant. Literature, including but not limited to research articles, that was published by professional and reputable organisations was explored.

3.2.2.3 Data collection

The literature control enabled the researcher to place the data that was collected in Phase 1 in the context of what was already known about neonatal competencies. A literature control was done by making use of the same question that was presented in the nominal groups in Phase 1: “What competencies should a nurse involved in neonatal care/practice have?”

- Searches were directed by using the words and/ or combinations of the words in the question asked to participants.
- Searches were done on the platform of the Department of Library Services University of Pretoria, as well as websites of the United Nations, World Health Organization, Healthy Newborn Network, South African Department of Health and Stats SA.
- Databases available in the University of Pretoria Libraries including but not limited to Clinical evidence; ClinicalKey; Cochrane library; Sabinet reference; Medline (Ovid);

Medline (Proquest); Google Scholar; Health Source Nursing/ Academic edition; EBSChost were explored.

- Searches were done on the website of the Council of International Neonatal Nurses to identify the different member countries. Once the country neonatal organisation was identified that particular country website was explored to conduct a search by using the words alone, combined or in phrases.
- Articles (research and/ or peer reviewed) were explored for their relevance and appropriateness.
- The reference lists of articles were then explored until the researcher repeatedly came across the same primary information or new references.
- Information that was not relevant to the study was discarded.
- The researcher read all the information that was obtained, analysed the information and included the vital information.
- The selected information was then used to formulate a competency framework.

The assistance of an academic information specialist was sought to obtain the most relevant literature.The researcher used different search approaches for the literature control such as bibliographic data bases; the ancestry approach (using citations from relevant studies to track down the research); the descendancy approach (use a pivotal early study and to search forward in citation indexes to find more recent studies) as well as grey literature (studies with limited distributions such as conference papers, unpublished reports) (Polit and Beck 2017:91).

The searches were done by selecting filters in the online library e.g. Libraries worldwide or University of Pretoria Libraries. The format was selected, for example all formats; articles/chapters/books or archival, material. The data base, author and year were used to refine the searches. The researcher conducted the literature control after the completion of Phase 1 but more specifically in about eighteen months between 2015 and 2017.

The data from Phase 1 was described as consensus which was reached in every group. See 4.11 in Chapter 4 for the first summary of data. This was followed by a process where the researcher combined the different group data into one document. See Table 3-1 for the illustration of the research process. The data that was duplicated was removed.

See Table 4-11 in Chapter 4 for the combined themes. The publications that were included were related to neonatal competencies. Information regarding neonatal competencies that was relevant and applicable and was collected during the literature control was sorted and summarised to allow the researcher to simultaneoulsy consider several sets of information that related to neonatal competencies.

The researcher then considered the literature control from Phase 2. Chapter 4 discusses the data findings in more detail.

3.2.2.4 Data analysis

Data analysis was done by means of inductive and deductive reasoning. The reseach question was used to group the data. This grouping of data enabled the researcher to identify similarities, differences and new ideas. A manual method was used to manage the data by means of post-it notes with items to grouping items (competencies) together (Annexure B). The items (competencies) were grouped into meaningful themes.

Thematic analysis relied on the similarity principle and the contrast principle as described in Polit and Beck (2012:562) and Polit and Beck (2017:535). The similarity principles involve finding units of information with similar content and meanings, where the contrast principle guides efforts to find how content is different. The grouping of data by means of thematic analysis (Annexure B), enabled the researcher to formulate items (competencies) that could be included in the competency framework for the professional development of different categories of nurses in neonatal practice. Deductive reasoning refers to the process of developing specific predictions from general principles. In this study the data that was collected during Phase 1 were general items. General data from the nominal groups was used to reach consensus. This data was linked to a literature control to identify specific items (competencies) needed for inclusion in the competency framework.

Inductive reasoning is the opposite where reasoning from specific observations to more general rules were applied. The data were very specific in some instances and the researcher had to make the themes more general. Some of the data from Phase 1 were very specific as it related to specified competencies. This data were linked to the general aspects related to neonatal practice as discussed by (Polit and Beck 2017:725; 730).

The themes identified in Phase 1 were interpreted within the context of the scope of practice (SANC: Reg 786 of 2013) and the Benner professional development model (Benner 1984: 13) as foundation to formulate the competency framework for the professional development of different categories of nurses in neonatal practice. The participants reached consensus on

the identified items and voted on the ranking of the agreed items. All of the items were, however, included despite the ranking status. The implication was that the broad competencies described by South African Nursing Council were translated into neonatal practice by using the competencies generated through consensus. The competencies were described in a hierarchical sequence from novice to expert within each nursing category's scope of practice. The discussion thereof follows in Chapter 5 (5.8).

At the end of Phase 2 the researcher was able to develop an abridged competency list for the professional development of different categories of nurses in neonatal practice by using the themes generated in Phase 1 as well as the literature control and theoretical framework during Phase 2. The validation of the abridged competency list was conducted first in Phase 3 of this study. This was followed by the development of a detailed competency framework which was then validated and refined.

3.2.3 Phase 3A: Validation and refinement of the abridged competency list

The definition of validation, according to the online Cambridge Dictionary (Online: Acessed 2019) is "*to make something officialy acceptable or approved, especially after examining it*". In order for the competency framework to be officially accepted, consensus research was used, in particular the Delphi technique. Consensus can have different meanings depending on the contexts. In this study, however, the meaning of consensus can also be referred to as collective agreement as described by Keeney, Hasson and McKenna (2007:14).

The Delphi technique is popular in healthcare research as it allows the inclusion of a large number of individuals across diverse geographical locations. The main purpose of the Delphi technique is constructed on the premise that a group opinion is more valid and reliable than that of an individual opinion (Grove, Burns and Gray 2013:435). The Delphi aims to gain consensus of opinion, judgement or choice. A group acts as an expert panel when asked a particular question. The group has the opportunity to "vote" and the "vote" indicates where the consensus of the group lies (Keeny, Hasson and Mc Kenna 2011:3; Humphrey-Murto et al. 2017:15 and; Waggoner, Carline and Durning 2016:664). There are two main purposes for which the Delphi technique is used within nursing research. It can be used for the setting of priorities or to gain consensus on ideas or concerns (Keeny, Hasson and Mc Kenna 2011:5 and Sunderji and Waddell 2015:1151). In this study the focus was gaining consensus on components to be included in the competency framework rather than the setting of priorities of competencies.

The mere fact that the Delphi technique is not geographically bound, also contributes to the benefit of being able to use this consensus method within a reduced time and at low cost.

Four of the defining attributes of the Delphi technique according to Keeney; Hasson and McKenna (2007:14) and Foth, Efstathiou, Vanderspank-Wright, Ufholz, Dütthorn Nadin, Zimansky and Humphrey-Murto (2016:114) include:

- Anonymity of the responses among the participants
- Avoiding group dominance
- Iteration which allows participants to change their opinions in subsequent rounds
- Controlled feedback showing the distribution of the group response

The Delphi technique has the ability to bring forth quantitative data similar to survey research but also to explore qualitative data such as attitudes and moral judgements. The Delphi technique has the ability to evoke follow-up research or guide further research thereby giving direction to a discipline such as nursing (Du Plessis and Human 2007:22; and Waggoner et al. 2016:666). Considering the professional development of nurses from novice to expert as explained by Benner (2001:13) the utilisation of Delphi method, as a consensus method, can instigate nurses to become involved in nursing research and to assume responsibility for results obtained in research (Grove 2013:436).

The Delphi process is initiated by two or more rounds of questionnaires administered by post (in this case email) to an expert panel. The value of the internet allows the expert panel to be across the world but contact is instant. During the first round the experts were asked for their opinions on the abridged competency list for the professional development of different categories of nurses involved in neonatal care in an open-ended manner. The responses were then analysed and sent back to the experts. The experts considered the content of the abridged competency list according to their opinion of the relevant competencies. The round continued until consensus was reached on most or all of the competencies. This is known as the classical Delphi technique (Keeny, Hasson and Mc Kenna 2011:4; Humphrey-Murto et al. 2017:15; and Waggoner et al. 2016: 664).

Considering the attributes of the Delphi technique, it fitted within the paradigm of the study, namely constructivism. The researcher accepted that the study's findings were based on the constructed reality of the respondents. In the process of communicating group feedback the respondents could change their position based on group opinion.

The objective of the third Phase was to first validate the abridged competency list (3A) and then to develop and validate the competency framework for the professional development of different categories of nurses in neonatal practice (3B). The validation of the framework was essential in order to establish the value thereof for different categories of nurses in terms of the nursing education institutions, as well as nursing practice related to neonatal care.

There are different types of Delphi techniques, such as the modified Delphi technique. In the modified Delphi the first postal round is replaced with face-to-face interviews or a focus group. The Decision Delphi is another type of Delphi technique that utilises the same process as the classical Delphi, but the focus is to make decisions rather than reaching consensus (Keeny, Hasson and Mc Kenna 2011:7 and Waggoneret al. 2016: 664). In this study the classical Delphi technique was utilised in the third and final Phase of the study.

3.2.3.1 Population and sampling

The group of experts that were selected had a vested interest in the outcome of the study as members of the Neonatal Nurses Association of Southern Africa.

The population identified included a range of experts in the field of neonatology and midwifery, including the nursing and medical fraternities. Nursing education institutions, including universities and nursing colleges in South Africa, formed part of the population as well as clinical neonatal nurse experts. Management of healthcare institutions represented nursing practice and special interest groups' representatives such as SOMSA (Society of Midwives of South Africa) and USANA (United South African Neonatal Association) were included. The experts resided in the Western Cape, Kwa-Zulu Natal, Free State, North West Province and Gauteng as well as outside of South Africa, in Rwanda.

Purposive sampling was done to include nursing institutions responsible for training auxilliary nurses and enrolled nurses in the public and private settings, as well as nursing education institutions responsible for training of professional nurses, midwives and post basic courses with aspects of neonatal care. Healthcare institutions included public and private hospitals where care is provided to healthy and ill neonates. The locations and names of the nursing education institutitions are not mentioned to ensure confidentiality and anonymity of the participants.

Participants were purposively included based on their recognised special interest and involvement in the field of neonatology including but not limited to academic qualifications related to the field of neonatology. The participants needed to indicate their willingness to participate. The names and email addresses of participants were obtained from the NNASA (Neonatal Nurses Association of Southern Africa) and COINN (Council of International Neonatal Nurses).

According to Keeney, Hasson and McKenna (2011:48) there is no one sample size advocated for the Delphi technique. The number of participants largely depends on the topic of the study, relevant perspectives required, complexity of the problem, representation

required, resources available and the range of expertise required. Delbecq et al. (1975:466) and Skulmoski, Hartman and Krahn (2007:5) recommend that a sample size of 10-15 may be sufficient if the sample is homogeneous and if the researcher could infer that the results are generalizable and representative of the larger population. Considering the two different opinions above, Waggoner et al. (2016:666) notes that a panel smaller than six (6) has limited reliability and a panel larger than 12 has an insignificant increase in the reliability. Six (6) experts responded in this Delphi.

3.2.3.2 Data collection and analysis

Experts in the field of neonatology (national and international) were contacted via email to validate the abridged competency list that was developed. Table 3-2 indicates the field of expertise of the experts who responded.

The Delphi technique was utilised in this Phase of the study, as discussed earlier in the chapter. Six experts in the field of neonatology responded to the invitation to validate the abridged competency list. Three rounds of feedback were employed to allow the expert panel to consider the content of the competency framework. All six experts participated in the three rounds.

The abridged competency list was circulated to the selected expert panel by means of email as the experts are from different parts of the country as well as an African Country outside of South Africa. During the first round a copy of the abridged competency list for nurses involved in neonatal care was circulated with a request to comment or give input. An abridged version was used during the last Phase as consensus was required on the competencies and not the detail on every competency. The abridged version provided a concise summary of what competencies were identified through consensus. The panel of experts received an instruction to consider the competencies included in the framework and to indicate whether the items should be included or not. A period of seven (7) days was allowed for the first round.

Feedback was received after every round and at the end of round 3 all of the experts were satisfied and reached consensus on the validation of the competencies that should be included in the competency framework. Information about the experts' demographic data and results of the Delphi technique are discussed in Chapter 5 (Table 5-3).

The abridged competency list was dissected in more detail according to the SANC competency framework as well as Benner's novice to expert levels using inductive and deductive reasoning. This competency framework was then validated in Phase 3B.

3.2.4 Phase 3B: Validation of the competency framework for the professional development of different categories of nurses in neonatal practice.

The Delphi technique, as discussed in section 3.2.3, was utilised again in the final validation of the complete competency framework. The competency framework is included in Chapter 5.

3.2.4.1 Population and sampling

The population identified was a range of experts in the field of neonatology in South Africa and included public and private healthcare institutions and higher education institutions. Similar to Phase 3A, a purposive sampling method was utilised. The names of the participants and institutions were not mentioned to ensure confidentiality of the participants. Not all of the experts who participated in Phase 3A were available and this implied that the researcher had to recruit other experts. The researcher ensured that experts were included from both public and private hospitals as well as experts from three higher education institutions across three provinces.

3.2.4.2 Data collection and analysis

Similar to Phase 3A, as discussed in section 3.2.3.2, the participants were contacted individually by email to invite their participation in the validation of the competency framework for the professional development of different categories of nurses in neonatal care. The panel of experts received an instruction to consider the competency framework. A period of seven (7) days was allowed for the first round. The experts were required to review the competency framework in terms of a set criteria which included the following:

- The context description is comprehensive and a true reflection;
- Clarity, simplicity and consistency;
- Appropriateness and relevance;
- The competency framework is a comprehensive summary of knowledge and skills expected from clinical neonatal specialists;
- Adaptability and generalisability;
- The competency framework will be useful for informing a micro-curriculum;
- Accessibility;
- Importance for research, practice and education;

- Validity or trustworthiness.

Feedback was received and the comments and suggestions were effected in the first round of the Delphi technique. A second round was required after which the experts indicated that no futher changes were required. The competency frameworks for professional development of different categories of nurses in neonatal practice are discussed in Table 5.8.1, 5.8.2 and 5.8.3 in Chapter 5.

3.3 TRUSTWORTHINESS

Trustworthiness refers to establishing the value and authenticity or accuracy of research findings, in other words the extent to which the findings of the study are true to the objectives and that the findings reflect the purpose of the study accurately (Holloway 2008: 237). The strategies that will be employed to establish trustworthiness as suggested by Lincoln and Guba (1985:289) include the following: credibility (confidence in the truth of the data), transferability (thick description), dependability (consistency of data with audit trail), confirmability (by representing the reality and contextualising the study) and authenticity.

The quality criteria for rigor according to to Polit and Beck (2017:557) and Maree (2007:133) and Holloway (2008: 237) were followed.

3.3.1 Credibility

Credibility refers to confidence in the truth of the data and interpretation thereof. (Polit and Beck 2017:559, 561;) and (Brink et al. 2018: 159). Strategies for credibility were achieved by:

- Prolonged engagement in the field: the researcher held various neonatal nurse positions in several levels of neonatal care including clinical specialist positions in neonatal units to facilitating neonatology as a post basic qualification. This allowed the researcher to have a deeper understanding of neonatology practice in South Africa.

- Persistent observation: by reading the data that was collected in Phase 1 and Phase 2 to ensure the information was interpreted correctly to determine what information was relevant and what was not relevant to the study.

- Triangulation: by seeking different sources of data and using different methods to do so. The nominal group technique (in Phase 1), a literature control with multiple sources of data (in Phase 2) as well as a Delphi technique (in Phase 3) were utilised in the study.

- Peer debriefing: opinions of peers were utilised by the researcher's involvement in a proposal development programme prior to the execution of the study. Each step of the methodology was discussed to ensure the soundness of the methodology.

- Member checking: the findings of the study were taken back to be confirmed by the participants by utilising the nominal group technique where participants contributed to the results and they could provide immediate feedback to the facilitator of the groups. The Delphi technique (in Phase 3) allowed the participants to consider the formulated competency framework, to interpret it and to provide feedback in terms of the adequacy thereof. Consensus research contributed to this aspect since the experts agreed with the data as it emerged, Polit and Beck (2017:584) and Brink et al. (2018: 159).

3.3.2 Transferability

Strategies for transferability were achieved by detailed and rich, thick descriptions of the settings and progress as well as sufficient information to judge the applicability of findings to other settings (Polit and Beck 2017:560); and (Brink et al. 2018: 159). This study can be repeated in other settings by following the three phases that were conducted in this study. During Phase 1, transferability was ensured through purposive sampling as it maximised the specific information received from nurses involved in neonatal care as required for the particular context of the study. Data saturation occurred with the last nominal groups that were conducted as the participants could not provide new information and themes were repeated.

3.3.3 Dependability

Dependability refers to the fact that if this study were to be repeated with the same or similar participants in the same or similar context the finding would be similar (Brink et al. 2018:159). Dependability was ensured in Phase 1 as nine nominal groups were conducted and the themes that emerged repeated or complemented themes that emerged after the first two groups. The seven nominal groups were conducted using the same routine, with the same facilitator, with the same question and clarifications. The two semi-structured interviews that were conducted also revealed similar results. The themes that emerged were recorded and photographed to ensure that the researcher recorded the information as it emerged from the participants.

Strategies for dependability were achieved with a transparent chain of evidence by means of the photographs of every group's data; comprehensive field notes made by the

researcher during every nominal group. The data is expected to remain consistent over a period of time (Polit and Beck 2017:585).

3.3.4 Confirmability

Confirmability refers to the congruency of data in terms of accuracy, relevance and meaning (Brink et al. 2018:159). The data represented the information that was provided by the participants. The researcher did not interpret the findings as an external facilitator was used and pictures were taken together with field notes to ensure the researcher recorded the gist of the data that were collected. During Phase 1, an external facilitator was used to limit the researcher bias as the researcher is a neonatal nurse herself.

Strategies for confirmability were achieved by:

- Reflectivity: the voices of the participants were reflected on the sticky notes and captured with a photograph to ensure later referral will be possible.

- Critical examination of perspectives, positions and presence and verbatim accounts was achieved by allowing the participants to write up their contributions and the consensus reached. The conceptualisation of the competency framework from the data that was constructed by means of consensus research will demonstrate the reality of those who participated in the research (Polit and Beck 2017:559).

3.3.5 Authenticity

Authenticity was achieved by exposing the participants' true opinions by means of following the nominal group technique. The researcher used the words and the participants' understanding of the words in the construction of the competency framework (Polit and Beck 2017:585). The different nominal groups contributed themes that portray the experiences and emotions of the nurses of a particular group. The focus of each nominal group was influenced by their unique position in the context of neonatal nursing.

3.4 ETHICAL CONSIDERATIONS

Ethical considerations or ethics are concerned with protecting the vulnerable against exploitation and other forms of harm (Polit and Beck 2012:152 and Polit and Beck 2017: 137). The two components of research, namely regulatory requirements and ethical principles were considered in this study. The required permissions and approvals were obtained prior to commencing with the study. These aspects were informed by the ethical principles (Dhai 2016:37).

3.4.1 Regulatory requirements

The research proposal was reviewed and approved by the Ethics Committee of the Faculty of Health Sciences (see Annexure A), University of Pretoria, prior to the study as well as the Postgraduate Committee of the School of Health Care Sciences and the Academic Advisory Committee of the School of Health Care Sciences of the University of Pretoria. The research committee of a private healthcare group granted the researcher permission to conduct her research within the company's facilities. After reviewing the research proposal permission to conduct the study and to access information was also obtained from the chief executive officer of the academic hospital involved. (Annexures A, B and C).

3.4.2 Ethical principles

The standards of ethical research are based on three broad principles (Beck 2017: 138): benficence, respect for human dignity and justice.

3.4.2.1 Beneficence

The intention of research was to provide benefits to the participants and to "do good" and "not do harm". The right to freedom from harm and discomfort implies that the researcher had a responsibility to avoid, prevent or minimise any possible harm (Polit and Beck 2012:152 and Polit and Beck 2017:139). Discomfort and harm can be more than just physical, and can include the emotional, social and economic aspects (Grove et al. 2013:174; and Polit and Beck 2017:139). The participants were not exposed to dangerous equipment and no medical procedures were required that could cause physical harm. The participants were protected from psychological harm as the research question did not relate to personal weaknesses or fears. It was never required that participants should reveal sensitive, personal information.

Informed consent and voluntary participation ensured the participants' right to protection from exploitation. The participants had sufficient knowledge and comprehension of the elements of the subject matter involved to enable them to make an informed and enlightened decision according to the Nuremberg Code (Williams 2009:105 and Polit and Beck 2017: 143).

3.4.2.2 Respect for human dignity

Conformation to human rights such as the right to self-determination was achieved by allowing participants to decide whether they wanted to participate (Polit and Beck 2017:140). The participants could volunteer to participate and they could withdraw from the study at any point with no penalties. The participants had an opportunity to ask questions and to clarify

any possible concerns. The participants were free to decide if they wanted to proceed or leave. The researcher was not in a position of authority over the participants, thus the risk for coercion was avoided. Full disclosure was ensured by providing information relevant to the study in the informed consent letter (Annexure D). Participants signed the consent letter after they understood the purpose of the study and had adequate information and agreed to participate (Burns and Grove 2005:181; Maree 2007:298; Holloway 2008:84 and Polit and Beck 2017:143).

3.4.2.3 Justice

The last and third broad principle involves the participant's right to fair treatment and right to privacy (Polit and Beck 2017:141). The participants in this study were selected based on the study's requirements. The researcher demonstrated respect for the different beliefs, habits, lifestyles and backgrounds of the participants. Participants were treated courteously, respectfully and tactfully at all times. A key characteristic of the nominal group technique was to ensure justice as the process of the nominal group technique facilitates fair contributions by all participants to disclose their views and opinions without intimidation or influence from other participants (Botma et al. 2010:18).

The researcher ensured that the participants had a clear understanding regarding the confidentiality of the research findings and their right to privacy. The researcher ensured the participants' privacy and confidentiality by using unique codes for different groups and different participants (Grove, Burns and Gray 2013:169; Polit and Beck 2017: 147). All information shared during the study was and will be kept private and secured and the results will be presented in such a way that the identities of the participants are and will be protected (Maree 2007:299; Polit and Beck 2012:153; Grove et al. 2013:171 and Polit and Beck 2017: 147).

3.5 SUMMARY

In this chapter the paradigm, design and methodology that was used as foundation of the study was discussed. In the next chapter Phase 1 will be discussed.

CHAPTER 4 – FINDINGS OF PHASE 1

4.1 INTRODUCTION

In Chapter 3 the research methodology was discussed. Chapter 4 presents the findings of the data that were collected during Phase 1 of the study. The objective was to explore and describe competencies for the professional development of different categories of nurses in neonatal practice. The two different categories of nurses provided information for the category in which they fitted. The nominal group technique (NGT) was used to obtain consensus on priorities, in an orderly, structured face-to-face meeting. The participants' activities, which concluded with consensus of required competencies were captured in images and summarised in tables.

