

VICTORIA KAIN and TRUDI MANNIX



Neonatal Care

FOR NURSES AND MIDWIVES

Principles for practice 2e



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NEONATAL CARE

FOR NURSES AND
MIDWIVES

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NEONATAL CARE

FOR NURSES AND
MIDWIVES:
PRINCIPLES FOR PRACTICE

2nd Edition

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TABLE OF CONTENTS

<i>Preface</i>	<i>xi</i>	Vitamin K prophylaxis	29
<i>Foreword by Karen Walker</i>	<i>xii</i>	Newborn immunisations	30
<i>About the Authors</i>	<i>xiii</i>	Safe sleeping	30
<i>Contributors</i>	<i>xiv</i>	Feeding the healthy newborn	32
<i>Reviewers</i>	<i>xvii</i>		
Chapter 1 Neonatal nursing: global perspectives	1	Chapter 3 Neonatal assessment	42
<i>Victoria Kain, Trudi Mannix and Karen Walker</i>		<i>Trudi Mannix and Victoria Kain</i>	
Introduction	2	Introduction	43
Types of neonatal units	2	The impact of perinatal history on the growing fetus	43
The design of the neonatal unit	3	Maternal disease	43
An overview of neonatal statistics	3	Social behaviours	44
The global neonatal and midwifery workforce	5	Physical assessment of the newborn	45
Neonatal care and Indigenous contexts	7	Classification according to growth and maturity	53
Perspectives of neonatal care for First Peoples	7	Gestational age and birthweight	55
Clinical governance	8	Growth charts	57
Person-centred care framework	11	Chapter 4 Stabilisation and resuscitation of the neonate	68
Leadership	13	<i>Julie Bernardo and Jennifer Dawson</i>	
Organisational culture	14	Introduction	69
Teamwork	15	Resuscitation at birth	69
Workplace environment	16	Transition from fetal to extrauterine life	70
Neonatal simulation training	16	Supporting transition and neonatal resuscitation	73
The role of neonatal nursing and midwifery organisations	17	Birth suite management of neonates with additional requirements	80
		Resuscitation in the neonatal special care unit and postnatal wards	82
Chapter 2 Care of the normal newborn	22	Education and training in neonatal resuscitation	83
<i>Victoria Kain and Rhona McInnes</i>		Chapter 5 Nutrition and fluid management in the neonatal unit	86
Introduction	23	<i>Trudi Mannix, Kim Gibson and Carmel Collins</i>	
Initial care of the normal newborn	23	Introduction	87
Gestational age assessment	23	Development of the gastrointestinal tract	87
Normal sleep and wake cycles	24	Standardised feeding protocols and audits	87
Normal vital signs	24		
Measurements	24		
Daily care	26		
Early sense capacities	27		
Newborn screening tests	29		

Total parenteral nutrition	88	Common disorders of the respiratory system	155
Enteral nutrition	92	Acid–base homeostasis and blood gas interpretation	166
Breast milk expression	97	Respiratory monitoring	168
Chapter 6 Care of the extremely low birthweight neonate	106	Oxygen therapy	169
<i>Jeanine Young and Victoria Kain</i>		Chapter 10 Care of the neonate with a cardiovascular disorder	181
Introduction	107	<i>Patricia Bromley and Glenda Fleming</i>	
Factors contributing to neonates being born at low birthweight	109	Introduction	182
Neonatal transport decisions	110	Embryological development of the heart	182
‘Small baby’ protocols	110	Epidemiology	184
Preparation for admission of the ELBW neonate	114	Incidence	184
Chapter 7 Neonatal retrievals and transport	120	Causes	184
<i>Fay Presbury and Anita Robertson</i>		Diagnosis	184
Introduction	121	Physical examination	184
Data informing clinical care for neonatal retrievals	121	Congenital heart disease by lesion	189
Geographical considerations and levels of care	121	Obstructive defects	191
Tasking and clinical coordination	122	Non-structural cardiac conditions	197
Equipment	125	Neonatal arrhythmias	197
Neonatal stabilisation for retrievals	126	Surgical management of congenital heart disease	198
Physiological considerations for the neonate during transport	127	Non-surgical management	203
Parental family support	130	Parenting and congenital heart disease	205
Chapter 8 Neonatal thermoregulation	134	Chapter 11 Care of the neonate with a haematological disorder	208
<i>Karen New and Jackie Smith</i>		<i>Victoria Kain and Trudi Mannix</i>	
Introduction	135	Introduction	209
Physiology of thermoregulation	135	Developmental haematology	209
Mechanisms of thermoregulation	135	Erythrocyte disorders	212
Mechanisms of heat transfer	138	Hyperbilirubinaemia (neonatal jaundice)	215
Temperature measurement	139	The haemostatic system (coagulation disorders)	221
Strategies to support thermoregulation in neonatal care	143	Blood components replacement therapy	225
Evidence base for thermoregulation practices	145	Chapter 12 Care of the neonate with a gastrointestinal disorder	231
Involving the family in best thermoregulation practice	145	<i>Jacqui McGregor, Linda Sweet and Trudi Mannix</i>	
Chapter 9 Care of the neonate with a respiratory disorder	149	Introduction	232
<i>Victoria Kain and Trudi Mannix</i>		Embryological and fetal development of the gastrointestinal system	232
Introduction	150	Feeding intolerance	233
Embryological development of the respiratory system	150	Gastro-oesophageal reflux	235
Signs and symptoms of respiratory disease	151	Cholestasis	236
Oxygenation in the neonate	152	Bowel obstruction	238
		Necrotising enterocolitis	240