4.2 DEMOGRAPHIC DATA OF PARTICIPANTS

The data were collected by means of conducting 2 (two) semistructured interviews and 7 (seven) nominal groups in three adjoining inland provinces (Gauteng, North-West Province and Mpumalanga), in private and public health care facilities. A non-probability, purposive sampling method was used to intentionally include participants involved in neonatal care. A total of 39 (thirty-nine) participants took part in Phase 1.

Table 4-1 Demographic information of participants for nominal groups and interviews

Nominal groups and Interviews				
Group number	**Institution**	**Participants**	**Number of participants**	**Month and year in which group occured**
Group 1 NGT	Private	Registered nurses Midwives Nurse educators Specialists	4	October 2015
Group 3 NGT	Private	Registered nurses Midwives Nurse educators Specialists	5	December 2015
Group 4 NGT	Private	Registered nurses Midwives Nurse educators Specialists	7	December 2015
Group 6 NGT	Private	Registered nurses Midwives Nurse educators Specialists	6	March 2016
Group 7 NGT	Private	Registered nurses Midwives Nurse educators Specialists	4	March 2016
Group 8 NGT	Public	Enrolled nurses	6	April 2016
Group 9	Public	Registered nurses	4	April 2016

Nominal groups and Interviews				
Group number	**Institution**	**Participants**	**Number of participants**	**Month and year in which group occured**
NGT		Midwives Nurse educators Specialists		
Group 2 (Interview 1)	Private	Enrolled nurses	1	December 2015
Group 5 (Interview 2)	Private	Enrolled nurses	2	December 2015

4.2.1. Age

The 39 participants of Phase 1 were aged between 25 and 62 years. The groups consisted of trained and experienced nurses involved in neonatal care. Table 4-2 indicates the distribution of ages. The mean average age of the participants was 42.9 years.

Table 4-2 Age distribution of participants in Phase 1

Age group	**Number of participants.**
25-29	5
30-39	10
40-49	13
50-59	10
60 and older	1

The significance with regards to the age of the participants is that most of the participants were between the age of 30 and 59 years. This age distribution is consistent with the published statistics of South African Nursing Council where practising registered nurses and enrolled nurses' ages range between 30 and 59 years (SANC 2015).

4.2.2 Categories of nurses

The academic qualifications represented among the participants indicate the various different academic options available in the South African context as discussed in Chapter 1 (1.2.4), except for auxilliary nurses who usually do not work with neonatal patients. The categories of nurses that were involved in this study are listed in Table 4-1. The academic qualification that was obtained determines the category of nurse as well as the type of South African Nursing Council registration required. A participant could also have more than one of the qualifications. There were three nurses that had additional qualifications which included neonatal nursing science.

Table 4-3 Qualifications and positions

SANC registration	Academic qualifications	Number of represented qualifications
Enrolled Nurse	2 year diploma (R2175)	14
Midwife	Diploma in midwifery (R254)	11
Professional General Nurse	2 year bridging course for enrolled nurses (R683)	5
Professional Nurse (General, Psychiatric and Community) and Midwife	Comprehensive 4 year diploma in nursing science (R425)	6
Professional Nurse (General, Psychiatric and Community) and Midwife	4 year Bachelor's degree in nursing science (R425)	3
Additional qualifications: • Neonatal Nursing Science • Advanced Midwifery and Neonatal Nursing Science • Child Nursing	Post basic additional qualification in clinical nursing science (R212)	3
	• Master's degree in Nursing (MCur) with Neonatal Nursing Science (R212)	2

It must be noted that the nurses involved in neonatal care emanate from different categories of nurses and that they are employed in different positions, in different departments and/or levels of appointment. The participants included registered professional, enrolled nurses, and midwives that were employed in different positions within the involved institutions. Some of the professional nurses that were participants were appointed in management positions and some professional nurses were more involved with training and were known as clinical training specialists in their respective positions. Two participants were neonatal lecturers. These were the participants who had master's degree qualifications in Neonatal Nursing Science (R212) as indicated in Table 4-2. Fourteen participants were professional nurses and eleven participants were midwives. Two participants had master's degrees. The commonality of all of the participants is that they are expected to manage neonates on various points of the health continuum and on various levels of acuity.

4.2.3 Departments where the participants worked

The departments that were represented were those departments from public and private sector involved with neonates as indicated in Table 4-4. The labour room staff are involved during the first hour of an infant's life, which is an important period that commences with birth. An infant who then requires specialised care will be transferred to a dedicated area for neonatal care. Depending on the institution the neonatal care area can be divided into a nursery, high care unit or intensive care unit. Considering the circumstances, a neonate or infant might also be cared for in the paediatric unit, especially if the infant had been discharged and needs to be readmitted. The departments listed below were the departments represented by the participants but are not the only departments involved in neonatal care. Neonatal care is mostly provided by neonatal nurses in maternity and neonatal wards. In an acdemic hospital neonates could be admitted in paediatric wards as well. It was important that different departments were included as neonates are also nursed in these departments.

Table 4-4 Represented hospital departments

Departments that were represented in the nominal groups	**Private and public hospitals**	**Number of participants**
Labour wards	Public and Private	8
Neonatal intensive care units	Public and Private	10
Paediatric wards	Public and Private	2
Academic institutions offering post basic training	Public and Private	1
Clinical training departments	Public and Private	3
Other departments where staff are expected to manage neonates (theatre/ emergency rooms)	Public and Private	15

The demographic information indicates that the participants represented various age groups, departments and academic qualifications associated with neonatal care provision.

4.3 FINDINGS: NOMINAL GROUP TECHNIQUE SESSIONS AND SEMI-STRUCTURED INTERVIEWS

Nine nominal groups were planned and seven were conducted, while two materialised as semi-structured interviews. The two that culminated in interviews were due to the small number of participants who arrived; one and two respectively, as discussed in Chapter 3 (3.6.1.1: Population and Sampling). The groups were allocated with a number according to the sequence in which they were conducted, and a code of which the meaning is only known to the researcher to ensure confidentiality. The decision was to keep the group numbers for the semi-structured interviews, even if the nominal group technique was not used in these instances. The groups are described in Table 4-5.

Table 4-5 Description of the nominal groups

Group number	Code	Public / Private facility	Number of participants	Category of staff
Group 1 NGT	FRN	Private facility	4	Registered nurses Midwives Nurse educators
Group 3 NGT	PRN	Private facility	5	Registered nurses Midwives Nurse educators
Group 4 NGT	MRN	Private facility	7	Registered nurses Midwives Nurse educators
Group 6 NGT	WRN	Private facility	6	Registered nurses Midwives Nurse educators
Group 7 NGT	WHRN	Private facility	4	Registered nurses Midwives Nurse educators
Group 8 NGT	SBRN	Public	6	Enrolled nurses
Group 9 NGT	SBEN	Public	4	Registered nurses Midwives Nurse educators
Group 2 Interview	PEN	Private facility	1	Enrolled nurses
Group 5 Interview	MEN	Private facility	2	Enrolled nurses
39				

Each of the nominal groups reached consensus on broad themes that represented all their individual ideas, concluding with a list in which the group agreed on the themes. The aim of the nominal groups was not to establish priorities, but to reach consensus on items or competencies that nurses involved in neonatal care should have. The groups allocated a ranking of the themes to indicate that despite all themes that they agreed upon, some items are more important than others. The groups used the word “priority” unanimously to indicate a ranking order.

The following section will first provide a summary of the themes as generated by the respective groups, followed by a section to integrate and discuss the themes.

4.3.1 Themes from nominal group 1

Every broad theme was awarded a number as indicated in brackets after the theme. The participants then used this theme number to vote on the priority of the particular theme. The themes were then listed in the order of importance as indicated by the participants

considering that all the participants agreed that all the themes were important and should be included as competencies a nurse involved in neonatal care should have. Group 1 consisted of registered nurses, midwives and nurse educators from labour wards in the private healthcare setting as seen in Table 4-1.

Table 4-6 Summary of themes – Nominal Group 1

Group	Broad themes initially identified	Priorities after discussions
Nominal group 1 FR	Holistic assessment and critical thinking skill (1) Developmental supportive care (2) Fluid/ medication/ feeding management (3) Respiratory / haemodynamic management (4) Resuscitation (5) Infection management (6) Social interaction (7)	1.Holistic assessment and critical thinking skill 2.Respiratory / haemodynamic management 3.Resuscitation 4.Developmental supportive care 5.Fluid / medication / feeding management 6.Social interaction 7.Infection management Added as additional priority by the NG after the initial finalisation of the priorities 8: Ethical decision-making

The first group added the following item after they agreed on the main themes during the discussion of the themes:

- Management of ethical dilemmas related to gestational age and financial implications for parents as well as ‘do not resuscitate orders’.

The nominal group explored all competencies for all categories. The differentiation followed in Phase 3 of this study.

4.3.2 Themes from nominal group 2 (semi-structured interview)

The category of nurses in nominal group 2 consisted of enrolled nurses from a labour ward in a private hospital setting. In order to avoid interrupting service delivery in the busy unit, only one participant was able to attend. The nominal group technique was then converted to a semi-structured interview in which the same core question was used to determine competencies expected from staff in neonatal care. This question was followed by probing questions. The themes identified are summarised in Table 4-7 , and the data capturing sheet is included in Annexure A2.

Table 4-7 Summary of themes – Nominal semi-structured interview Group 2

Group	Broad themes initially identified	Priorities after discussions
Group 2 PE (interview)	- Total patient care (1) - Monitor /report/ record (2) - Infection prevention and safety of neonates (3)	1. Total patient care 2. Monitor /report/ record 3. Infection prevention and safety of neonates

4.3.3 Themes from nominal group 3

The category of nurses in nominal group 3 consisted of registered nurses, midwives and nurse educators in a private hospital setting.

Participants in group 3 prioritised assessment and monitoring (vital data) as the first priority for a competency needed when working in the neonatal context. Nominal group 1 indicated that resuscitation is ranked number 3 on their priorities and group 3 indicated correspondingly that resuscitation ranked second on their priorities. Medication and feeding as well as developmental supportive care ranked between the 4th and 5th priority between nominal group 1 and nominal group 3 respectively.

Table 4-8 Summary of themes – Nominal Group 3

Group	Broad themes initially indentified	Priorities after discussions
Nominal group 3 PR	- Vital data and monitoring (1) - Resuscitation (2) - Care based on knowledge of condition/ diagnostic test results (3) - Medication and feeding management (4) - Developmental supportive care (5)	1. Vital data and monitoring 2. Resuscitation 3. Care based on knowledge of condition/ diagnostic test results 4. Medication and feeding management 5. Developmental supportive care

4.3.4 Themes from nominal group 4

The category of nurses in nominal group 4 consisted of registered nurses, midwives and nurse educators in a private hospital setting working in the labour ward and neonatal intensive care ward. The themes generated by this group are summarised in Table 4-9. Nominal groups 1 and 3 indicated resuscitation as their 2nd and 3rd priorities. Nominal group 4 concurred with this positioning and and also placed it as a 3rd priority. There was consensus between “knowledge and skills” as the 1st priority identified in nominal group 4 and the holistic assessment and critical thinking skills identified in group 1.

Table 4-9 Summary of themes – Nominal Group 4

Group	Broad themes initially identified	Priorities after discussions
Nominal group 4 MR	- Have neonatal knowledge and skills (1) - Use nursing process as a problem-solving process (2) - Cardiopulmonary resuscitation (3) - Communication skills (4) - Psycho-social care of neonate and care givers (5) - Translation of knowledge to primary caregiver of neonate (6) - Planning of staff to ensure a skill mix (7)	1. Have neonatal knowledge and skills 2. Use nursing process as a problem-solving process 3. Cardiopulmonary resuscitation 4. Communication skills 5. Psycho-social care of neonate and care givers 6. Translation of knowledge to primary caregiver of neonate 7. Planning of staff to ensure a skill mix

4.3.5 Themes from nominal group 5 (semi-structured interview)

The category of nurses in nominal group 5 consisted of enrolled nurses in a private hospital setting. As only two participants were able to attend, the nominal group technique was adjusted to an interview, but with the same focus. Their themes are summarised in Table 4-10. Nominal group 2 indicated "total patient care" as the 1st priority, whereas nominal group 5 indicated the "use of the nursing process and neonatal management skills" as the 4th priority. The positioning of these themes is different. However, both the enrolled nurse nominal groups included the aspect of total patient care. Nominal group 4 indicated the nursing process as the 4th priority and this can be associated with the 2nd priority of nominal group 2. It was observed that nominal group 5 focussed mainly on management aspects related to neonatal care, whereas nominal group 2 focussed on total care and safety of the neonate.

Table 4-10 Summary of themes – Nominal Group 5

Group	Broad themes initially identified	Priorities after discussions
Nominal Group 5 ME (interview)	- Having qualifications (1) - Knowledge and compliance to the legal framework (2) - Use nursing process and neonatal management skills (3) - Good communication (4)	1. Having qualifications 2. Knowledge and compliance to the legal framework 3. Good communication 4. Use nursing process and neonatal management skills

4.3.6 Themes from nominal group 6

The category of nurses in nominal group 6 consisted of registered nurses, midwives and nurse educators in a private hospital setting working in the labour wards, training department and neonatal intensive care unit. The themes generated by this group are summarised in Table 4-11. Nominal group 1 and nominal group 3 indicated similarly to nominal group 6, that knowledge is a high priority. Developmental care was also noted in nominal group 1 and nominal group 3 as a 3rd and 4th priority which is similar to nominal group 6.

Table 4-11 Summary of themes- Nominal Group 6

Group	Broad themes initially identified	Priorities after discussions
Nominal group 6 PLCR	- Having neonatal knowledge (1) - Having neonatal skills (2) - Psycho-social skills (3) - Developmental supportive care (4) - Life skills (5)	1. Neonatal knowledge 2. Neonatal skills 3. Psycho-social skills 4. Developmental supportive care 5. Life skills

4.3.7 Themes from nominal group 7

The category of nurses in nominal group 7 consisted of registered nurses, midwives and nurse educators in a private hospital setting working in the labour wards, training department and neonatal intensive care unit. Themes generated by this group are summarised in Table 4-12. Knowledge is a priority that is mentioned several times. Nominal groups 1, 3, 4, 5 and 6 indicated this competency as a priority.

Table 4-12 Summary of themes- Nominal Group 7

Group	Broad themes initially identified	Priorities after discussions
Nominal group 7 WR	- Physically and mentally healthy (Coping skills) (1) - Basic neonatal knowledge and skills (2) - Advanced theoretical knowledge (3) - Advanced neonatal nursing skills (4) - Psycho social support skills (5) - Efficient interpersonal skills (6) - Mentoring skills (7)	1. Physically and mentally healthy- (Coping skills) 2. Basic neonatal knowledge and skills 3. Advanced theoretical knowledge 4. Advanced neonatal nursing skills 5. Psycho social support skills 6. Efficient interpersonal skills 7. Mentoring skills

4.3.8 Themes from nominal group 8

The category of nurses in nominal group 8 consisted of enrolled nurses from the labour ward, post partum ward, neonatal high care ward and the neonatal intensive care unit in a public hospital setting. The themes generated by the group are summarised in Table 4-13. Knowledge was identified by nominal group 4 as a 1st priority, by nominal group 6 as a 1st priority and as a 3rd priority in nominal group 7. Knowledge is not named as a theme but it relates to qualifications mentioned in nominal group 5 which can be linked to training as mentioned as a 3rd priority in nominal group 8.

Table 4-13 Summary of themes – Nominal Group 8

Group	Broad themes initially identified	Priorities after discussions
Nominal group 8 SBE	- Nutrition management of the neonate (1) - Health education skills (2) - Emotional support skills for neonates' family and nursing team (3) - Administration of medication (4) - Education and training skills (5) - Effective nursing of the neonate (6) - Provide safe and healthy environment (7) - Legal documentation (recordkeeping skills) (8) - Function within scope of practice (performing the procedures and actions allowed by the governing body for enrolled nurses) (9) - Effective nursing of the neonate (10)	1. Effective nursing of the neonate 2. Nutrition management of the neonate 3. Education and training skills 4. Emotional support skills for neonates' family and nursing team 5. Effective nursing of the neonate 6. Provide safe and healthy environment 7. Health education skills 8. Administration of medication 9. Function within scope of practice (performing the procedures and actions allowed by the governing body for enrolled nurses) 10. Legal documentation (recordkeeping skills)

4.3.9 Themes from nominal group 9

The category of nurses in nominal group 9 consisted of registered nurses from the labour ward, post partum ward, neonatal high care ward and the neonatal intensive care unit in a public hospital setting, and their themes are summarised in Table 4-14. Nominal group 9 indicated theoretical and clinical skills as a 1st priority. This can be linked to "knowledge of a condition/ diagnostic test results" identified by nominal group 3 as a 3rd priority. "Knowledge and skills" was identified by nominal group 4 as a 1st priority and this can be linked to the

theoretical skills identifed by nominal group 1 as the 1st priority. Nominal group 6 also identified knowledge as a 1st priority. The “management of neonates” which is the 3rd priority of nominal group 9, can be linked to the “vital data and monitoring” which was a 1st priority in nominal group 3.

Table 4-14 Summary of themes – Nominal Group 9

Group	Broad themes initally identified	Priorities after discussions
Nominal group 9 SBR	- Effective assessment and management of neonates (1) - Health education skills (2) - Infection prevention and control (3) - Cardiopulmonary resuscitation (4) - Effective interpersonal skills and relationships with neonates and family (5) - Education and training skills: theoretical and clinical (6)	1. Education and training skills: theoretical and clinical 2. Effective interpersonal skills and relationships with neonate and family 3. Effective assessment and management of neonates 4. Cardiopulmonary resuscitation 5. Infection prevention and control 6. Health education skills

The ninth and last nominal group added the following items after they agreed on the main themes:

- The nurse has to be physically fit in order to be effective.
- Psychological preparation of the mother/parents on expectations (good or bad).
- Sterility or a sterile technique is important in every event happening in the neonatal unit.
- Orientation to parents on what to expect in the neonatal unit.
- Exclusive breast feeding.

Some of the additional items mentioned by nominal group 9 relate and can be linked to themes that were identified by other groups. “Sterility” is closely related to the prevention of infection and was mentioned by nominal group 1 as a 7th priority, by nominal group 2 as a 3rd priority and by nominal group 9 as the 5th priority. The “feeding management “ was also found in nominal group 1 as 5th priority, in nominal group 3 as 4th priority and in group 8 as 2nd priority. Although breast feeding is not a competency the “feeding management” was noted on at least three occasions in the different nominal groups.

Enrolled nurses identified the need for “knowledge” as well as training within a legal framework. This indicates that enrolled nurses are aware of the legal requirements which

dictate their practice. Total and holistic nursing of the neonate was identified by both the enrolled and registered nurses.

4.4 INTEGRATION OF COMPETENCIES REQUIRED BY NURSES INVOLVED IN NEONATAL CARE

The data from the activity sheets were transcribed from the flip charts and were entered on Table 4-15 to provide an overview of the identified themes, as well as to make comparison and integration easier.

It is important to note that of the seven nominal groups and two interviews that were conducted, three of the nominal groups were constituted by enrolled nurses; two of the three nominal groups contributed limited but nonetheless, valuable items to the list of competencies.

The content of Table 4-15 was used to enable the researcher to formulate the abridged competency list by including the items and themes generated by the nominal groups bearing in mind international competencies found in the literature.

The different categories included in the nominal groups in Phase 1 were registered and enrolled nurses.

Table 4-15 Summary of the broad themes identified among nominal groups and interviews

Registered Nurses(without and with additional qualifications)						Enrolled Nurses		
Group 1	Group 3	Group 4	Group 6	Group 7	Group 9	Interview 1	Interview 2	Group 8
Holistic assessment and critical thinking skills	Vital data and monitoring	Have neonatal knowledge and skills	Neonatal knowledge	Physically and mentally healthy-(Coping skills)	Education and training skills: theoretical and clinical	Total patient care	Having qualifications	Effective nursing of the neonate
Respiratory / haemodynamic management	Resuscitation	Use nursing process as a problem-solving process	Neonatal skills	Basic neonatal knowledge and skills	Effective interpersonal skills and relationships with neonates' family	Monitor /report/ record	Knowledge and compliance to the legal framework	Nutrition management of the neonate
Resuscitation Developmental supportive care	Care based on knowledge of condition/ diagnostic test results	Cardiopulmonary resuscitation	Psycho-social skills	Advanced theoretical knowledge	Effective assessment and management of neonates	Infection prevention and safety of neonate	Good communication	Education and training skills
Fluid / medication / feeding management	Medication and feeding management	Communication skills	Development-al supportive care	Advanced neonatal nursing skills	Cardiopulmonary resuscitation		Use nursing process and neonatal management skills	Emotional support skills for neonates' family and nursing team
Social interaction	Developmental supportive care	Psycho-social care of neonate and care givers	Life skills	Psycho-social support skills	Infection prevention and control			Effective nursing of the neonate
Infection management		Translation of knowledge to primary caregiver of neonate		Efficient interpersonal skills	Health education skills			Provide safe and healthy environment
Ethical decisionmaking		Planning of staff to ensure a skill mix		Mentoring skills				Health education skills
								Administration of medication
								Function within scope of practice (performing the procedures and actions allowed by the governing body for enrolled nurses)
								Legal documentation (recordkeeping skills)

An integrated list of the competencies generated by the participants is indicated in Table 4-16. Although priorities were indicated in the different nominal groups, consensus on the competencies was the aim.

Table 4-16 Summarised list of themes

Themes	**NominalGroup (NG) Number**
Holistic care including alternative transcultural care (including total patient care)	1/ 2
Critical thinking skills	1
Developmental supportive care	1/ 3/ 6
Fluid management	1
Medication management	1/ 3/ 8
Respiratory care management	1
Haemodynamic management	1
Cardiopulmonary resuscitation	1/ 4/ 9
Nutrition management of the neonate	1/ 3/ 8
Basic neonatal knowledge and skills	3/ 4/ 7
Advanced neonatal knowledge and skills	7
Translation of knowledge to primary caregiver of neonate	4
Function within scope of practice (performing the procedures and actions allowed by the governing body for enrolled nurses)	5/ 8
Effective use of the nursing process (assessment / nursing diagnosis / planning / implementation / evaluation) (Applied as knowledge and skills)	4/ 5/ 8
Psycho, emotional and social support of and interaction with neonate, family and nursing team (futher described as family centred care)	1/ 6/ 7/ 8
Holistic care and psychological care	1/ 9
Provide a safe and healthy environment	2/8
Infection prevention and control	1/ 2/ 9
Skill mix (not included as a competency but as a managerial task)	4
Having/ obtaining qualifications (included as knowledge and skills and descision making as the competency)	5
Mentoring and educational skills	7/ 8/ 9

The information provided by nominal groups 2, 5 and 8 was by enrolled nurses. Some of the themes identified by the enrolled nurses were only mentioned by them but mostly the themes were similar to those identified by the registered nurses. The reseacher observed that group 1 provided the richest data and included most of the themes.

4.5 CONCLUSION

Chapter 4 presented the findings of the nominal group technique discussions and semi-structured interviews. The objective of Phase 1 of the study was to explore and describe competencies for the professional development of different categories of nurses in neonatal practice.

By utilising these particular methods of data collection, the participants had an opportunity to identify competencies that they viewed as important when involved in neonatal care. The process allowed numerous individual inputs in a safe environment without the fear of judgement and criticism. The participants had an opportunity to clarify and debate the deeper meaning of some items with each other.

Table 3-1 in Chapter 3 provides an illustration of the research process. The findings of Phase 1 of the reseach process, was discussed in Chapter 4.

The following chapter will focus on Phase 2 of the study which is the development of the competency list and Phase 3 to develop and validate the competency framework.

CHAPTER 5 – FORMULATION AND VALIDATION OF THE COMPETENCY LIST AND FRAMEWORK (PHASE 2 AND PHASE 3A AND B)

5.1 INTRODUCTION

In Chapter 4 the findings of Phase 1 of the study were discussed. The data was collected by means of nominal groups and interviews. In this chapter the development and validation of an abridged competency list (Phase 2) and validation and refinement of a competency framework (Phase 3) will be discussed.

5.1.1 Phase 2: Development and validation of an abridged competency list

Findings in Phase 1, literature including literature on existing competency frameworks were used as supporting evidence for the formulation of an abridged neonatal competency list.

The opinions expressed by the NGT groups were very similar and it became evident to the researcher that the nurses really require a formally acknowledged structure related to education and training for nurses in neonatal care. The need for knowledge was expressed in basic and advanced levels.

The competencies were related to basic and advanced knowledge and skills underlying neonatal care, the use of the nursing process to care for neonates, the importance of practising within an ethical-legal framework, as well as care and involvement of the parents and other team members. The abridged competency list is discussed in section 5.4.

5.2. LITERATURE OF COMPETENCY FRAMEWORKS

5.2.1 Knowledge and competence

Knowledge has many meanings. The knowledge acquired needs to be meaningful. Apart from remembering facts, they should also be applied (Jacobs, Vakalisa and Gawe 2011:137). Benner (1984:2) explains that there are two kinds of knowledge. The two kinds of knowledge are “knowing-that” (which is theoretical knowledge) and “knowing-how” (which is practical knowledge). Nurses may have acquired the “know-how” without acquiring the “know-that”. To have many skills you may not have the “know-that”. “Therefore knowledge development in an applied discipline consists of extending practical knowledge (“know-how”) through theory based scientific investigations and through charting the existent “know-how” developed through clinical experience in the practice of that discipline” (Benner 1984:2).

Bloom’s taxonomy clarifies different types of knowledge. The cognitive domain of Bloom’s taxonomy includes six objectives in the form of a hierarchy. Each level builds on the previous

and implies that a nurse can only attain higher levels of thinking if he/she mastered the preceding steps of learning (Ramirez 2017:147). Bloom's taxonomy groups learning outcomes together in three domains according to Killen (2015:101) namely:

- The cognitive domain – concerned with mental processes;
- The psychomotor domain – concerned with the control of body movement and physical actions;
- The affective domain – concerned with feelings, attitudes and values.

The three broad groupings provide a starting point for considering how and what students need to learn. Different types of learning require different approaches to teaching and different types of assessment.

In the Taxonomy for Learning, Teaching and Assessing (Anderson and Krathwohl 2001) in Kilen (2015:102) the structure and simplicity of Bloom's taxonomy was retained but it expanded to reflect new ways of thinking about cognition and learning. Bloom's taxonomy displays six skills in the cognitive domain in ascending order starting with knowledge, followed by comprehension, application, analysis, synthesis and lastly evaluation. The Taxonomy for Learning, Teaching and Assessing: A revision of Bloom's Taxonomy of Educational Objectives shows in ascending order, the skills starting with remembering, understanding, applying, analysing, evaluating and finally creating (Sweet, Blythe and Carpenter 2016:7). In Anderson and Krathwohl's taxonomy, or referred to as the revised Bloom's Taxonomy, four distinct types of knowledge are identified including factual, conceptual, procedural and metacognitive (Killen 2015:103).

The goal of this study, however, is not to focus on different levels of knowledge, but rather to clarify what competence entails. Competence represents the fact that a person who is acting competently will integrate knowledge with skills and values and will be able to do so in various situations (Killen 2015:419).

Epstein and Hundert (2002:226) proposed the following definition for competence: "Professional competence is the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values and reflection in daily practice for the benefit of the individual and the community being served". Competency can also be described as a human capability that is required to perform effectively and the building blocks of work performance (Marrelli, Tondora and Hoge 2005:534).

Professional competence can be expressed in three dimensions according to Camelo and Angerami (2013:556) namely; essential competencies (which express the organisational or

survival dimensions of competence); functional competencies (which are necessary competencies for the specific function in the specific area) and thirdly individual competencies (which takes into consideration the attitudes and behaviours compatible with the attributes that should be held by the professional such as initiative, creativity, interpersonal abilities, verbal communication, leadership, entrepreneurship, empathy, amongst others). Similar competencies were identified during Phase 1 of the study such as psycho, emotional and social support of and interaction with the neonate, family and nursing team and effective use of the nursing process which includes verbal communication and leadership.

According to Weeks, Coben, Lum and Pontin (2017:3) competence can be divided into three domains namely cognitive competence (knowledge and understanding); functional competence (demonstration of skill performance, professional and psycho-motor) and lastly ethical competence (knowledge of the country specific professional code of practice and the law associated with the practice, in other words, knowing what is right and doing what is right).

Cognitive and integrative functions such as the acquiring of and utilising knowledge to solve problems by means of clinical reasoning and effective communication within a moral framework are very important. Competence also rests on attentiveness, critical curiosity, self-awareness and presence. Finally, competence is temporary, developmental and context dependent (Epstein and Hundert 2002:227).

As an example, the dimensions of professional competence for physicians are constructed on seven aspects as indicated in Table 5-1, according to Epstein and Hundert (2002:227). The researcher is of the opinion that the dimensions of professional competence as indicated in Table 5-1, are also evident in the scope of practice of persons who are registered or enrolled under the nursing act, as described in R2598 (SANC: 1984). The scope of practice of registered nurses involves acts or procedures which are constructed on “scientifically based physical, chemical, psychological, social, educational and technological means as applicable to health care practice” (SANC: 1984). In order to nurse a patient comprehensively the nursing needs are determined followed by the prescription, provision and execution of a nursing regime. Nurses are required to use their cognitive, technical and integrative abilities in the clinical setting by means of supportive communication, observation and interpersonal skills. In order to nurse a neonate holistically the neonatal nurse is required to translate her knowledge and skills into the effective use of the nursing process as the neonate cannot voice his or her need. The neonatal nurse is required to use her various competencies to assess, plan, implement and evaluate nursing care.

Table 5-1 Dimensions of professional competence (Epstein and Hundert 2002:227)

Cognitive:	- Core knowledge - Basic communication skills - Information management - Applying knowledge to real world situations - Using tacit knowledge and personal experience - Abstract problem solving - Self-directed acquisition of new knowledge - Recognising gaps in knowledge - Generating questions - Using resources (e.g. published evidence, colleagues) - Learning from experience
Technical:	- Physical examination skills - Surgical / procedural skills
Integrative:	- Incorporating scientific, clinical and humanistic judgement - Using clinical reasoning strategies appropriately - Linking basic and clinical knowledge across disciplines - Managing uncertainty
Context:	- Clinical setting - Use of time
Relationship:	- Communication skills - Handling conflict - Teamwork - Teaching others
Affective/ Moral:	- Tolerance of ambiguity and anxiety - Emotional intelligence - Respect for patients - Responsiveness to patients and society - Caring
Habits of mind:	- Observations of one's own thinking, emotions and techniques - Attentiveness - Critical curiosity - Recognition of and response to cognitive and emotional biases - Willingness to acknowledge and correct errors

Considering the elements that make up professional competence, common axes are identified and described by Camelo and Angerami (2013:556), namely; knowledge as understood as the professional's acquired knowledge and skills (the professional's specific "know how"); attitudes also understood as "knowing how to do"; and to judge, to choose and

to decide. All of the dimensions of professional competence as listed in Table 5-1 above, are based on different sets of knowledge and skills ranging from cognitive to more affective. This implies the quality of knowing what to do and also how to do it in respect of clinical tasks.

Nursing graduates should be able to display the following qualities according to the South African Nursing Council (SANC 2014):

- Apply knowledge of theory of biological and natural sciences, psycho-social sciences and pharmacology in the provision of comprehensive nursing and midwifery care
- Develop, implement and evaluate population-based health care
- Assess, plan, implement and evaluate nursing care for individuals and groups throughout the lifespan
- Promote health, prevent ill-health, provide nursing care and promote rehabilitation of individuals and groups independently
- Utilise research in nursing and health-related problems to improve health care outcomes
- Manage health care facilities
- Demonstrate professional and clinical leadership
- Promote the professional development of self and others
- Demonstrate clinical judgment and critical thinking

A professional nurse must be competent to function as a clinically focused, service orientated, independent registered professional nurse, who is able to render comprehensive care across all spheres of health, to persons who have stable, unstable, uncomplicated and complicated health conditions, as determined by the appropriate legislative framework. Comprehensive nursing in this context is defined as: “Nursing interventions that integrate and apply the scientific process of the full range of nursing that is general, community, obstetric, mental health that promotes and maintains the health status of health users in all contexts of health care delivery” (Annexure 2: Nursing Act, 2005) (South Africa 2005). The enrolled nurse has an equally important role to play by providing basic nursing care and as a team both the professional nurse and enrolled nurse can provide high quality comprehensive care.

5.3 COMPETENCY FRAMEWORKS RELATED TO NEONATAL CARE

A competency-based approach to training, assessment and staff development has been viewed as a central strategy for improving the effectiveness of those providing care according to the Institute of Medicine (2003) as described by Marrelli, Tondora and Hoge (2005:533).

The researcher reflected on neonatal competency frameworks of several other countries in order to obtain an understanding of the core competencies evident in the frameworks. The combined competencies are displayed in Table 5-2, to show similarities as well as differences between the different core competencies within competency frameworks.

The findings of Phase 1 (Nominal groups and interviews) were added to Table 5-2 to align them with competencies from existing frameworks. The abridged competency list has been derived as a result.

Table 5-2 Core clinical skills for neonatal care

RWANDAN COMPETENCY FRAMEWORK	ROYAL COLLEGE OF NURSING/UK	Scottish neonatal nurses group	Australian College of Neonatal Nurses	PAN-LONDON BAND 5 Competency document	SUMMARY OF THE IDENTIFIED BROAD THEMES AMONG NOMINAL GROUPS AND INTERVIEWS (Table 4.15)	FINDINGS OF PHASE 1 NEONATAL COMPETENCY AND LITERATURE
Work not published.	https://www.rcn.org.uk/professional-development/publications/pub-004641	http://www.snng.org.uk/publications/datafiles/Career%20Framework%20for%20Neonatal%20Support%20Workers.pdf	http://www.acnn.org.au/resources/australian-standards-for-neonatal-nurses/ACNN-Standards-for-Neonatal-Nurses-2012.pdf	http://www.londonneonatalnetwork.org.uk/wp-content/uploads/2015/07/Pan-London-Neonatal-ODN-Band-5-neonatal-competency-Document-2014-15-00000003.pdf		
			Clinical practice domain (2)			
		Assist with advanced resuscitation and stabilisation			Resuscitation	Knowledge and skills related to: Resuscitation
Respiratory and cardiovascular management	Respiratory and cardiovascular management	Initiate and manage respiratory support		Respiratory	Respiratory / haemodynamic management	Knowledge and skills related to: Respiratory management
		Recognise normal respiratory/ cardiovascular function		Cardiovascular circulation	Cardiopulmonary resuscitation	Knowledge and skills related to: Cardiovascular management
					Health education skills	Knowledge and skills related to: Health education
Neurological, pain	Neurological,	Infant behaviour		Neurology, pain	Developmental	Knowledge and

and stress management	developmental care and pain management	Use developmental care strategies: including environmental aspects, positioning and handling		and developmental care	supportive care	skills related to: Neurological management
		Use effective communication strategies to work with babies and in partnership with parents/carers, give them information necessary to facilitate informed choice, to meet the needs of the baby	Makes nursing decisions in complex situations		Communication skills Good communication Ethical decisionmaking	Knowledge and skills related to: Communication

RWANDAN	**ROYAL COLLEGE OF NURSING/UK**	**Scottish neonatal nurses group**	**Australian College of Neonatal Nurses**	**PAN-LONDON BAND 5 Competency document**	**SUMMARYOF THE IDENTIFIED BROAD THEMES AMONG NOMINAL GROUPS AND INTERVIEWS**	**FINDINGS OF PHASE 1 NEONATAL COMPETENCY AND LITERATURE**
Managing and supporting the family	Palliative care, end-of-life care and bereavement management	Sensitively and empathetically care for the dying baby and his/her parents with support and guidance from senior staff		Bereavement and managing and supporting families	Psycho-social support skills Social interaction Psycho-social care of neonate and care givers Psycho-social skills Emotional support skills for neonates' family and nursing team	Managing and emotionally supporting the family
		Adminster drugs			Medication and	Medication

		via oral, topical, rectal and intramuscular routes, according to professional and local policies Assess the therapeutic response Identify side effects and report appropriately			feeding management Administration of medication	management
Fluid, electrolyte, nutrition and elimination management	Fluid, electrolyte, nutrition and elimination management			Fluid, nutrition, elimination and metabolic	Fluid / medication / feeding management	Fluid and electrolyte management
		Implement interventions according to unit guidelines for blood glucose regulation				Metabolic manag ement
		Nutrition and elimination			Nutrition management of the neonate	Nutrition and elimination management
Management of thermoregulation	Infant temperature management	Vital Signs/ Temperature Control	Analysis of infant's situation		Vital data and monitoring Monitor /report/ record Effective assessment and management of neonates	Vital data management
	Investigations and procedures	Investigations and procedures	Uses multiple approaches to gather data about the infant's clinical status		Care based on knowledge of condition/ diagnostic test results	Diagnostic investigations and procedures
Skin, hygiene and	Skin, hygiene and	Investigate and		Thermoregulation,		Thermoregulation

infection prevention management	infection control management	treat temperature deviations		skin care and infection control		
		Implement correct hand washing and other infection control measures as per local guidelines Hygiene Needs/ infection prevention and control Implement correct hand washing and other infection control measures as per local guidelines			Infection prevention and safety of neonate Infection management Infection prevention and control	Infection prevention management
		Monitor and maintain the health, safety and security of self and others in the neonatal unit			Provide safe and healthy environment	Health, safety and security

RWANDAN	**ROYAL COLLEGE OF NURSING/UK**	**Scottish neonatal nurses group**	**Australian College of Neonatal Nurses**	**PAN-LONDON BAND 5 Competency document**	**SUMMARYOF THE IDENTIFIED BROAD THEMES AMONG NOMINAL GROUPS AND INTERVIEWS**	**FINDINGS OF PHASE 1 NEONATAL COMPETENCY AND LITERATURE**
			Initiates a plan of care to address the infant's and family's needs		Effective interpersonal skills and relationships with neonates' family	Family centred care
		Responsibility and Accountability			Knowledge and compliance to the legal framework Legal	

					documentation (recordkeeping skills)	
		Health and Safety				
		Personal development		Professional and personal development		
	Equipment and monitoring	Equipment				Equipment management and monitoring
			Functions in accordance with legislation affecting nursing practice		Function within scope of practice (performing the procedures and actions allowed by the governing body for enrolled nurses)	Legislation
		Guidelines and evidence-based practice			Effective nursing of the neonate Neonatal knowledge	
		Contribution to teams' purpose and objectives			Use nursing process and neonatal management skills Use nursing process as a problem-solving process	
		People development		Managing and supporting Staff	Mentoring skills Efficient interpersonal skills Life skills	
		Family centred care			Health education skills Education and training skills Translation of knowledge to primary caregiver	

					of neonate	
					Having qualifications Education and training skills: theoretical and clinical Basic neonatal knowledge and skills Have neonatal knowledge and skills Neonatal skills Advanced theoretical knowledge Advanced neonatal nursing skills	
					Holistic assessment and critical thinking skill Total patient care	
					Planning of staff to ensure a skill mix	
					Physically and mentally healthy-(Coping skills)	

Based on the results of Phase 1, literature related to neonatal care and exploration of existing neonatal competency frameworks, the researcher formulated the abridged neonatal competency list, which will be discussed in the following section.

Literature supports many of the findings from the first phase in the abridged competency list. Basic and advanced knowledge and skills underlying neonatal care include the normal processes of pregnancy and birth including the post partum period which provides a framework to initiate the understanding of factors that may affect the health of the small neonates as well as the healthy and sick neonates (Verklan and Walden 2015:1). The nursing process is used to care for neonates as it represents an organised approach to critical thinking and articulates with the research process and contains key elements which follow and build on previous elements. (Verklan and Walden 2015:833).

Keeping within an ethical legal framework requires nurses to be clear on their role in caring for patients. The care requires the manifestation of autonomy, benificence and justice (Verklan and Walden 2015:840). All members of the team, not only nurses and doctors, involved in caring for the neonate are extremely valuable. This includes the family. A good relationship among the members is vital to ensure that the neonate receives quality and effective care (Verklan and Walden 2015:351).

Daily tasks formed an important part of the discussions such as vital data monitoring and infection prevention activities. The approaches to caring for neonates were also discussed across most groups such as developmental supportive care practices. Psychological and social support for both nurses and parents were mentioned as important.

The nurses recognised that interpersonal skills and communication abilities between parents and a multidisciplinary team should not be left out. Due to the increase in medical litigation all aspects of care should be documented and recorded as required by law.

5.4 ABRIDGED NEONATAL COMPETENCY LIST

The competencies (based on literature and findings from Phase 1) were clustered into two main categories: the first category relates to the foundation of neonatal nursing, and the second category to assessment and management of neonatal systems (medical, surgical and palliative care). Foundational knowledge and skills form the core of preparing a nurse for her role in neonatal nursing and includes theoretical preparation including, but not limited to major theories,

principles and evidence-based practice. The second category relates to assessment and management of conditions of the different neonatal systems.

The abridged competencies are aimed at informing curriculum development and professional development to accommodate technological and medical advancement as well as innovative neonatal research evidence.

5.4.1 Knowledge and skills related to the foundation of neonatal nursing

The foundation of neonatal nursing refers to the basic concepts related to the management and special care of the small, sick and or premature infant.

The foundation of neonatal nursing includes the following:

- Foetal and neonatal development and developmental care
- Family centered and family integrated care
- Essential care of every baby (ECEB)
- Vital data monitoring and diagnostic investigations of healthy and sick neonates
- Medication management
- Resuscitation and essential care of small babies (ECSB)
- Safety, security and therapeutic environment (including equipment)
- Ethical-legal aspects within the specific country context
- Alternative and transcultural care of the neonate

These competencies are seen as essential for basic and advanced neonatal care in general, irrespective of the neonate's condition or diagnosis. Knowledge and skills related to understanding and management of particular conditions to provide individual care are based on foundational knowledge and skills. Different categories of nurses exit with different levels of knowledge and skills which is why the development and validation of a competency framework for the professional development of different categories of nurses in neonatal practice is required.

The second category relates to specific knowledge and skills required to provide medical, surgical and palliative care to neonates. This category covers each body system in detail and continues on the premise set by the previous section, namely the foundations of neonatal care.

Assessment and management of neonatal systems include the following:

- Respiratory system (including ventilation)
- Cardiovascular system (including blood pressure maintenance)

- Neuro-endocrine and musculoskeletal systems (including pain management)
- Fluid and electrolyte homeostasis (including acid base balance)
- Nutrition, metabolic homeostasis and elimination
- Haematological system including infection prevention
- Skin care and hygiene
- Special senses (eyes / ears / nose)

These competencies that relate to specific body systems are needed to provide individual basic or advanced care to prematurely born and ill neonates admitted in a neonatal unit, short or long term. The competencies that were identified in Phase 1 of the study included competencies for registered nurses (without and with additional qualifications) and enrolled nurses. The abridged neonatal competency list (Table 5-4) was dissected in more detail according to the SANC competency framework as well as Benner's novice to expert levels using inductive and deductive reasoning.

The differences between the suggested competencies are clarified in the competency framework that was developed in Phase 3A and refined and validated in Phase 3B.

5.5 VALIDATION OF THE ABRIDGED COMPETENCY LIST (PHASE 2)

The abridged competency list for the neonantal nurse specialist working in the NICU, was validated by neonatal experts before it was converted to align with the South African Nursing Council competency framework (SANC: Reg 786 of 2013) and added to the rubric based on Benner's model (Benner 2001:20) that can be used for professional development. In this section the validation process will be described.

The validation of the abridged competency list was based on the principle of researching consensus or collective agreement, as discussed in Chapter 3, using the Delphi technique. Three rounds were used where electronic feedback was requested from experts until consensus was reached as described by Keeny et al. (2011: 69) and Trevelyan and Robinson (2015: 425) for validation of the abridged competency framework.

5.5.1 The expert panel

The Delphi technique methodology was discussed in Chapter 3. Purposive sampling was used as the researcher identified six recognised experts in the field of neonatal nursing by means of their involvement with the Neonatal Nurses Association of Southern Africa, their academic

standing and niche areas, as well as willingness to participate in the study. Participants in the validation panel had expertise in a number of fields as outlined in Table 5-3.

Table 5-3 Demographic information of Validation panel-List of experts

Validation panel	**Field of expertise**
Validation panel: Expert 1	Field of expertise include: Didactics Curriculum Theory Adult Education PhD in Nursing More than 10 years clinical nursing in leadership positions in neonatal care Trained paediatric nurse Neonatal nurse consultant for more than 10 years Involved in the Neonatal Nurses Association of Southern Africa in a leadership position Involved in Council of International Neonatal Nurses activities
Validation panel: Expert 2	Involved in Council of International Neonatal Nurses activities Involved in international neonatal projects and has helped establish a neonatal unit in a district hospital in Sub-Saharan Africa. PhD in Nursing Certified neonatal/paediatric nurse practitioner
Validation panel: Expert 3	Highest academic qualifications include diploma in general nursing and neonatal certificate Involved in the Neonatal Nurses Association of Southern Africa in a leadership position Involved in Council of International Neonatal Nurses activities Neonatal Health Programme Manager on provincial level for the Department of Health Neonatal nurse consultant for more than 10 years Neonatal Experiential Learning Site Coordinator
Validation panel: Expert 4	Involved in the Neonatal Nurses Association of Southern Africa in a leadership position Involved in Council of International Neonatal Nurses activities Neonatal consultant More than 10 years clinical nursing in leadership positions in neonatal care Senior Lecturer, Critical Care (Child) Nursing
Validation panel: Expert 5	Trained advanced Midwife and Neonatal nurse PhD Nursing Senior Lecturer (Midwifery)

	Neonatal consultant Involved in the Neonatal Nurses Association of Southern Africa in a leadership position Involved in Council of International Neonatal Nurses activities
Validation panel: Expert 6	Neonatal consultant PhD in Nursing Neonatal trained Involved in the Neonatal Nurses Association of Southern Africa in a leadership position Involved in Council of International Neonatal Nurses activities

5.5.2 Round 1

The list of components that should be included in the competency framework, as seen in Table 5-4 (Abridged competency list) was circulated by email to the six experts. The instruction to the experts was to consider the items included in the competency framework and indicate whether the items should be included or not. The experts were encouraged to make any suggestions or comments that they deemed necessary. A period of seven (7) days was allowed for feedback. The feedback was in the form of written comments (electronic or hard copy) to ensure that the researcher understood and interpreted the feedback correctly.

Table 5-4 Abridged neonatal competency list circulated to experts (developed from Phase 1 data).

Abridged neonatal competency list (developed from phase 1 results)
Knowledge and skills related to the foundation of neonatal nursing
Foetal and neonatal development and developmental care
Family centred and family integrated care
Essential care of every baby (ECEB) and essential care of small babies (ECSB)
Vital data monitoring and diagnostic investigations of healthy and sick neonates
Medication management
Resuscitation (basic and advanced) and transport
Safety, security and therapeutic environment (incl. equipment)
Ethical legal aspects within the specific country context
Alternative and transcultural care of the neonate

Knowledge and skills related to assessment and management (medical/ surgical/ palliative) of the neonatal systems:
Respiratory system (incl. ventilation)
Cardiovascular system (incl. blood pressure maintenance)
Neuro-endocrine and musculoskeletal systems (incl. pain management)
Fluid and electrolyte homeostasis (incl. acid base balance)
Nutrition, metabolic homeostasis and elimination
Haematological system including infection prevention
Skin care and hygiene
Special senses (eyes/ears/nose)

During the first round of feedback two of the experts responded in writing electronically (via email). The verbatim account of the expert feedback is seen below.

Expert 1 requested clarification of the items (competencies) included.

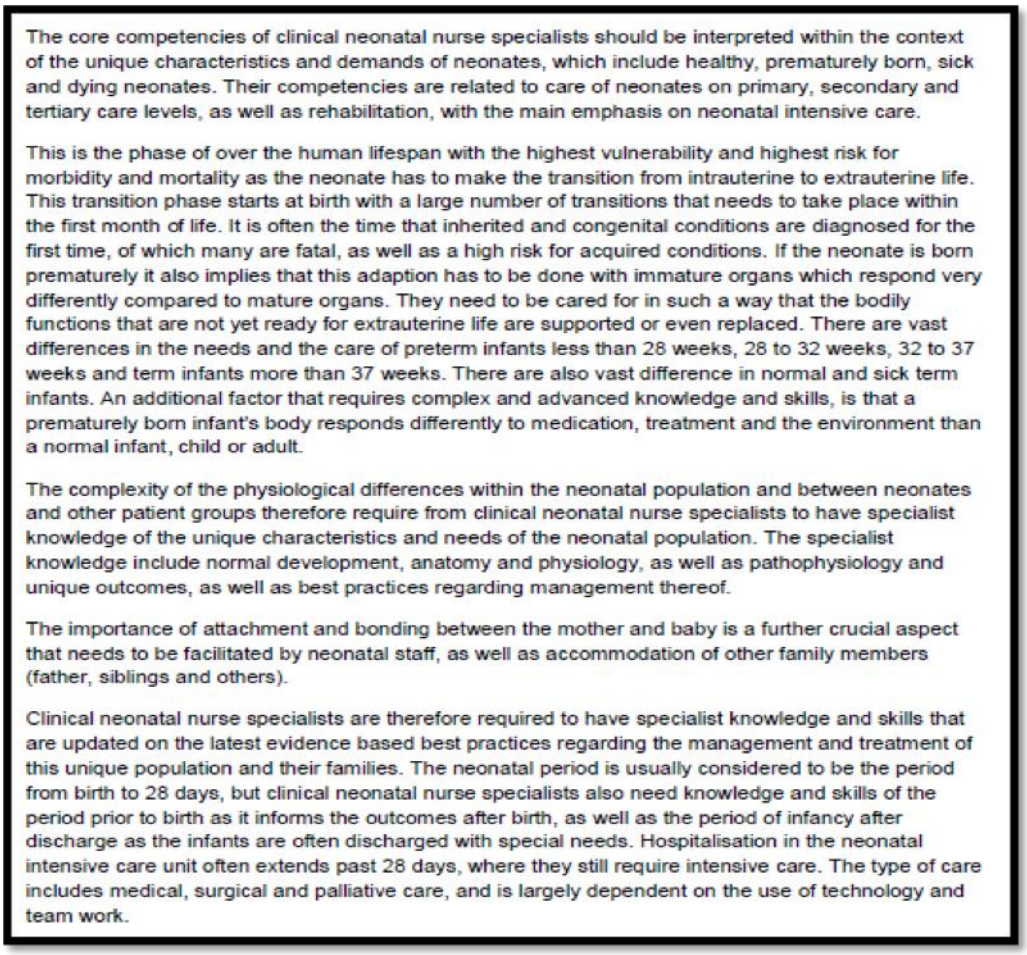
> *"My concern is the competencies seem vague and could they be applied to any advanced midwife or any nurse? Or were the more in-depth competencies to come later after they approve the neonatal nurse specialist and nurse practitioners? "*

Expert 2 also wanted clarification on whether the competencies should be *"tightened up".*

The other experts, agreed on the content of the abridged neonatal competency list and did not require any changes nor made any suggestions to add any further commnents. The abridged neonatal competency list was a concise summary of the themes that were identified during Phase 1 which was also suported by literature. This competency list was then translated and aligned with the appropriate sections of the generic SANC competency framework and Benner's novice to expert model.

5.4.3 Round 2

The two comments from the experts were considered and the researcher included an explanation and clarification as seen in Figure 5-1, of the competencies that were circulated during the first round.



The core competencies of clinical neonatal nurse specialists should be interpreted within the context of the unique characteristics and demands of neonates, which include healthy, prematurely born, sick and dying neonates. Their competencies are related to care of neonates on primary, secondary and tertiary care levels, as well as rehabilitation, with the main emphasis on neonatal intensive care.

This is the phase of over the human lifespan with the highest vulnerability and highest risk for morbidity and mortality as the neonate has to make the transition from intrauterine to extrauterine life. This transition phase starts at birth with a large number of transitions that needs to take place within the first month of life. It is often the time that inherited and congenital conditions are diagnosed for the first time, of which many are fatal, as well as a high risk for acquired conditions. If the neonate is born prematurely it also implies that this adaption has to be done with immature organs which respond very differently compared to mature organs. They need to be cared for in such a way that the bodily functions that are not yet ready for extrauterine life are supported or even replaced. There are vast differences in the needs and the care of preterm infants less than 28 weeks, 28 to 32 weeks, 32 to 37 weeks and term infants more than 37 weeks. There are also vast difference in normal and sick term infants. An additional factor that requires complex and advanced knowledge and skills, is that a prematurely born infant's body responds differently to medication, treatment and the environment than a normal infant, child or adult.

The complexity of the physiological differences within the neonatal population and between neonates and other patient groups therefore require from clinical neonatal nurse specialists to have specialist knowledge of the unique characteristics and needs of the neonatal population. The specialist knowledge include normal development, anatomy and physiology, as well as pathophysiology and unique outcomes, as well as best practices regarding management thereof.

The importance of attachment and bonding between the mother and baby is a further crucial aspect that needs to be facilitated by neonatal staff, as well as accommodation of other family members (father, siblings and others).

Clinical neonatal nurse specialists are therefore required to have specialist knowledge and skills that are updated on the latest evidence based best practices regarding the management and treatment of this unique population and their families. The neonatal period is usually considered to be the period from birth to 28 days, but clinical neonatal nurse specialists also need knowledge and skills of the period prior to birth as it informs the outcomes after birth, as well as the period of infancy after discharge as the infants are often discharged with special needs. Hospitalisation in the neonatal intensive care unit often extends past 28 days, where they still require intensive care. The type of care includes medical, surgical and palliative care, and is largely dependent on the use of technology and team work.

Figure 5-1 Explanation and clarification of the competencies in Table 5-4

The researcher circulated the document with competencies (Table 5-4) as well as the clarification (Figure 5-1) from round one, by email to the six experts for a second round. Feedback from Expert 3 during round 2 produced the following remark:

> *"I also have a bit of a concern about the competencies – it is very open to interpretation"*

To address the feedback from Expert 3 the third round was initiated. The other experts responded by indicating that they had no comments, suggestions or concerns.

5.5.4 Round 3

Clarification was provided by the researcher in response to Expert 5's concern, subsequent to the second round and the document was circulated for a third round to all 6 experts.Table 5-4 and Figures 5-1 and 5-2 were circulated in a third round to all 6 experts. The researcher's clarification was as follows:

> *"The competency framework needs to be extensive enough to last for the next twenty or more years. The competency framework is formulated in such a way that it leaves enough room for new evidence to be accomodated within the framework and therefore should be used to inform the macro-, meso and microcurriculum, and not include specific management of treatment avaiable or relevant on the given time."*

Feedback was received from all 6 experts. All the experts reached consensus and accepted the abridged competency list. An example of a comment that was made by Expert 5 reads as follows:

> *"I think the document reads very well, and the motivational aspect is strong. I have no additional comments to make."*

All of the experts reviewed the abridged competency list during the three rounds. After the third round there were no additional comments from the expert panel and the abridged competency list was accepted as adequate. The abridged competency list was then dissected in more detail according to the SANC competency framework (SANC May 2014; SANC Reg.786; SANC 2004) as well as Benner's novice to expert levels using inductive and deductive reasoning as discussed in the following section.

5.6 PHASE 3A DEVELOPMENT OF A COMPETENCY FRAMEWORK FOR THE PROFESSIONAL DEVELOPMENT OF DIFFERENT CATEGORIES OF NEONATAL NURSES

The abridged competency list (based on findings from Phase 1) was dissected according to the South African Nursing Council competency framework, Benner's model (theoretical framework) and a literature review. Competency findings from Phase 1, 2 and 3 A and expert reviewers were aligned with the South African Nursing Council competency framework items. The levels of competency from the Novice to Expert Model (Benner 2001: 20) were expanded to include the performance characteristics and requirements at each level of development. The performance characteristics of the enrolled nurse (Tabel 5-10) is at a lower level than the professional nurse

(Table 5-11). The neonatal nurse specialist (Table 5-12) shows the higest level of performance characteristics.

The abridged competency list (Table 5-5) consists of two broad sections. Firstly knowledge and skills related to the foundation of neonatal nursing and knowledge and skills related to assessment and management (medical/ surgical/ palliative) of the neonatal systems. The main themes are supported by literature reflected in Table 5-5 below. The abridged competency list accepted by the experts was specific to neonatal nursing but had to be translated into the generic competency framework of the South African Nursing Council, and Nursing Act Regulation 786 (South Africa 2005; SANC 2014a; SANC 2004), which is applied by South African Nursing Council as the regulatory body of nursing in South Africa (South Africa 2005). The competency framework of the professional nurses was taken as a basis for integration. In the last phase of the study it was adjusted to accommodate competencies of other categories of nurses.

Table 5-5 Abridged neonatal competency list (developed from Phase 1 data and a literature control).

Abridged neonatal competency list (developed from Phase 1 results)	**Literature Control**
Knowledge and skills related to the foundation of neonatal nursing	**Knowledge and skills include critical thinking skills and descision-making skills**
Foetal and neonatal development and developmental care	In utero infants depend on the physiological stability of the mother in order to grow and develop. When an infant is born the infant's physiological needs must be met with care in an environment which supports neonatal development (Gardner, Carter, Hines and Hernandez 2016:262).
Family centred and family integrated care	Families are concerned when infants require intensive care when they are born. In order to care for and manage infants a family-centrered multidisciplinary team approach is used. Intergrating family centred principles into the discharge planning ensures that both the parents and infant adapt better into the transition from hospital care to home

	care (Gardner et al. 2016:903).
Essential care of every baby (ECEB) and essential care of small babies (ECSB)	The essential care of every baby (ECEB) is a programme that uses interactive learning strategies to improve cognitive knowledge and to develop skills of healthcare providers working with newborn infants (Esamai, Lockyer, Bose, Keenan, Singhal, McMillan, Bucher, Thukral, Berkelhamer, Deorari, Faremo and Niermeyer 2015: 2). Essential care of small babies (ECSB) was developed with post resuscitation and continued care guidelines of the small well babies (Prullage and Baker 2018: 50).
Vital data monitoring and diagnostic investigations of healthy and sick neonates	Major advances have been made in the management of newborns in the last sixty years. Non-invasive monitoring is one of the major steps to reduce invasive monitoring of healthy and sick neonates (Gardner et al. 2016:126). Assesment of pain in neonates is difficult because they cannot verbalise their subjective experience (Gardner et al. 2016:229).
Medication management	Appropriate and correct use and administration of medication is important because the appropriate dose and interval has an effect on pharmacokinetics and pharmacodynamics of the neonate (Gardner et al. 2016:192).
Resuscitation (basic and advanced) and transport	Immediate and effective resuscitation of the neonate can reduce or prevent mortality and morbidity (Gardner et al. 2016:50). In the event that a newborn requires transport after birth the infant must be resuscitated and stabilised prior to transfer to a facility where appropriate resources and expertise are available (Gardner et al. 2016:32).
Safety, security and therapeutic environment (incl. equipment)	A therapeutic environment is an environment which supports development and where modifications are made

	to reduce stress, protect sleep and to allow parent interaction without interruption. Attention should be given to reduce noise, individualise lighting and to ensure a healthy environment (Verklan and Walden 2015:208).
Ethical legal aspects within the specific country's context	Ethical dilemmas develop when well intended actions compete with ethical principles. Technological advancement brings ethical questions to the forefront of care (Verklan and Walden 2015:843).
Alternative and transcultural care of the neonate	Cultural values and beliefs play a role in how parents understand and interpret information in the NICU. Different cultures have different understanding of situations and different needs to interact with the neonate (Verklan and Walden 2015:334).
Knowledge and skills related to assessment and management (medical/ surgical/ palliative) of the neonatal systems:	**Literature Control**
Respiratory system (incl. ventilation)	Diseases that are resiratory in origin are life-threatening to newborns. The common to complex respiratory problem needs to be understood in terms of pathophysiology, clinical presentation, differential diagnosis and management thereof (Verklan and Walden 2015:447).
Cardiovascular system (incl. blood pressure maintenance)	Technological advances in foetal echocardiography have contributed to early diagnosis of cardiovascular conditions that were previously incompatible with life. Early intervention is essetial to minimise morbidity and or early death(Verklan and Walden 2015:527).
Neuro-endocrine and musculoskeletal systems (incl. pain management)	The human brain is fragile. If development is interrupted or if a baby is injured during birth the baby is at risk of dying.

	Knowledge of neuro-development, neuro-physiology and neuro-malformations is required (Verklan and Walden 2015:734). Endocrine disorders are rare in newborns but can have lifelong effects on the infant (Verklan and Walden 2015:632). An understanding of growth and maturity of the neonate is required to define wellness or to identify potential problems (verklan and Walden 2015:110). The prevention of pain in neonates is an ethical obligation and in order to manage pain effectively there should be a deep understanding of pain pathways, identification of pain and intervention to relieve pain in neonates (Verklan and Walden 2015:316).
Fluid and electrolyte homeostasis (incl. acid base balance)	In order to succsessfully transition to extrauterine life a neonate should be able to achieve an acid-base balance as well as a fluid and electrolyte balance, homeostasis and control (Verklan and Walden 2015:146).
Nutrition, metabolic homeostasis and elimination	Nutritional care is very important to the survival of premature and sick infants considering that they do not have the benefit of receiving nutrients through the placenta. Some infants have special needs related to illness and metabolic demands. A deep understanding of parenteral and enteral nutrition and nursing interventions for optimal nutritional support is required (Verklan and walden 2015:172).
Haematological system including infection prevention	Knowledge of blood cell development, coagulation factors, normal birth values and a range of diagnostic tests are required by the neonatal nurse. Blood transfusions and products can affect the newborn's health (Verklan and Walden 2015:662). The immature immune system of neonates make them more susceptible to infection during the time of birth than at any other time during their lives.

	Early detection and treament of sepsis is very important. Knowledge of common neonatal infections, treatment modalities and the latest recommendations to reduce hospital acquired infections is required by neonatal nurses (Verklan and Walden 2015:689).
Skin care and hygiene	The skin is the first line of defence against infection in neonates, but particularly in the preterm infant. Proper skincare is required to keep the skin intact and to prevent breakdown. The skin can also provide information regarding the infant's nutritional status, gestation and function of the heart and liver (Verklan and Walden 2015:795).
Special senses (eyes/ears/nose)	Clinically significant information can be collected by assessing the eyes and ears of a neonate. Several conditions can be identified such as congenital infection and malformations, genetic abnormalities and disease. Knowledge of the normal structure and function is essential during assessment of the neonate (Verklan and Walden 2015:813).

The South African Nursing Council competency framework is divided into three parts, namely; professional and ethical, care provision and care management, and personal development and quality care. Each of these are then subdivided into smaller components (SANC 2014a; SANC 2004b):

5.6.1 Professional and ethical component

The first component is the professional and ethcial component which the South African Nursing Council describes as the moral and ethical principles that inform nurses how to perform their duties.

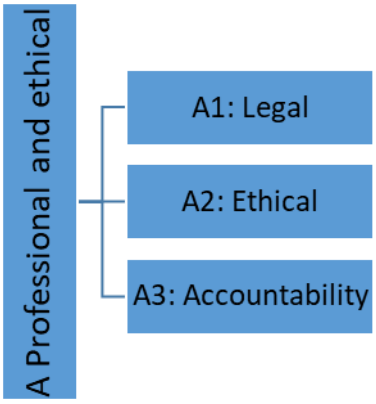


Figure 5-2 Professional and ethical component (SANC 2014a; SANC 2004)

It is expected of professional nurses to behave in a professional way as it shows people that the professional in question is reputable and intelligent and will perform their profession with dignity and gracefulness (Geyer 2013:57). Central to professional behaviour is acting ethically. It is a code of conduct that includes autonomy, non-maleficence, beneficence and justice, and includes an awareness of the vulnerability of patients (Geyer 2013:22). Professional behaviour can be learnt by professional socialisation when surrounded by professional people through observation and by learning from them as they work, building on current knowledge (Geyer 2013:23).

The integration of the relevant aspects identified in the abridged competency list with this component is indicated in Table 5-6.

Table 5-6 Integration of South African Nursing Council competency (professional, ethical and legal practice) framework into abridged competency list.

A. Professional, ethical and legal practice	**Number in abridged competency list**
A1: Professional practice	
• Display professional autonomy, accountability and responsibility within scope of practice	1.8
• Practice reflectively and evidence-based	1.5
• Act as a role model	1.2
• Function as part of an interprofessional healthcare team	1.2
A2: Ethical practice	

• Adhere to ethical principles and bio-ethical decision making in practice	1.8
• Advocate for neonates and their families and protect human rights	1.7
• Be sensitive to cultural, religious, language, professional and technological diversity in healthcare	1.9
A3: Legal practice	
• Comply with relevant acts and regulations, policies, guidelines, protocols and algorithms	1.8

In the South African Nursing Council competency framework accountability and the responsibility for own judgement, outcomes of care and continued competence according to legislation is noted. The ethical practice is broadly described in terms of the nurses' code of conduct, ethical descision making, advocacy as well as professional integrity (SANC 2014a:1).

5.6.2 Care provision and management

The second component is related to care provision and care management (Figure 5-3), which refers to the underpinning of the provision of care including an assessment and analysis of data; knowledge and clinical thinking skills to plan care and ability to respond timeously to changing situations (SANC 2014a:6).

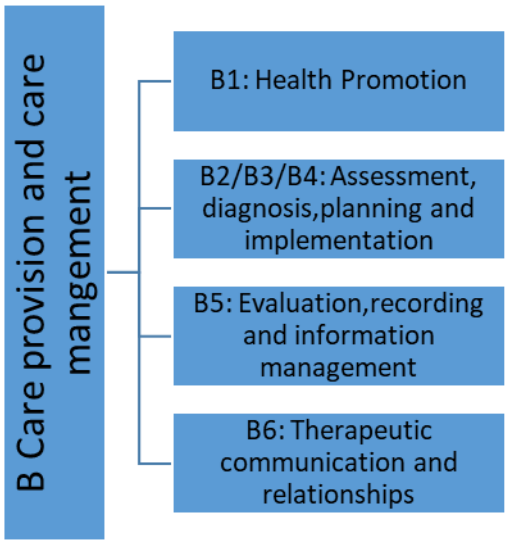


Figure 5-3 Care provision and management (SANC 2014a; SANC 2004)

Care provision and care management requires nurses to implement the rules of safe practice (Geyer 2013:127) by provision and management of care. The integration of the competency frameworks and competency list is indicated in Table 5-7.

Table 5-7 Integration of SANC competency (Care provision and care management) framework into competency list.

B. Care provision and care management	**Number in abridged competency list**
B1: Health promotion	
Create awareness, provide care and implement the following: • Essential care of every baby (ECEB)	1.3
• Hygiene and infection prevention	2.7
• Developmental care (including Kangaroo care)	1.1
• Exclusive breastfeeding	2.5
• Immunisation	2.6
• Health education	1.2
B2, 3 and 4: Assessment, diagnosis, planning and implementation	
The following prior knowledge is required to enable competency in neonatal care:	
• Principles of nursing process	1.4
• Basic anatomy and physiology of a normal neonate of the following systems:	
• Respiratory	2.1
• Cardiovascular	2.2
• Neuro-endocrine	2.3
• Musculoskeletal	2.3
• Genitourinary	2.5
• Gastrointestinal	2.5
• Haematological	2.6
• Integumentary	2.7
• Eyes	2.8
• Ears	2.8
• Principles of pharmacology and medication management	1.5
Be knowledgeable about foetal and neonatal development and developmental care (including the “Golden hour”, Kangaroo care and facilitation of bonding and attachment)	1.1
Create a safe, secure and therapeutic environment	1.7

B. Care provision and care management	**Number in abridged competency list**
Be able to assess and diagnose the different systems of a normal, premature and ill neonate as related to:	1.3
6. History taking (family history, pregnancy, birth, postnatal)	1.3
• Physical assessment (inspection, palpation, auscultation and percussion; reflexes, gestational age assessment)	1.4
• Vital data (APGAR at birth, temperature, respiration, heart rate and pattern, oxygen saturation, blood pressure, blood glucose, pain assessment)	1.4
• Diagnostic investigations (acid-base balance, fluid and electrolyte balance, haematological investigations, electrocardiography, amplitude-integrated electroencephalography, radiographic investigations, eye screening, hearing assessment, drug levels)	2.4
• Diagnosing: nursing and medical diagnosis	1.4
Conduct basic and advanced resuscitation of neonates	1.6
Plan and implement care of the different systems of a normal, premature and ill neonate (including, but not limited to essential care of small babies (ECSB):	
• Respiratory system, including prevention of olfactory overstimulation, management of structural and acquired respiratory defects (e.g. surfactant therapy, intubation, ventilation and oscillation)	2.1
• Cardiovascular system, including blood pressure maintenance and management of conduction disorders and structural cardiac defects	2.2
• Neuro-endocrine and musculoskeletal system, including developmental care, pain management and management of birth complications, intracranial haemorrhage, structural and conduction defects and endocrine disorders	2.3
• Genitourinary system, including fluid and electrolyte homeostasis and management of genital and renal defects	2.5
• Gastrointestinal system, including blood glucose homeostasis, feeding, nutrition and elimination, metabolic homeostasis, management of metabolic disorders, structural defects (congenital and acquired) of the mouth, throat and digestive system	2.5
• Haematological system, including management of blood disorders of red blood cells and platelets, and disorders related to immunity and communicable diseases • Integumentary system, including protection of premature skin integrity, thermoregulation, implementation of skin-to-skin care and management of congenital and acquired skin disorders	2.6
• Eyes, including prevention of blindness and management of eye disorders	2.8
• Ears, including prevention of hearing loss and vestibular disturbances, management of structural and acquired ear defects and hearing loss	2.8

B. Care provision and care management	Number in abridged competency list
Apply principles of medication management as related to the management of the above systems	
Transport healthy, premature and ill neonates, including skin-to-skin transport	1.6
B5: Evaluation, recording and information management	
Develop or obtain, maintain and store: • Nursing care plan, continuous nursing records and digital information	1.4
• Records of investigations and treatment	1.4
• Information, including protection of personal information	1.8
B6: Therapeutic communication and relationships	
Implement: • Family-centred / family-integrated care	1.2
• Alternative and transcultural care	1.9
• Interprofessional teamwork	1.2

The South African Nursing Council competency framework discusses health promotion in terms of assessment of needs, development of a needs programme and a follow-up system (SANC 2014a:2). In Table 5-7 health promotion was dissected in terms of the neonatal context. Assessment, diagnosis, planning and implementation is briefly discussed in the South African Nursing Council competency framework (SANC 2014a: 3). In Table 5-7 the items mentioned are dissected in more detail. The detail of Table 5-7 is provided to indicate the unique context that is required for the new competency framework being developed in this study.

5.6.3 Personal development and quality of care

The last component refers to personal development and quality of care. Best practice guidelines and nursing practice standards should be developed for the health care environment. Early identification of risks and appropriate action is important to ensure quality of care. In order to ensure professional development, life long learning and the maintenance of competency is essential (SANC 2014a:4).

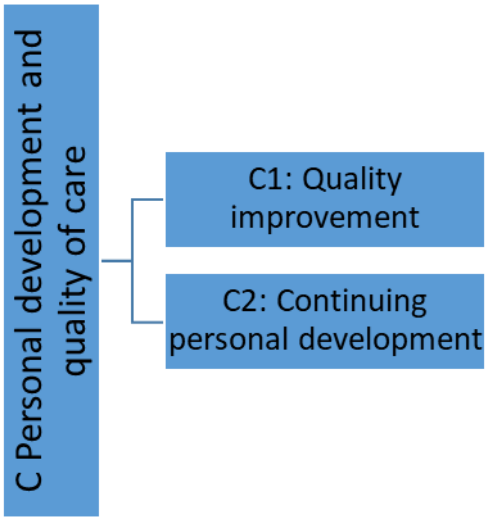


Figure 5-4 Quality of care (SANC 2014a; SANC 2004b)

Quality of care refers to safe, effective, patient-centered, timely, efficient and equitable care that will improve the desired health outcomes (Geyer 2013:21). A patient should be nursed in a physical and psychosocial situation that is conducive to safe care, quick recovery or a peaceful death. In addition to providing an environment that is conducive to healing, the environment should be managed in a manner that portrays a competent caring pratitioner. These conditions should be established in every nursing situation a nurse may find herself. The nurse is obliged not only to provide treatment but to assess the effects of such treatment and care. (Human and Mogotlane 2017:93).The integration of the competency frameworks as related to this last component is included in Table 5-8.

Table 5-8 Integration of SANC competency (personal development and quality of care) framework into abridged competency list.

C. Personal development and quality of care	**Number in abridged competency list**
C1: Quality improvement	Personal development and quality of care is integrated in the foundation of
• Assess, plan, implement and evaluate quality improvement processes and initiatives	
• Implement strategies to address neonatal mortality and morbidity	
• Translate research findings to contribute to setting standards and development of best practice guidelines and policies	
• Enhance inter-professional teamwork in neonatal care	
• Manage human and material resources, including but not limited to	

budget, equipment, staffing, environment and service delivery • Contribute to staff development and nursing practice through education C2: Continuing personal development • Engage and create a culture of lifelong learning and continuous professional development	neonatal nursing (1.1-1.9) as well as the knowledge and skills related to neonatal assessment and management (2.1- 2.8).

Quality improvement and continuing professional development is discussed in the SANC competency framework (SANC 2014a:4). In Table 5-8 these two items were included and broadly discussed in terms of the neonatal context. Continuing personal development is the last part of the SANC competency framework and is closely linked with quality care and professional development.

5.7 PROFESSIONAL DEVELOPMENT BASED ON COMPETENCIES

Professional development can be defined as “the continuous process of acquiring new knowledge and skills that relate to one’s profession, job responsibilities, or work environment”. (Oyetunde and Oluwafunke 2015:93). In order to ensure that employees remain trained, informed and motivated, sufficient attention needs to be focussed on professional development.

Professional development is also a continous personal commitment to maintain one’s own knowledge and skillbase. Professional development enables nurses to increase their skill level and permits them to advance throught Benner’s levels of competence (Benner 1984:4).

Professional development is linked to neonatal competencies in this study. As the nurse advances in her competency level the nurse is also growing professionally. If there is a mismatch the unit manager can identify the particular area and address it in the development planning for the individual. In this section the levels of professional development are described according to Benner’s model (Benner 2001:20). At every competency level certain performance characteristics are evident as indicated in Table 5-9.

5.7.1 Performance characteristics on different levels of competency (neonatal nurse specialist)

The performance characteristics and requirements at each level of development (Benner 2001:20-38; Prullage 2015:3) are summarised in Table 5-9. The characteristics at each level describe the teaching and learning needs of the individual from novice to expert.

Table 5-9 Performance characteristics and requirements at each level of development (Prullage 2015:3)

Level	Performance characteristics
Novice	- Beginner nurse or midwife. - Has no previous experience with patient population (well, sick or compromised infant). - Requires entry to patient population in order to gain experience necessary for skill development. - Needs information about the situation in terms of objective aspects (measurable parameters). - Educated on the context free rules to guide action related to different objectives. - Requires set rules to guide performance measured against successful performance. - Requires theoretical knowledge but lacks understanding of the contextual meaning thereof. - Lacking context dependant judgement.
Advance Beginner	- Demonstrates marginal acceptable performance. - Requires guidelines to assist with interpretation of clinical situations. - Has experienced actual situations allowing understanding of situational components. - Requires support in the clinical setting to prioritise as they only operate on general guidelines. Nursing care of patients needs to be backed up by competent level nurses.
	- The nurse begins to see actions in terms of long range goals. - Consciously aware of long term outcome of actions.

Level	Performance characteristics
Competent Nurse	- Establishes a perspective based on conscious, abstract, analytical and deliberate contemplation of the plan to achieve efficiency. - Lacks speed and proficiency of the proficient nurse. - Has the ability to cope and manage many different clinical nursing situations.
Proficient Nurse	- Perceives situations as whole rather than different aspects. - Performance guided by perceptions developed by experience and recent events. - Effective in managing all the different levels of neonatal care. - Understands situations as a whole and knows what to expect in a given situation and how a plan needs to be modified to be able to respond when the expected normal does not materialise. - Holistic understanding improves decision making. - Proficient performance can generally be found in nurses working with analogous populations for three to five years. - Demonstrates required competencies to manage a complex neonatal patient. - It is expected that the proficient nurse can work independently. - The proficient neonatal nurse can take the roles of a shift leader, a transport nurse, clinical nurse specialist, lactating consultant, practice development, clinical educator or in community outreach projects as leader. - The proficient nurse may be involved in management, education, practice development and research related to the neonatal field. - The neonatal nurse would be expected to have a master's degree in neonatology or should be working towards it.
	- The expert neonatal nurse has advanced knowledge, skills and competencies. - The expert neonatal nurse does not rely on an analytical principle (rule, guideline and maxim) to understand and manage a situation appropriately. - They have a vast background and experience of knowing when something

Level	Performance characteristics
	is not right.
Expert	- Intuitive understanding of situation and focus on problem area without considering other diagnoses and explanations. - The expert neonatal nurse has perceptual acuity and certainty. - Analytical problem solving is used when alternative perspectives are not available. - The roles the expert neonatal nurse occupies vary and can include neonatal management, education, practice development facilitator/ researcher or advanced neonatal specialist. - The expert neonatal nurse has a master's degree or possibly a doctorate or is working towards a doctorate. - The neonatal expert should participate in strategic planning for a neonatal unit and should be a champion for the neonatal patient population.

In Table 5-9 the professional nurse was described by means of depicting typical performance characteristics at each level from the novice to the expert. The level of knowledge and skills was described and it is clear that as the nurse grows in experience, her level of functioning and responsibility increases.

5.8 EXPANSION OF COMPETENCIES OF NURSES INVOLVED IN NEONATAL CARE

The neonatal competency framework formulated thus far, was integrated with the description of Benner's model as described in Table 5-9, in the format of a framework which can be used for professional development. It is described in relation to the three components obtained from the SANC framework: professional and ethical, care provision and management of care, and professional development and quality care (SANC 2014a).

The interpretation of the tables, that follow this section, is as follows:

- There are three different tables for the different categories of nurses: enrolled nurse (Table 5-10), professional nurse (Table 5-11) and the neonatal nurse specialist (Table 5-12) who are involved in neonatal care.
- The column on the left hand side includes the criteria expected of the respective categories of nurses.

- The criteria are clustered according to the SANC competency framework: professional, ethical and legal practice; care provision and care management and personal development and quality of care.
- The second column contains the competency findings from Phase1, 2 and 3A.
- It is important to note that the levels of competency as described by Benner (Benner 2001:20-38) imply that each person in his own category (scope of practice) has the ability to move from beginner to expert. An expert in this context does not imply specialist training.
- Columns 3 to 7 include the levels of competency according to Benner's model.
- For professional development a person's level of competence can be measured for each respective criterium, or according to clusters (e.g. A1: Professional practice).
- A nurse in a particular category can also use the tool to monitor their own professional development.

5.8.1 Competency framework for professional development of an enrolled nurse in neonatal practice

Enrolled nurses are nurses that are involved with acts or procedures that form part of the nursing regime planned and initiated by a registered nurse or registered midwife and carried out under their direct control or indirect supervision (McQuoid-Mason and Dada 2009:201). In the context of this study enrolled nurses work in the nursery, high care or intensive care unit. Enrolled nurses are enrolled under the Nursing Act (No.50 0f 1978) and from 2020, no further qualifications or training are available to the enrolled nurse (Human and Mogotlane 2017:52).

Table 5-10 Competency framework for the enrolled nurse in neonatal practice (Section A, B and C)

Enrolled nurse in neonatal practice						
CRITERIA EXPECTED OF THE RESPECTIVE CATEGORIES OF NURSES SANC Competency framework (SANC 2014: Generic competency framework for advanced practitioners)	**Competency findings from Phase 1, 2 and 3 A and expert reviewers.**	**LEVELS OF COMPETENCY Performance characteristics and requirements at each level of development Novice to Expert Model (Benner 2001: 20-38)**				
A. Professional, ethical and legal practice		**Novice**	**Advanced Beginner**	**Competent Nurse**	**Proficient Nurse**	**Expert**
A1: Professional practice	Display professional autonomy, accountability and responsibility within scope of practice. Act as a role model. Function as part of an interprofessional healthcare team.	-Beginner nurse -Has no previous experience with patient population (sick or compromised neonates) -Requires entry to patient population in order to gain experience necessary for	-Demonstrate acceptable performance with room for improvement of performance -Requires guidelines to assist with interpretation of clinical situations -Has experienced actual situations	-Begins to see actions in terms of long range goals -Consciously aware of long term outcome of actions -Establishes a perspective based on conscious, contemplation of the plan to achieve efficiency	-Perceives situations as whole rather than different aspects -Performance guided by perceptions developed by experience and recent events -Understands neonatal situations and knows what to	-Has knowledge, skills and competencies to support the professional nurse -They have neonatal nursing background and experience (at least 5 years)
A2: Ethical practice	Adhere to ethical principles and bio-ethical decision making in practice. Advocate for neonates and their families and protect human rights. Be sensitive to cultural, religious, language, professional and technological diversity in healthcare.					
A3: Legal practice	Comply with relevant acts and regulations, policies, guidelines, protocols and algorithms.					
B. Care provision and care management						
B1: Health promotion	Create awareness, provide care and implement the following: - Essential care of every baby (ECEB); - Hygiene and infection prevention; - Developmental care (including skin to skin care); - Exclusive breastfeeding;					

Enrolled nurse in neonatal practice						
CRITERIA EXPECTED OF THE RESPECTIVE CATEGORIES OF NURSES SANC Competency framework (SANC 2014: Generic competency framework for advanced practitioners)	**Competency findings from Phase 1, 2 and 3 A and expert reviewers.**	**LEVELS OF COMPETENCY Performance characteristics and requirements at each level of development Novice to Expert Model (Benner 2001: 20-38)**				
	- Health education.	skill development -Needs information about the situation in terms of objective aspects (measurable parameters) -Requires set rules to guide performance -Requires theoretical knowledge but has a lack in understanding the contextual meaning thereof -Lacking context is dependant and has no judgement	-Requires support in the clinical setting -Nursing care of patients needs to be backed up by competent level nurses	-Lacks work speed and proficiency of the proficient nurse -Has the ability to cope	expect in a given situation -Proficient performance working with neonatal populations with registered nurses -Demonstrates required competencies to manage neonatal patients under supervision	
B2, 3 and 4: Assessment, diagnosis, planning and implementation	The following prior knowledge is required to enable competency in neonatal care: - Principles of nursing process; - Basic nursing assessment care of a normal and sick and at risk neonate; - Developmental care (including the "Golden hour"/ immediate after birth care, skin to skin care and facilitation of bonding, breastfeeding and attachment); - Create a safe, environment. - Able to assess the different systems of a normal, premature and ill neonate as related to: - Vital data (temperature, respiration, heart rate, oxygen saturation, blood pressure, blood glucose, pain assessment); - Assist with basic resuscitation of neonates(including the commencement of bagging); –Implement care of the different systems of a normal, premature and ill neonate in collaboration with and under supervision of the professional nurse, and report abnormalities or deviations; - Respiratory system, including prevention of olfactory overstimulation and appropriate monitoring of oxygen therapy and provision of respiratory support by means of non-invasive ventilation e.g. nCPAP and identification of severe respiratory distress and need for urgent intervention/ referral ; - Cardiovascular system, including blood pressure maintenance; - Neurological, endocrine and musculoskeletal system, including developmental care, - Pain management including non-pharmaceutical pain management; - Genitourinary and gastrointestinal system, including blood glucose homeostasis, feeding, nutrition and elimination; - Integumentary system, including protection of premature skin integrity, thermoregulation, implementation of skin-to-skin care; - Eyes, including prevention of blindness and visual impairment (environmental light control); - Ears, including prevention of hearing loss and vestibular disturbances(environmental sound control);					

Enrolled nurse in neonatal practice						
CRITERIA EXPECTED OF THE RESPECTIVE CATEGORIES OF NURSES SANC Competency framework (SANC 2014: Generic competency framework for advanced practitioners)	**Competency findings from Phase 1, 2 and 3 A and expert reviewers.**	**LEVELS OF COMPETENCY Performance characteristics and requirements at each level of development Novice to Expert Model (Benner 2001: 20-38)**				
	- Transport healthy neonates, including skin-to-skin transport.					
B5: Evaluation, recording and information management	Maintain and store: - Nursing care plan, continuous nursing records and digital information; - Records of investigations and treatment; - Information, including protection of personal information.					
B6: Therapeutic communication and relationships	Contribute to: - Family-centred / family-integrated care; - Alternative and transcultural care; - Inter-professional teamwork.					
C. Personal development and quality of care						
C1: Quality improvement	Contribute to quality improvement processes and initiatives.					
C2: Continuing personal development	Engage in a culture of lifelong learning and continuous professional development.					

Professional development is clearly implied with Benner's novice to expert model. There is a clear link between the level of knowledge and skills and the competency level. Every category of nurse, and in this case the enrolled nurse has a need to improve knowledge. This need for knowledge was expressed during Phase 1. This framework highlights the minimum competencies and may change as the categories change in future (new qualifications). This is an area which could possibly be adressed by futher research.

5.8.2 Competency framework for professional development of a professional nurse in neonatal practice

A professional nurse is a person who is qualified and competent to independently practice comprehensive nursing in the manner and to the level prescribed and who is capable of assuming responsibility for such practice in terms of the Nursing Act, 2005 (Act 33 of 2005 s30(1) South Africa 2005 and McQuoid-Mason and Dada 2009:202). In the context of the study the professional nurse can care for a neonate in a variety of settings in primary, secondary or tertiary healthcare, in public or private sector.

Table 5-11 Competency framework for the professional nurse in neonatal practice (Section A, B and C)

Professional nurse in neonatal practice						
CRITERIA EXPECTED OF THE RESPECTIVE CATEGORIES OF NURSES SANC Competency framework (SANC 2014: Generic competency framework for advanced practitioners)	**Competency findings from Phase 1, 2 and 3 A and expert reviewers.**	**LEVELS OF COMPETENCY Performance characteristics and requirements at each level of development Novice to Expert Model (Benner 2001: 20-38)**				
A. Professional, ethical and legal practice		**Novice**	**Advanced Beginner**	**Competent Nurse**	**Proficient Nurse**	**Expert**
A1: Professional practice	Display professional autonomy, accountability and responsibility within scope of practice. Practice reflectively and evidence-based. Act as a role model. Participate in/lead development of a vision and mission, setting goals, providing motivations Participation in administration Function as part of an inter-professional healthcare team.	-Beginner nurse or midwife -Has limited experience with patient population (sick or compromised infant) -Requires entry to patient population in	- Demonstrate acceptable performance with room for improvement of performance -Requires guidelines to assist with interpretation of clinical situations -Has	-Begins to see actions in terms of long range goals -Consciously aware of long term outcome of actions -Establishes a perspective based on	-Perceives situations as whole rather than different aspects -Performance guided by perceptions developed by experience and recent events -Understands neonatal situations as a	-Has neonatal knowledge, skills and competencies related to the healthy neonate and neonates with common illnesses -They have neonatal nursing background and experience of knowing when
A2: Ethical practice	Adhere to ethical principles and bio-ethical decision making in practice. Prioritisation/ management of limited resources. Advocate for neonates and their families and protect human rights. Be sensitive to cultural, religious, language, professional and technological diversity in healthcare.					

Professional nurse in neonatal practice						
CRITERIA EXPECTED OF THE RESPECTIVE CATEGORIES OF NURSES SANC Competency framework (SANC 2014: Generic competency framework for advanced practitioners)	**Competency findings from Phase 1, 2 and 3 A and expert reviewers.**	**LEVELS OF COMPETENCY Performance characteristics and requirements at each level of development Novice to Expert Model (Benner 2001: 20-38)**				
A3: Legal practice	Comply with relevant acts and regulations, policies, guidelines, protocols and algorithms	order to gain experience necessary for skill development -Needs information about the situation in terms of objective aspects (measurable parameters) -Educated on the context free rules to guide action related to different objectives -Requires set rules to guide performance measured against successful performance -Requires theoretical knowledge but has a lack in	experienced actual situations -Requires support in the clinical setting to prioritise as they only operate based on general guidelines -Nursing care of patients needs to be backed up by competent level nurses	conscious, contempla-tion of the plan to achieve efficiency -Lacks work speed and proficiency of the proficient nurse -Has the ability to cope and manage different clinical nursing situations	whole and knows what to expect in a given situation -Proficient performance working with analogous populations -Demonstrates required competencies to manage common neonatal patients Can work independently with common neonatal patients May be involved in management, education, practice development and research related to the neonatal field to a limited extent	something is not right/ demonstrate critical thinking --Understanding of a situation and focus on a problem area without considering other diagnoses and explanations -The roles the expert professional nurse occupies vary and can include neonatal management including clinical management and unit management, education, and practice development facilitator/ researcher
B. Care provision and care management						
B1: Health promotion	Create awareness, provide care and implement the following: - Essential care of every baby (ECEB); - Hygiene and infection prevention; - Developmental care (including skin to skin care); - Exclusive breastfeeding; - Immunisation; - Health education.					
B2, 3 and 4: Assessment, diagnosis, planning and implementation	The following prior knowledge and skills are required to enable competency in neonatal care: - Principles of nursing process; - Basic anatomy, physiology and pathophysiology of a normal neonate and common neonatal illnesses and genetic disorders of the following systems: -.Cardiovascular; Neurological; Endocrine; Musculoskeletal; Genitourinary; Gastrointestinal; Haematological; Integumentary; Eyes; Ears. - Principles of pharmacology and medication management; - Foetal and neonatal development and-developmental care (including the "Golden hour", skin to skin care and facilitation of bonding and attachment and environmental control, pain management, family integrated care, positioning, nutrition). - Create a safe, secure and therapeutic environment. - Be able to assess and diagnose common illnesses of the different systems of a normal, premature and ill neonate as related to: - 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, blood pressure, blood glucose, pain assessment) - Diagnostic investigations - Conduct basic resuscitation of neonates					

Professional nurse in neonatal practice						
CRITERIA EXPECTED OF THE RESPECTIVE CATEGORIES OF NURSES SANC Competency framework (SANC 2014: Generic competency framework for advanced practitioners)	**Competency findings from Phase 1, 2 and 3 A and expert reviewers.**	**LEVELS OF COMPETENCY Performance characteristics and requirements at each level of development Novice to Expert Model (Benner 2001: 20-38)**				
	Plan and implement care of the different systems of a normal, premature and ill neonate (including, but not limited to essential care of small babies (ECSB): - Respiratory system, including prevention of olfactory overstimulation and appropriate monitoring of oxygen therapy and provision of respiratory support by means of non-invasive ventilation e.g. nCPAP and identification of severe respiratory distress and need for urgent intervention/ referral; - Cardiovascular system, including blood pressure maintenance - Neurological system including the identification of the need for and initiation of therapeutic cooling, the endocrine and musculoskeletal system, including developmental care and management of common birth complications; - Pain management including non-pharmaceutical pain management; - Genitourinary system; - Gastrointestinal system, including blood glucose homeostasis, feeding, nutrition and elimination; - Haematological system; Integumentary system, including protection of premature skin integrity, thermoregulation, implementation of skin-to-skin care; Eyes, including prevention of blindness and visual impairment; Ears, including prevention of hearing loss and vestibular disturbances. - Medication administration - Transport healthy neonates and neonates with common illnesses, including skin-to-skin transport. - Skills including phlebotomy, insertion of IV lines, respiratory support, insertion of catheters-NG and urinary, ECG, growth assessment, technical competency-equipment/IT	understanding the contextual meaning thereof				
B5: Evaluation, recording and information management	Develop or obtain, maintain and store: - Nursing care plan, continuous nursing records and digital information; - Records of investigations and treatment Information, including protection of personal information.					
B6: Therapeutic communication and relationships	Implement: - Palliative care, counselling and education; - Family-centred / family-integrated care; - Alternative and transcultural care; - Interprofessional teamwork.					

Professional nurse in neonatal practice						
CRITERIA EXPECTED OF THE RESPECTIVE CATEGORIES OF NURSES SANC Competency framework (SANC 2014: Generic competency framework for advanced practitioners)	**Competency findings from Phase 1, 2 and 3 A and expert reviewers.**	**LEVELS OF COMPETENCY Performance characteristics and requirements at each level of development Novice to Expert Model (Benner 2001: 20-38)**				
C. Personal development and quality of care						
C1: Quality improvement	Assess, plan, implement quality improvement processes and initiatives.					
	Contribute to staff development and nursing practice through education processes e.g. in-service training.					
C2: Continuing personal development	Engage in a culture of lifelong learning and continuous professional development.					

5.8.3 Competency framework for professional development of a neonatal nurse specialist

A neonatal nurse specialist is a professional nurse with an additional qualification in neonatal nursing science with competencies to manage preterm (including very preterm), ill and critically ill neonates (medically and surgically) especially in but not limited to tertiary and quaternary neonatal intensive care settings. The neonatal nurse specialist renders quality care to prevent disease, injury or complications while acknowledging economic, cultural, political and any other factors that may influence neonates, their families or communities. Provision is made in the Nursing Act (South Africa 2005) for the Nurse Specialist category. All newly introduced categories, such as the Nurse Specialist will have their own scope of practice and will be fully accountable for their acts and omissions (Human and Mogotlane 2017:54).

Table 5-12 Competency framework for the neonatal nurse specialist (Section A, B and C).

Neonatal nurse specialist in neonatal practice						
CRITERIA EXPECTED OF THE RESPECTIVE CATEGORIES OF NURSESSOUTH AFRICAN NURSING COUNCIL Competency framework (SANC 2014: Generic competency framework for advanced practitioners)	**Competency findings from Phase 1, 2 and 3 A and expert reviewers.**	**LEVELS OF COMPETENCY** **Performance characteristics and requirements at each level of development** **Novice to Expert Model (Benner 2001: 20-38)**				
A. Professional, ethical and legal practice		**Novice**	**Advanced Beginner**	**Competent Nurse**	**Proficient Nurse**	**Expert**
A1: Professional practice	Display professional autonomy, accountability and responsibility within scope of practice. Practice reflectively and evidence-based. Act as a role model and leader. Function as part of, or coordinate an interprofessional healthcare team.	-Being a professional competent neonatal nurse or midwife -Has experience with sick or compromised infants -Requires entry to patient population in order to gain experience necessary for skill development -Needs information about the situation in terms of application of theory in	- Demonstrate acceptable performance with room for improvement of performance -Requires guidelines to assist with interpretation of advanced clinical situations -Has experienced actual situations allowing understanding of situational application -Requires support in the clinical setting for complex	-See actions in terms of long range goals -Consciously aware of long term outcome of actions -Establishes a perspective based on conscious, abstract, analytical and deliberate contemplation of the action plan to achieve efficiency -Lacks work speed and proficiency of the proficient nurse -Has the ability	-Perceives situations as whole rather than different aspects -Performance guided by perceptions developed by experience, recent events and use of evidence-based information -Effective in managing all the different levels and complexity of neonatal care -Understands neonatal situations as a whole and	-Has advanced knowledge, skills and competencies Does not rely on an analytical principle (rule, guideline and maxim) to understand and manage a situation appropriately, but on a vast neonatal background and experience of knowing when something is not right, evidence-based information, and analytical problem

		practice -Requires set rules to guide performance measured against successful performance -Requires theoretical knowledge and has a basic understanding of the contextual application thereof	neonatal cases -Nursing care of complex patients' needs to be backed up by experienced neonatal nurse specialists / neonatologists / paediatricians	to cope and manage many different clinical nursing situations	knows what to expect in a given situation and how a plan needs to be modified to be able to respond when the expected normal does not materialise - Is able to confidently state her case when in disagreement and or propose alternative management strategies within the multi-disciplinary team -Holistic understanding with improved decision making - Is able to communicate and advocate clearly, knowledgeably and confidently at multiple levels and situations -Demonstrates	solving when alternative perspectives are not available -Intuitive understanding of a situation Has perceptual acuity and certainty -The roles the expert neonatal nurse occupies vary and can include neonatal management, education, practice development facilitator/ researcher or advanced neonatal specialist, Health systems and programme management, strategy/policy/ guideline development Has a post basic degree or master's degree or possibly a

					required competencies to manage a complex neonatal patient -It is expected that the proficient nurse can work independently -Can take the roles of a shift leader, a transport nurse, clinical nurse specialist, lactating consultant, practice development, clinical educator or in community outreach projects as leader, plan and implement clinical management under the supervision of a senior Medical Officer or consultant -May be involved in management,	doctorate or working towards a doctorate -Should participate in strategic planning for a neonatal unit and should be a champion for the neonatal patient population, function/advocate at inter-facility/provincial or national level

					education, practice development and research related to the neonatal field -Expected to have a postgraduate degree in neonatology or should be working towards it	
A2: Ethical practice	Adhere to ethical principles and bio-ethical decision making in practice. Advocate for neonates and their families and protect human rights. Drive sensitivity to cultural, religious, language, professional and technological diversity in neonatal care. Facilitation of ethical awareness through presenting workshops.					
A3: Legal practice	Ensure compliance with relevant acts and regulations, policies, guidelines, protocols and algorithms.					
B. Care provision and care management						
B1: Health promotion	Create awareness, provide care and implement the following: - 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 - Essential care of every baby (ECEB) for neonates with common illnesses; - Prevention of disability of very preterm and critically ill neonates; - Hygiene and infection prevention; - Developmental care (including skin to skin care); - Exclusive breastfeeding; Immunisation Health education					
B2, 3 and 4: Assessment, diagnosis, planning and implementation	The following prior knowledge is required to enable competency in neonatal care: - Principles and application of nursing process; - Anatomy, physiology, pathophysiology and genetic disorders of a normal, preterm, very preterm, ill and critically ill neonate of the following					

	systems: Cardiovascular; Neurological; Endocrine; Musculoskeletal; Genitourinary; Gastrointestinal; Haematological; Integumentary; Eyes; Ears. - Principles and application of neonatal pharmacology and medication management. - Be knowledgeable about foetal and neonatal development and developmental care (including the "Golden hour", skin to skin care and facilitation of bonding and attachment). - Create a safe, secure and therapeutic environment for preterm, very preterm, ill and critically ill neonates. - Be able to assess and diagnose the different systems of a preterm, very preterm, ill and critically ill neonate as related to: • 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, haematological investigations, electrocardiography, amplitude-integrated electroencephalography, radiographic investigations, eye screening, hearing assessment, drug levels) • Technical competence demonstrated by input into the development of specifications and evaluation of equipment and consumables - Conduct basic and advanced resuscitation of neonates. - Plan and implement care of the preterm, very preterm, ill and very ill neonate (including, but not limited to essential care of small babies (ECSB), advanced medical and surgical neonatal nursing care, and palliative care): • Respiratory system, including prevention of olfactory overstimulation, management of structural and acquired respiratory defects (e.g. surfactant therapy, intubation, non-invasive and invasive ventilation and oscillation, underwater drainage); • Cardiovascular system, including blood pressure maintenance and management of conduction disorders and structural cardiac defects; • Neurological system including the identification, initiation and maintenance of therapeutic cooling, endocrine and musculoskeletal system, including developmental care and management of birth complications, intracranial haemorrhage, structural and conduction defects and endocrine disorders, as well as post-operative care);					

	• Pain management including non-pharmaceutical pain management; • Genitourinary system, fluid and electrolyte homeostasis and management of genital and renal defects (including catheterisation, and vascular access); • Gastrointestinal system, including blood glucose homeostasis, feeding, nutrition and elimination, metabolic homeostasis, management of metabolic disorders, structural defects (congenital and acquired) of the mouth, throat and digestive system; • Haematological system management of blood disorders of red blood cells and platelets, and disorders related to immunity and communicable diseases; • Integumentary system, including protection of premature skin integrity, thermoregulation, implementation of skin-to-skin care and management of preterm, congenital and acquired skin disorders; • Eyes, including prevention of blindness and management of eye disorders; • Ears, including prevention of hearing loss and vestibular disturbances, management of structural and acquired ear defects and hearing loss; • Complex multi-organ disorders - Apply principles of medication management as related to the management of the above systems - Transport preterm, very preterm, ill and critically ill neonates, including skin-to-skin transport					
B5: Evaluation, recording and information management	Develop or obtain, maintain, store and audit: • Nursing care plan, continuous nursing records and digital information • Records of investigations and treatment • Information, including protection of personal information • Administration processes Human resource and systems management					
B6: Therapeutic communication and relationships	Take the lead with implementation of: • Family-centred / family-integrated care • Alternative and transcultural care Inter-professional teamwork					
C. Personal development and quality of care						

C1: Quality improvement	- Assess, plan, implement quality improvement processes and initiatives. - Implement strategies to address neonatal mortality and morbidity. - Translate research findings to contribute to setting standards and development of best practice guidelines and policies. - Enhance inter-professional teamwork in neonatal care. - Manage human and material resources, including but not limited to budget, equipment, staffing, environment and service delivery. - Contribute to staff development and nursing practice through education.					
C2: Continuing personal development	- Engage in a culture of lifelong learning and continuous professional development and active involvement in a professional association					

5.9 PHASE 3 B: REFINEMENT AND VALIDATION OF THE COMPETENCY FRAMEWORK FOR THE PROFESSIONAL DEVELOPMENT OF DIFFERENT CATEGORIES OF NURSES IN NEONATAL PRACTICE

The validation of the competency framework was based on the principle of researching consensus or collective agreement using the Delphi technique, as discussed in Chapter 3. Three rounds were used where electronic feedback was requested from experts until consensus was reached as described by Keeny et al. (2011:69) and Trevelyan and Robinson (2015:425) for validation of the competency framework. This validation process of the refined competency framework differed from the first validation of the competency list in that new experts were included.

5.9.1 Demographic data of participants

The participants' academic qualifications, current occupations and current fields of expertise or interests are as follows:

Table 5-13 Demographic data of participants

	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5
Academic qualifications	B Cur (General Nursing, Community Health, Midwifery, Psychiatric Nursing) M Cur (Advanced Midwifery)	Registered Nurse, Registered Midwife, Certificate in Neonatal Nursing, Advanced University Diploma in Nursing Education, M Cur, Diploma in Nursing Administration	B Cur M Cur Advanced Neonatal Nursing	Diploma in Nursing (general, community and midwifery) Certificate in Neonatal Intensive Care.	PhD Nursing
Current occupation	Quality Systems Specialist	Clinical Neonatal Nurse, Nurse Educator.	Lecturer	Provincial Neonatal Programme Manager	Associate Professor
Field of expertise or interest	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5
Higher education		X	X		X
Nursing education		X	X		X
Neonatal nursing practice	X	X	X	X	X

Other (specify):	Quality improvement			Public health, Programme management, Systems development, Professional development	

5.9.2 Round 1

The validation of the competency framework was done by means of utilising an evaluation document.

Table 5-14 Refinement and validation of the competency framework for the professional development of different categories of nurses in neonatal practice

Criteria	Not acceptable or needs major revision	Acceptable with recommended changes	Acceptable as described	Comments
The context description is comprehensive and a true reflection		Participant 1 - I have made some suggestions, of which many are applicable to all three sets of competencies. Participant 3 - Yes	Participant 1 - Yes Participant 4 - Yes Participant 5 -Yes	
Clarity, simplicity and consistency		Participant 3 - Yes	Participant 1 - Yes Participant 2 - This is clear and easy to interpret. Participant 4 - Yes Participant 5 -Yes	
Appropriateness and relevance			Participant 1 - Yes Participant 2 - Yes I agree that the competencies are as described Participant 3 - Yes Participant 4 - Yes Participant 5 - Page 8 – professional nursing in neonatal practice: competency finding from phase 1 & 2: I am missing oxygen therapy and am of the opinion that this level practitioner should be able to initiate non-invasive ventilation (CPAP) as well? Not long term CPAP care though. Also in the professional nurse in neonatal practice in the competency column I would suggest that with thermoregulation one expand to add – identify the need for, and initiate therapeutic cooling. Under the neonatal nurse specialist that could be expanded to initiate and maintain therapeutic cooling. Not sure if you can still add this detail, but I would think it would be fitting in the view of practicing best-evidence.	
The competency framework is a comprehensive summary of knowledge and skills expected from		Participant 4 - Yes See comments below	Participant 1 - Yes Participant 2 - Yes, taking my comments into consideration. Participant 3 - Yes Participant 5 -Yes	

clinical neonatal specialists				
Adaptability and generalisability			Participant 1 - Yes Participant 2 - Good. Participant 3 - Yes Participant 4 - Yes Participant 5 - Yes	
The competency framework will be useful to inform a micro-curriculum		Participant 3 - Yes	Participant 1 - Yes Participant 2 - I agree with the statement. Participant 4 - Yes Participant 5 -Yes	
Accessibility			Participant 1 - Yes Participant 2 - Yes. Participant 3 - Yes Participant 4 - Yes Participant 5 - Yes	
Importance for research, practice and education			Participant 1 - Yes Participant 2 - Valid and supportive of the different levels of nurses in the NICU. Participant 3 - Yes Participant 4 - Yes Participant 5 - Yes	Participant 3 - Enormously important for research, practice and education.
Validity or trustworthiness			Participant 1 - Yes Participant 2 - Yes. Participant 3 - Yes Participant 4 - Yes Participant 5 -Yes	
Other (specify):				Participant 5 - In the advanced beginner column the term 'marginal' acceptable performance is used. It sounds like – not being good enough. I would like to suggest a more positive term, e.g. maybe 'acceptable performance with room for improvement'?

The comments made by the experts were included and highlighted for ease of reference. Feedback from the experts was related to clarification of concepts, additions to the competencies and clustering of the competencies. The comments were adressed and corrected before the framework was sent out for the second round. The changes were highlighted to allow the experts to identify the additions and the amendments.

5.9.3 Round 2

The competency framework was circulated and only one expert suggested that some of the content that related to the neurological and integumentary systems be rearranged. No new information was required and none of the other four experts requested changes or made new suggestions. Only one comment was received during this round. The suggestion was applied and the framework was circulated to the experts for the final round.

5.9.4 Round 3

The competency framework was circulated and no futher changes or suggestions were received. The experts reached consensus on and validated the competency framework.

5.10 CONCLUSION

The formulation and validation of the competency framework was discussed in this chapter. The three phases of this study concluded in the development of three competency frameworks. Based on the results of the nominal group techniques and interviews, as well as a literature review, an abridged competency list was formulated. The abridged neonatal competency framework was validated by neonatal experts. The abridged neonatal competency list was dissected according to the SANC competency framework, literature as well as Benner's model using inductive and deductive reasoning to develop the competency framework (Phase 3A) and refined and validated by neonatal experts (Phase 3B).

In the final chapter the limitations and dissemination of results will be discussed. Recommendations for further studies will also be proposed.

CHAPTER 6 – CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

Neonatal nursing in South Africa is a speciality nursing field without a structured competency framework from the South African Nursing Council. The study resulted from the need to guide the practice and professional development of nurses involved in neonatal care by clarifying competencies. In the previous chapter the research results culminated in the formulation and validation of the competency framework. Phase 2 and 3 (A&B) contributed greatly to the significance of this study in that literature as well as expert opinion contributed to the developemnt of a competency framework for nurses involved in neonatal care. This chapter was preceded by chapters providing information about relevant literature and the research methodology that was used in the study.

This chapter will present the conclusion and dissemination of the results and will propose further recommendations.

The aim and objectives were to develop a competency framework for the professional development of different categories of nurses involved in neonatal care.

A constructivist paradigm was the departure point of the study and the study was underpinned by the theoretical assumptions of the South African Nursing Council (SANC 2014A; SANC 2004, and South Africa 2005) and Benner's Novice to Expert Model (Benner, 1984:13).

A multi-method research design was used in this study in the form of consensus research. The research was conducted in three phases. The types of consensus research methods were the Nominal Group Technique (NGT) and the Delphi method.

6.2 CONCLUSIONS

The conclusions of the study are presented with the objectives as indicated in Chapter 1. An illustration of the research process is seen in table 3-1 in Chapter 3.

Objective 1: To explore and describe competencies for the professional development of different categories of nurses in neonatal practice.

During Phase 1, the competencies were explored and described during the iterations with the with seven nominal groups and two interviews to generate items and to reach consensus. This method worked well and the data was saturated by the time the ninth nominal group was conducted. Themes were identifed and the competencies that were identified were combined with information derived from literature.The researcher received

valuable information during this phase which contributed to the development of the competency list during Phase 2.

Objective 2: To develop and validate an abridged competency list for the professional development of different categories of nurses in neonatal practice.

During Phase 2, the findings from Phase 1 were identified and a literature control was used and enabled the development of the abridged competency list by the researcher. The Delphi technique was used to validate the abridged competency list.

Objective 3A: To develop a competency framework for the professional development of different categories.

The abridged competency list was dissected according to the South African Nursing Council competency framework and Benner's model. Competence was discussed as well as nursing in the South African context. Other neonatal competency frameworks were considered and combined themes emerged. The competency framework was developed through inductive and deductive reasoning.

Objective 3B: Refinement and validation of the competency framework for the professional development of different categories of nurses in neonatal practice.

Phase 3 was the final phase, the refinement and validation phase. Phase 3 was divided into two parts, Phase 3 A and Phase 3 B. A second consensus method was used in the form of a Delphi technique. This phase concluded successfully when all the experts reached consensus on the refinement and validation of the competency framework for the professional development of different categories of nurses in neonatal practice (Figure 5-4).

The final step in the research was the development of the competency framework based on the abridged competency list as accepted, refined and validated by the experts and the SANC competency framework as presented in tables 5-10, 5-11 and 5-12. The final product is a neonatal competency framework for the professional development of the neonatal specialist, professional nurse and the enrolled nurse as discussed in tables 5-10, 5-11 and 5-12. Curently, in the South African context these are the three categories of nurses practising neonatal care. This framework has the potential to be expanded in the future.

6.3 RECOMMENDATIONS

Recommendations were made for practice, education and research.

6.2.1 Recommendations for neonatal practice

It would be of significance if the competency framework for nurses involved in neonatal care could be implemented in the neonatal practice areas in public and private healthcare settings. The implementation could contribute towards reducing neonatal morbidity as well as neonatal mortality by ensuring competent neonatal nurses practising safely at an appropriate competency level. The competency framework is expected to improve the quality and accountability of nurses in neonatal practice as the result of the study is a framework addressing the professional development of neonatal nurse specialists, professional nurses and enrolled nurses involved in neonatal care. The competency framework provides clear guidance as to what is expected of each of the three categories of neonatal nurses. Professional development can therefore be considered individually according to each nurse's unique performance. This would then allow the unit manager to plan training and development of all staff.

Based on implementation outcomes and challenges, the competency framework refinement can again be considered. Such an intervention can follow in a post doctoral study. The researcher can create awareness of this competency framework in neonatal health care settings by presenting the findings at hospitals who participated in the study. Awareness can trigger implementation. The framework is compatible with implementation in private as well as public settings, with suitable permission.

An evaluation of neonatal clinical practice can be done post implementation of the competency framework as part of a post doctoral study, to investigate whether the competency framework for nurses involved in neonatal care contributed to a transformation in neonatal care.

Furthermore, the development (existence) of a competency framework for nurses involved in neonatal care provides a platform for informing policy development related to neonatal care and neonatal unit staffing in both private healthcare and public healthcare settings. Presentations of the competency frameworks can be arranged by the researcher for the management of various institutions as well as on national level to the South African Nursing Practice Committee.

6.2.2 Recommendations for nurse education related to neonatal care.

The competency framework was submitted to the South African Nursing Council to inform a proposed neonatal nurse specialist qualification as a post graduate diploma. The content of the competency framework can inform in-service training theoretical components in the form of short learning programmes as presented by higher education institutions.The competency

framework, as part of the motivation that was submitted to the South African Nursing Council was endorsed by the Council of International Neonatal Nurses (Annexure I)

6.2.3 Recommendations for research

The implementation of the competency framework for neonatal nurses could be evaluated and revised in successive studies. Further investigations could be done to determine a proposed time frame connected to the different competency levels from novice to expert. It is recommended that this study continue as a post doctoral study.

A post implementation clinical evaluation of the competency framework for nurses involved in neonatal care could be done. Linked to the evaluation, the perceptions by neonatal nurses post implementation of the framework could be explored and described to gain a better understanding of possible challenges which were not considered during the design of the competency framework.

It would be of interest to investigate neonatal mortality and morbidity rates in facilities in which the competency framework has been implemented, to establish whether it had any effect on the rates. The investigation of neonatal mortality and morbidity rates can be linked to the Sustainable Development Goals in the long term. Realistically, it will probably take some time to discern the impact of the frameworks – an immediate effect will not be likely. An appropriate monitoring tool will have to be developed.

Additional categories of nurses involved in neonatal care can be included in future research.

6.4 LIMITATIONS

The competency framework is intended for the South African context only, and the implementation thereof will be a very important milestone for neonatal nurses in both public private sectors.

The nominal groups that were conducted were limited to three (3) inland provinces and it could be beneficial to have nominal group sessions across all provinces including the coastal areas. There could be regional specific information that can add value to the competency framework.

The nominal groups were held with nurses at the different hospitals during a regular working day. It is possible that the nurses involved in the nominal groups experienced some form of pressure as they were on duty and responsible for care of patients.

The number of participants was determined by the hospital activities and the researcher had no choice but to work with the participants that arrived for the nominal group sessions. The researcher was forced to have interviews when only one or two participants arrived for a nominal group session. It may be more beneficial if nominal group sessions are held outside the hospital premises to allow the participants sufficient time to consider their discussions without distraction or having to rush back to their busy work environments. The reseacher wanted to include nurses from primary healthcare settings but received no responses from potential participants, therefore excluding nurses from these areas the study.

6.5 DISSEMINATION OF RESULTS

Suitable platforms for presenting research findings will be identified such as poster presentations and oral presentations to national and international audiences of the neonatal nursing community and related fields (Botma et al. 2010:314). The research results were translated into articles and submitted to accredited journals for publication. The results have been presented in two international and national conferences as oral papers.

The results were made available for public and private stakeholders in practice to support and inform training and professional development related to neonatal care and course development in Southern Africa.

The abridged competency list was endorsed by the Council of International Neonatal Nurses (COINN).

6.6 CONCLUDING COMMENTS

Every country is unique in terms of the particular neonatal population but even more so in terms of the specific neonatal nursing training that is available to nurses. Some countries are much more advanced than others but the core argument is that neonatal nurses need to be well trained. They require a good foundational knowledge and they should have a drive to remain lifelong learners. Nurses should be acknowledged for their continuing professional development by means of appropriate career progression.

During the validation process in phase 3B, the experts noted a clear difference between the competencies that are required for each category of neonatal nurse. It is vital that nurses should work within their scope of practice to ensure competent and quality care. This will limit or reduce instances of injury to the neonatal patient.

Advancement from one level to the next could be acknowledged by suitable rewards and recognition or merely by acknowledgement in work performance reviews. Management of reward and recognition is an area that requires futher discussion.

The researcher anticipates that this research can contribute to lifelong learning and more effective professional development in line with competency of different categories of nurses in neonatal practice areas. Supporting lifelong learning, the competency framework can sustain continous professional development of nurses involved in neonatal care ensuring safe competent nursing care of the most vulnerable population.

This study and the competency framework that was formulated has the potential to inform education and policy development now and in the future.

In order to address the vulnerability of neonates in the days following birth, the inadequate care of these neonates and lack of competent neonatal nurses, the competency framework was developed in an attempt to assist with the challenges that pose a risk to quality and competent care of neonates.

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ANNEXURE A – UNIVERSITY OF PRETORIA ETHICAL APPROVAL

The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.
- FWA 00002567, Approved dd 22 May 2002 and Expires 20 Oct 2016.
- IRB 0000 2235 IORG0001762 Approved dd 13/04/2011 and Expires 13/04/2014.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences Research Ethics Committee

12/06/2014

Approval Certificate
New Application

Ethics Reference No 93/2012

Title Development Of A Competency Framework For The Professional Development Of Different Categories Of Nurses In Neonatal Practice

Dear Mrs Mariana Scheepers

The **New Application** as supported by documents specified in your cover letter for your research received on the 29/08/2013, was finally approved by the Faculty of Health Sciences Research Ethics Committee on the 30/05/2012.

Please note the following about your ethics approval:
- Ethics Approval is valid for 3 years.
- Please remember to use your protocol number (93/2012) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, or monitor the conduct of your research.

Ethics approval is subject to the following:
- The ethics approval is conditional on the receipt of 6 monthly written Progress Reports, and
- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

Yours sincerely

Dr R Sommers; MBChB; MMed (Int); MPharMed.
Deputy Chairperson of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria

The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health).

- Tel: [illegible] • Fax: [illegible] • E-Mail: [illegible]
- Web: [illegible] • [illegible] • Private Bag x 323, Arcadia, Pta, S.A., 0007

ANNEXTURE B - NOMINAL GROUPS – IDENTIFIED THEMES

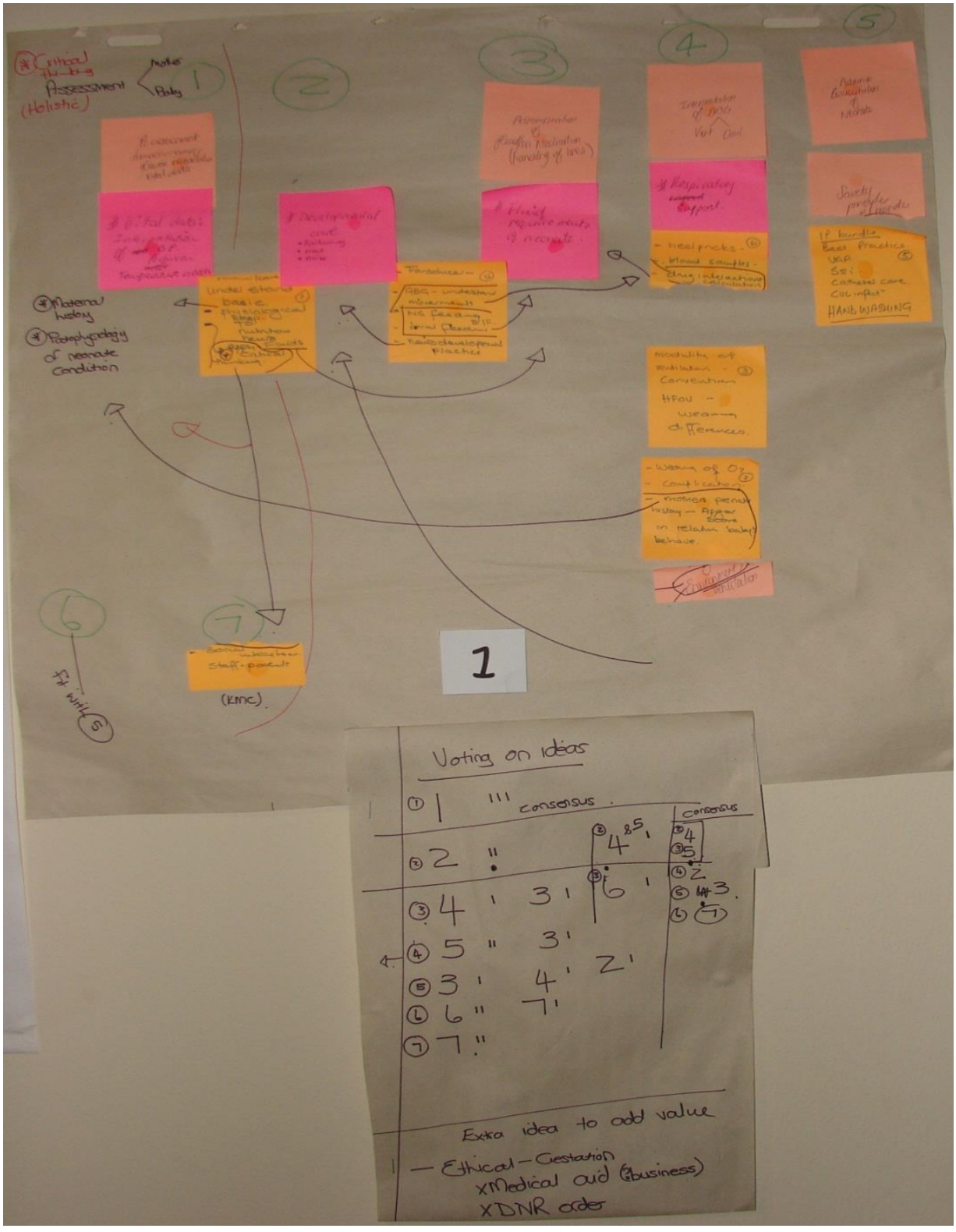

Image B1

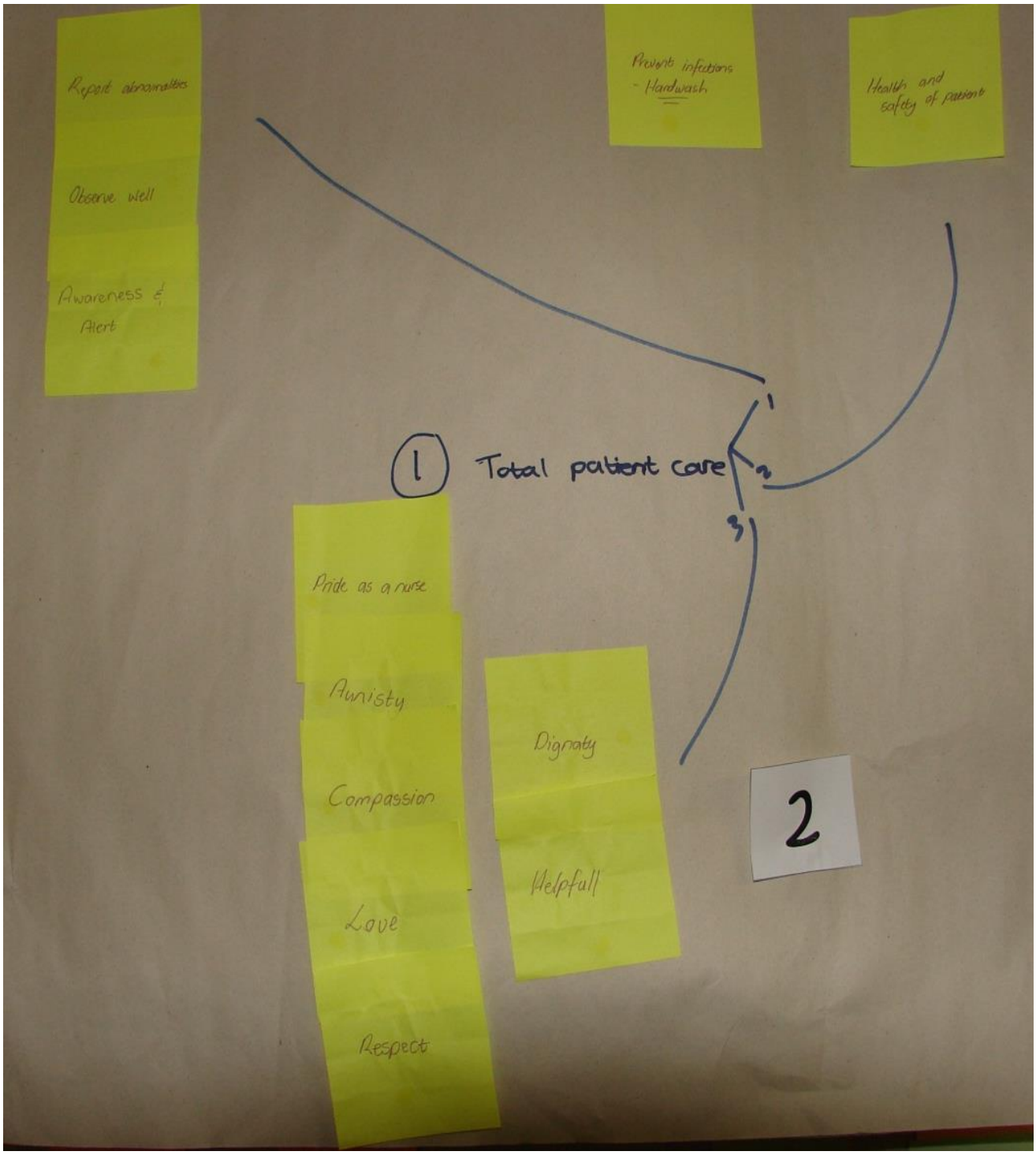
Report abnormalities
Observe well
Awareness & Alert
Prevent infections - Handwash
Health and safety of patient
1
Total patient care
2
3
Pride as a nurse
Amisty
Compassion
Love
Respect
Dignity
Helpfull
2

Image B2

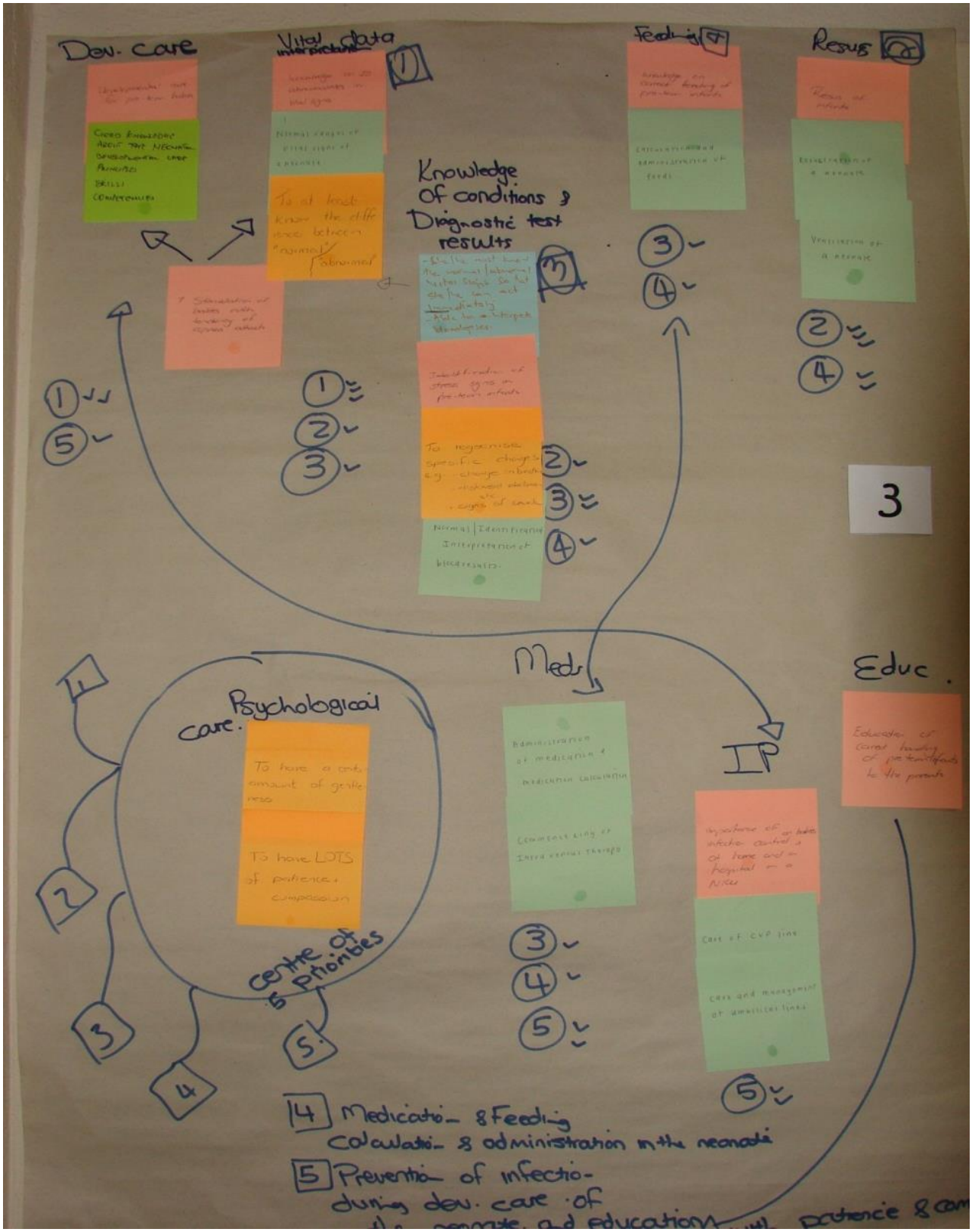
Dev. care
Vital
Feed
Resus
Knowledge of conditions & Diagnostic test results
3
Psychological care.
To have a calm amount of gentle reso
To have LOTS of patience + compassion
centre of 5 priorities
Meds
Educ.
IP
4 Medicatio- & Feedi-
Calculatio- & administration in the neonate
5 Preventio- of infectio-
during dev. care of

Image B3


Training Specific
Know Skills
Staff Skill Mix
Management Process
Nursing Process as a Problem solving process.
Comm skills.
CPR Resus
Competent in neonatal Resuscitation and Long term Care
Knowledge about/specific to neonates what is normal/ not
Psycho-social care of neonate & Caregiver
Attitude
Translation of knowledge to Primary caregiver of neonate.

Image B4

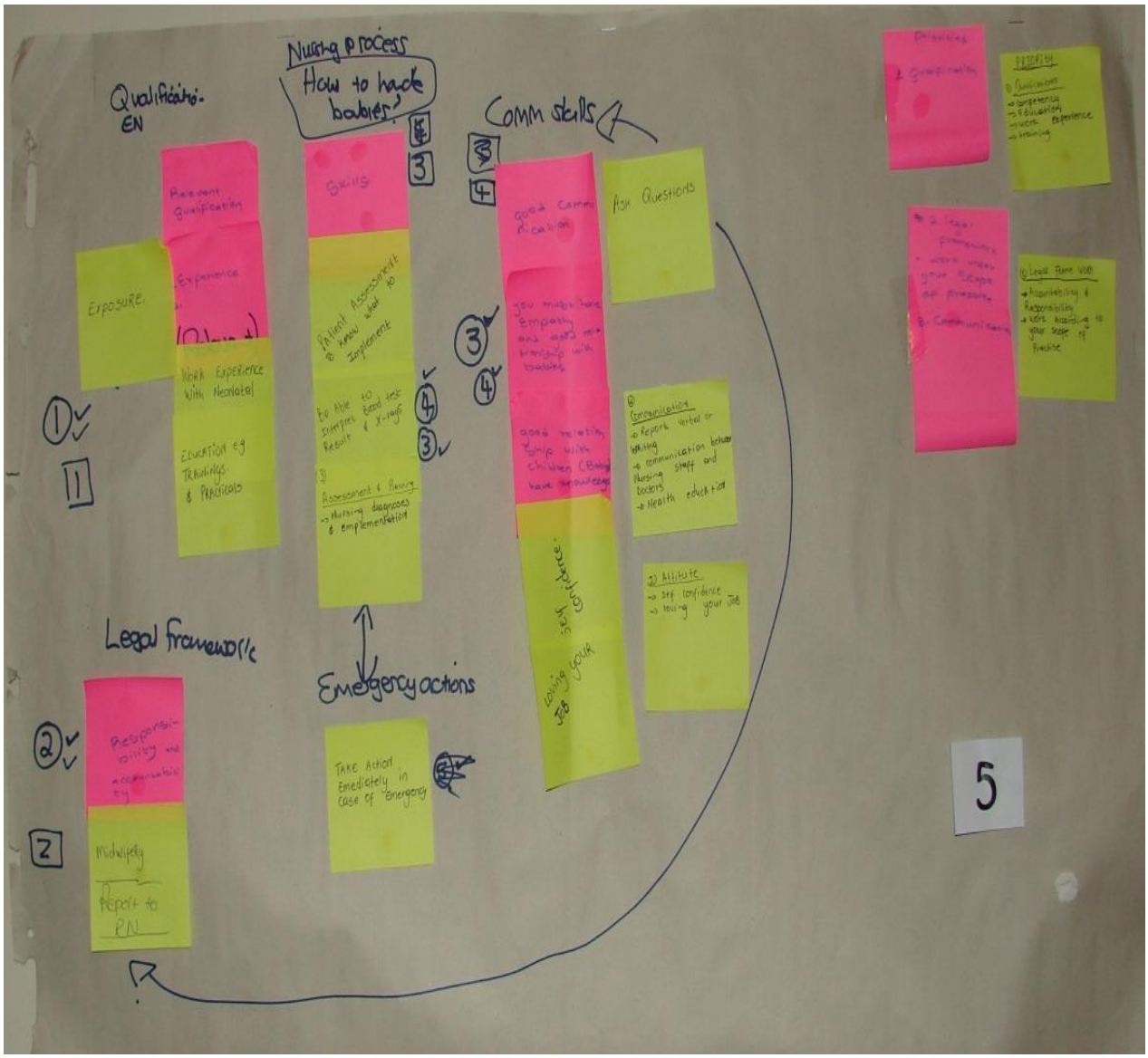
Qualificatio-
EN
Nursing process
How to hack babies
Comm skills
Ask Questions
Exposure
Legal framework
Emergency actions
Midwifery
Report to RN
TAKE Action Emediately in case of Emergency
5

Image B5


1 Knowledge
2 Skills
3 Psycho-social
4 Development
5 Life skills (NF)
Life Skills (NF)
Theoretical knowledge
Advanced
Basic
Physical Health (NF)
Nursing skills
Advanced
Basic
CXR
Blood gas
6

Image B6

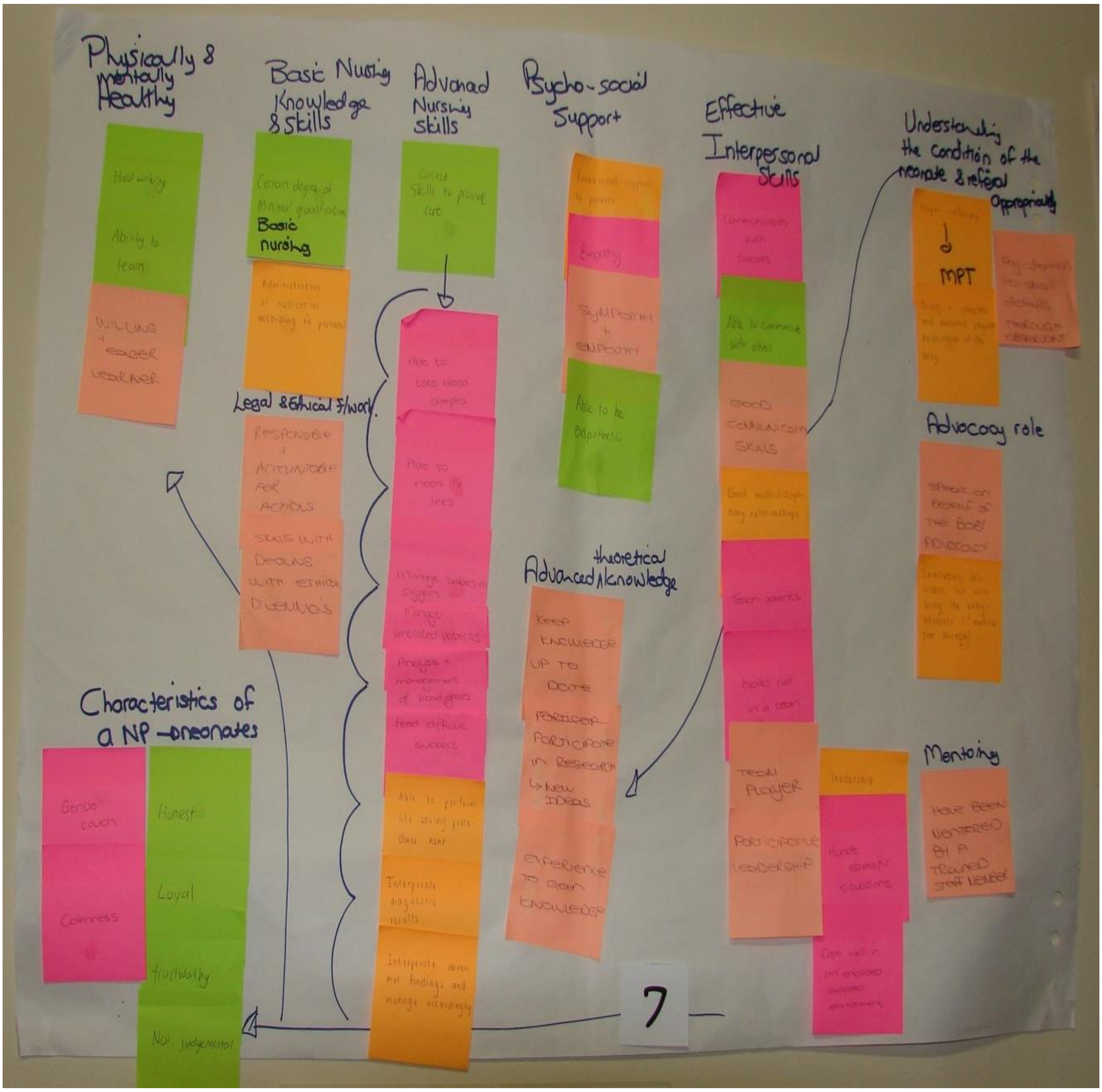
Physically & mentally Healthy
Basic Nursing Knowledge & skills
Advanced Nursing skills
Psycho-social Support
Effective Interpersonal Skills
Understanding the condition of the neonate & referral Appropriately
Hard working
Ability to learn
Willing + eager learner
Basic nursing
Able to take blood samples
Empathy
Sympathy + empathy
Able to be empathetic
MPT
Legal & Ethical F/work
Responsible + accountable for actions
Skills with dealing with ethical dilemmas
Good communication skills
Advocacy role
theoretical Advanced knowledge
Keep knowledge up to date
Experience to gain knowledge
Team player
Characteristics of a NP - neonates
Gentle touch
Calmness
Honest
Loyal
trustworthy
Non judgemental
Mentoring
Have been mentored by a trained staff member
7

Image B7.1

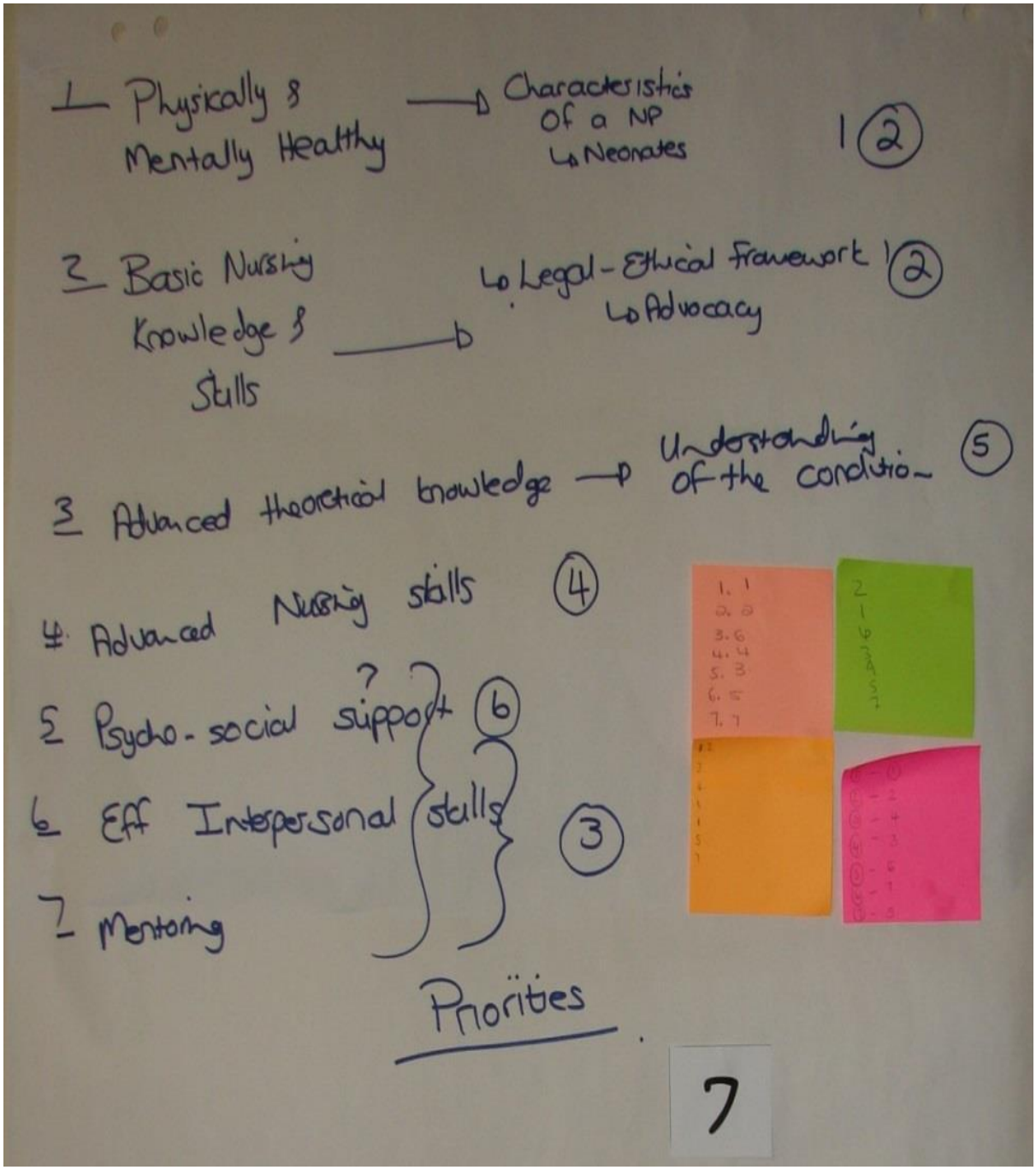
1 Physically & Mentally Healthy
Characteristics of a NP
Lo Neonates
1 2
3 Basic Nursing Knowledge & Skills
Lo Legal - Ethical framework
Lo Advocacy
1 2
3 Advanced theoretical knowledge
Understanding of the condition
5
4 Advanced Nursing skills
4
5 Psycho - social support
6
6 Eff Interpersonal skills
3
7 Mentoring
Priorities
7

Image B7.2

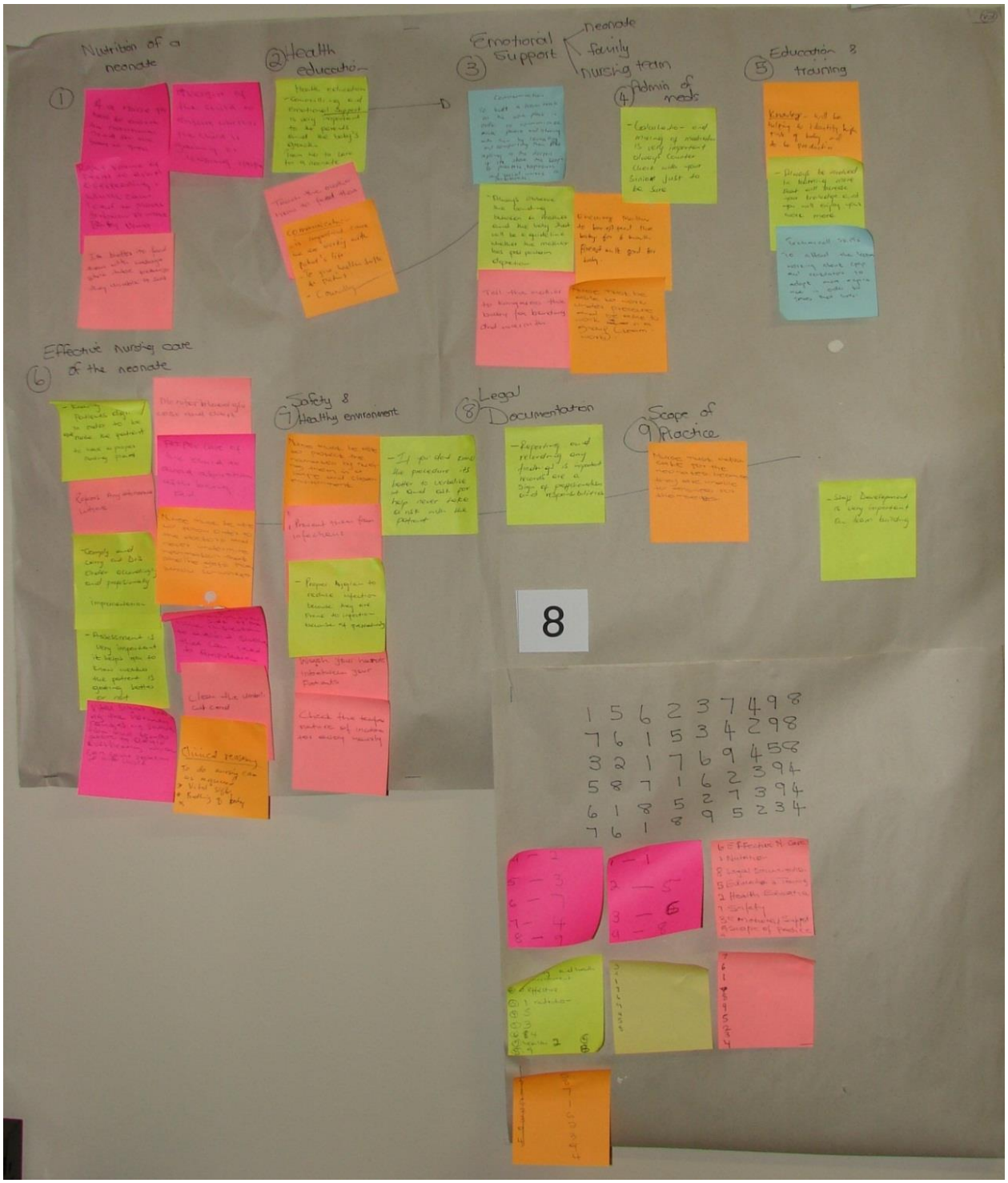
Nutrition of a neonate
1
2 Health education
3 Emotional Support
Neonate
family
Nursing team
4 Admin of meds
5 Education & training
6 Effective Nursing care of the neonate
7 Safety & Healthy environment
8 Legal Documentation
9 Scope of Practice
8

Image B8


Effective Assessment & Management.
Health Education
Family
Community
CPR.
Education & Training
theoretical
Clinical
Knowledge
CPR
Infection Prevention & control
Effective interpersonal skills & relationships with neonate & family
Feeding of neonate
Passion
9
Extra Ideas/Thoughts
1. The nurse has to be physically fit in order to be effective.
2. Psychological preparation to Mothers parents on expectations → good or bad
3. Sterility is important in every event happening in Neonatal unit.
4. Orientation to parents on what to epect in the neonatal unit.
5. Exclusive breastfeeding

Image B9.1

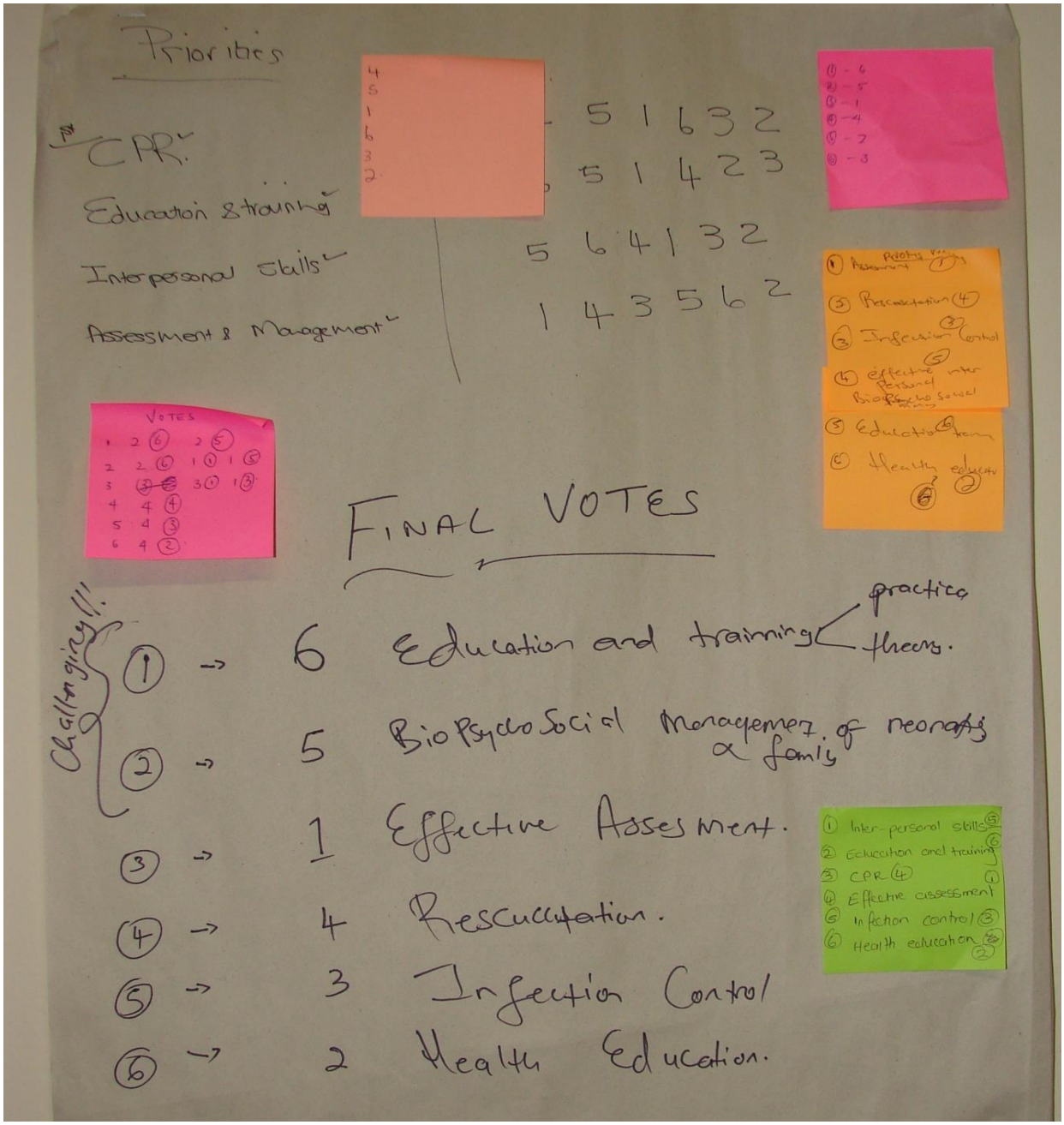
Priorities
CPR
Education & training
Interpersonal Skills
Assessment & Management
5 1 6 3 2
5 1 4 2 3
5 6 4 1 3 2
1 4 3 5 6 2
VOTES
FINAL VOTES
1 → 6 Education and training
2 → 5 BioPsychoSocial Management of neonate & family
3 → 1 Effective Assessment.
4 → 4 Rescucitation.
5 → 3 Infection Control
6 → 2 Health Education.
Challenging!!!
practice
theory.
1 Inter-personal skills
2 Education and training
3 CPR
4 Effective assessment
5 Infection control
6 Health education

Image B9.2

ANNEXURE C – APPROVAL FOR RESEARCH STUDY AT PRIVATE HEALTHCARE INSTITUTION

[redacted]

[redacted]

07 April 2014

ATTENTION: Mariana Scheepers

APPROVAL FOR RESEARCH STUDY

TITLE: Development of a competency framework for the professional development of different categories of nurses in neonatal practice.

Our previous correspondence refers.

The Research Committee of [redacted] has granted permission for your study to be conducted within the company's facilities.

We look forward to seeing the results of your research once it is completed.

Yours sincerely

[redacted]

[redacted]

[redacted]

ANNEXURE D- PERMISSION TO CONDUCT RESEACH AT AN ACADEMIC INSTITUTION

GAUTENG PROVINCE
REPUBLIC OF SOUTH AFRICA

[redacted]

Mrs. M. Scheepers
Fry Street 794
Waverly
Pretoria
0186

RE : APPLICATION – [redacted] ACADEMIC HOSPITAL

"DEVELOPMENT OF A COMPETENCY FRAMEWORK FOR THE PROFESSIONAL DEVELOPMENT OF DIFFERENT CATEGORIES OF NURSES IN NEONATAL PRACTICE"

Your letter regarding the above-mentioned refers :

1. The Chief Executive Officer hereby grants permission for the above-mentioned research to be done at [redacted] Academic Hospital.
2. Distribution and completion of questionnaires may only take place with the knowledge of the Manager of the Area, and should not interfere with patient care or any ward activities.
3. Please provide one copy of the results of your study to [redacted], Personnel development.

Good luck with the proposed project.

[redacted]

NURSING DIRECTORATE
2016-04-04

ANNEXURE E- NOMINAL GROUP PARTICIPANT INFORMATION LETTER

Dear Prospective Participant

You are hereby invited to participate in a research study regarding the competencies of different categories of nurses in neonatal practice. You as a participant are a very important source of information on the competencies of nurses providing neonatal care.

The number of infants dying within the first 28 days of their lives is alarmingly high in South Africa. Training of nurses to provide high-quality care is essential if the numbers of infant deaths in the neonatal period are to be reduced. The purpose of the study is to gather information about the nurses caring for neonates, in order to describe a competency framework for the professional development of different categories of nurses in neonatal practice.

Before you agree to take part in this study, you should fully understand what is involved. If you have any questions, please do not hesitate to ask the investigator.

This study involves group discussions by means of a Nominal Group Technique (NGT) to explore and describe competencies of different categories of nurses in neonatal practice from nurse's perspective. It is anticipated that the discussions will conclude with consensus among members regarding the competencies for different categories of nurses. The group can consist of 8-12 nurses involved in neonatal practice.

There are no risks in participating in the study. Although you will not benefit directly from the study, the results of the study will enable us to develop and describe a competency framework for different categories of nurses to optimize and sustain neonatal practice.

Your participation in this study is entirely voluntary. No compensation will be given for your participation. You can refuse to participate or stop at any time during the study without giving any reason. Your withdrawal will not affect you or your treatment in any way.

The contact person for the study is **Mrs. Mariana Scheepers**. If you have any questions about the study please contact her at 0834683258.

All information that you give will be kept strictly confidential. Once we have analysed the information no one will be able to identify you. Research reports and articles in scientific journals will not include any information that may identify you or the hospital you are working.

You are hereby requested to complete the attached consent form.

Kind regards

Mariana Scheepers

ANNEXURE F- PARTICIPANT CONSENT LETTER EXAMPLE

CONSENT TO PARTICIPATE IN THIS STUDY

I confirm that the person asking my consent to take part in this study has told me about nature, process, risks, discomforts and benefits of the study. I have also received, read and understood the above written information regarding the study. I am aware that the results of the study, including personal details, will be anonymously processed into research reports. I am participating willingly.

I have had time to ask questions and have no objection to participate in the study. I understand that there is no penalty should I wish to discontinue with the study and my withdrawal will not affect me in any way.

I have received a signed copy of this informed consent agreement.

Participant's name ..... (Print please)

Participant's Signature:..... Date: .....

Investigator's name: Mrs M Scheepers

.....

Investigator's signature

Witness's Name: Dr V Van Niekerk

Witness's signature..... Date: .....

ANNEXURE G- NEONATAL NURSES ASSOCIATION OF SOUTHERN AFRICA MOTIVATION LETTER

NPO no. 057-905
Exemption no. 930025659
www.nnasa.org.za
Cell: 0769866880
Email: nnasa@iconfoo.co.za
2011/10/28

Dear Dr Maree

Neonatal Nurse Competencies

The Neonatal nurses association of Southern Africa (NNASA) was established in 2007 to support neonatal nurses and help improve the standard of neonatal care in the region. One of the greatest challenges we are encountering is the definition of a neonatal nurse and what that nurse should be able to do.

Nationally there is much debate as to whether neonatal nursing is considered a specialty and what training is required for a neonatal nurse. NNASA as a member of the Council of International neonatal Nurses (COINN) has also been involved internationally with this debate.
This issue is impacting on hospitals ability to staff neonatal units and our ability as a country to attract and retain nurses in this discipline.

NNASA hereby requests that a study be undertaken by the University of Pretoria to develop a competency framework for different categories of nurses responsible for neonatal care.

We believe this framework will assist us in the development of practice guidelines and policies in neonatal care. It can be used as a resource during negotiations with the South African Nursing Council and The National Dept. of Health regarding neonatal nursing as a specialty and the training required. It can further be used as a document to be made available to clinical facilities to be used as a base for orientation, in-service training and performance management of neonatal nurses.

The International Confederation of Midwives has developed a similar competency framework for midwives and this document may assist COINN in the development of an international competency framework for neonatal nurses.

We would appreciate your universities assistance in this regard.

Yours Sincerely

Ruth Davidge

Pres. NNASA

ANNEXURE H- LETTER OF INVITATION TO EXPERT

P/A Department of Nursing Science
Dr C Maree
University of Pretoria
P.O. Box 667
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0001
E-mail:
mscheepers.life@gmail.com
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19 December 2016

Good day

LETTER OF INVITATION AND EVALUATION FORM FOR EXPERT EVALUATION OF COMPETENCY FRAMEWORK

I am currently a registered PhD student at the University of Pretoria (UP). The title of my research study is the **Development of a competency framework for the professional development of different categories of nurses in neonatal practice.**

Neonatal practice in this study refers to numerous contexts where healthcare is provided to neonates from birth until 28 days. It includes the low risk births, care of normal neonates, high risk births, immediate care of high risk and critically ill neonates, as well as subsequent advanced care of high risk and critically ill neonates. It therefore includes neonatal care in primary care settings (clinics and midwife obstetric units), district hospitals, tertiary settings as well as private hospital groups.

A multi-method research design was used in this study in the form of Consensus research. During the 1st and 2nd phase a competency framework was developed. The final phase of the study includes the validation of the competency framework.

Neonatal nursing as a specialty is currently not recognized in South Africa and your validation and endorsement as an expert of the abridged competency framework can contribute to the drive to establishing the qualification, Clinical Neonatal Nurse Specialist in South Africa.

You are hereby invited to review the developed competency framework and to give written or electronic feedback on the attached validation document. Your participation is voluntary. You are most welcome to contact me should more detail be required.

Kind regards

Mariana Scheepers

ANNEXURE I – ENDORSEMENT LETTER BYTHE COUNCIL OF INTERNATIONAL NEONATAL NURSES

COINN
Council of International Neonatal Nurses

"UNIFYING NEONATAL NURSES GLOBALLY"

November 6, 2016

South African Nursing Council
Pretoria, South Africa

Re: Approval of the Neonatal Clinical Nurse Specialist Qualification

To Whom It May Concern:

On behalf of the Board of Directors, as President of the Council of International Neonatal Nurses, Inc. (COINN) I submit this letter of support for our member organization the National Nurses' Association of Southern Africa's (NNASA) request for recognition of neonatal nursing as a clinical nurse specialisation.

The United Nations efforts around the Millennium Development Goals and now the Sustainable Development Goals recognize the need for improved neonatal outcomes to combat the under five mortality rates globally, but especially in subSaharan Africa. These outcomes can only improve if nurses are trained in neonatal stabilization and care. In order to gain support for such training neonatal nursing as a specialization must be recognized. The NNASA's proposal outlines the academic qualifications for neonatal nurses which are alined with the Higher Educaiton Qualification Sub-Framework. These qualifications are also based on the International Council of Nurses' (ICN) criteria for clinical nurse specialists. COINN as an affiliate member of ICN fully supports the qualifications as outlined by NNASA and ICN.

COINN respectfully requests that the South African Nursing Council, recognize our specialization, neonatal nursing. This designation is aligned with many countries of the world that define neonatal nursing as a specialization within nursing that requires a discrete set of competencies, knowledge and skills.

Sincerely,

Carole Kenner

Carole Kenner, PhD, RN, FAAN, FNAP, ANEF
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COINN – THE GLOBAL VOICE OF NEONATAL NURSES
Representing over 60 countries and 7,000 Nurses
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