Chapter 13 Care of the neonate with a neurological disorder	247	Transmission of infection to the neonate	303
<i>Kim Fletcher and Karen Walker</i>		Clinical assessment	304
Introduction	248	Diagnostic screening	312
Embryological and fetal development of the central nervous system	248	Medical and pharmacological treatment of neonatal infection	315
Anatomy and physiology of the neonatal central nervous system	250	Nursing care of the septic neonate	317
Neonatal seizures	250	Chapter 17 Care of the neonate with a congenital abnormality	322
Neural tube defects	251	<i>Victoria Kain and Trudi Mannix</i>	
Microcephaly	252	Introduction	323
Craniosynostosis	253	Congenital abnormalities of the respiratory system	323
Birth trauma	253	Congenital abnormalities of the gastrointestinal system	326
Neonatal intracranial haemorrhage	253	Anorectal malformations	332
Skull fractures	255	Congenital abnormalities of the cardiovascular system	333
Nerve injuries	255	Congenital abnormalities of the oral and craniofacial regions	333
Perinatal stroke	258	Congenital abnormalities of the neurological system	334
Hypoxic ischaemic encephalopathy	259	Congenital abnormalities of the kidney and urinary tract	336
Meningitis	260	Congenital abnormalities of the integumentary system	343
Cerebral palsy	261	Miscellaneous congenital abnormalities	344
Neonatal nursing/midwifery considerations	262	Common chromosomal disorders	345
Chapter 14 Care of the neonate with a renal or genitourinary disorder	267	Chapter 18 Neonatal pain management	352
<i>Victoria Kain</i>		<i>Denise Harrison and Lisa-Kim Wright</i>	
Introduction	268	Introduction	353
Embryological development	268	Historical perspective and sources of neonatal pain	353
Renal anatomy	268	Epidemiology of painful procedures	353
Neonatal renal physiology	269	Non-pharmacological strategies to reduce pain and distress	358
Common disorders	272	Pharmacological strategies to reduce pain and distress	360
Chapter 15 Care of the neonate with a metabolic or endocrine disorder	278	Promoting evidence-based pain management practices	362
<i>Deborah Harris and Victoria Kain</i>		Chapter 19 Neonatal skin and wound care	366
Introduction	279	<i>Deanne August and Victoria Kain</i>	
Metabolic adaptation	279	Introduction	367
Neonatal energy sources and glucose homeostasis	279	Embryological and fetal development	367
Hypoglycaemia	281	Preterm and term skin	367
The insulin pathway	283	Functions of the skin	368
Hyperglycaemia	287	Principles of neonatal skin care	369
The endocrine system	288	Bathing	370
Disorders of the endocrine system	290	Umbilical cord care	372
Chapter 16 Care of the neonate with an infection	300	Procedural skin disinfectants	373
<i>Laurene Aydon and Trudi Mannix</i>		Skin injury and wounds	373
Introduction	301		
Epidemiology	301		
Functions and components of the immune system	301		
Embryology and limitations of the neonatal immune system	302		

Neonatal skin assessment tools	382	Care-giving strategies to enhance behavioural development	426
Stoma care	383	Interpretation of neonatal behaviour	429
Chapter 20 Neonatal abstinence syndrome	389	Implementing developmental care in the clinical setting	431
<i>Anndrea Flint and Judith Needham</i>			
Introduction	390	Chapter 23 Legal and ethical issues in the neonatal unit	437
Pathophysiology of NAS	390	<i>Lyn Francis and Janet Green</i>	
Epidemiology	390	Introduction	438
Key aspects of antenatal care	391	Common law and civil law torts applicable to neonatal nurses/midwives	438
Psychosocial aspects of postnatal care	391	Medication errors	440
Clinical manifestations of NAS	391	Privacy and confidentiality	440
Maternal drugs that contribute to NAS	392	Documentation in healthcare records	441
Fetal alcohol spectrum disorder	393	Professional accountability issues in the neonatal unit	441
Scoring tools available for assessment of NAS	393	Child protection	442
Non-pharmacological interventions for NAS	394	Criminal law issues	443
Biomarkers for testing substance abuse in neonates	397	The role of the coroner	443
Pharmaceutical management of NAS/NOWS	398	Role of the neonatal nurse/midwife in ethical decision making	448
Preparation for discharge	400	A framework for ethical decision making	448
Home weaning	400		
Follow-up	400	Chapter 24 End-of-life care in the neonatal unit	453
Chapter 21 Family-centred care in the neonatal care unit	405	<i>Victoria Kain and Rebecca May</i>	
<i>Suza Trajkovski and Trudi Mannix</i>		Introduction	454
Introduction	406	The goals of end-of-life care	455
Normal attachment and bonding and the effects of separation	406	End-of-life care management	455
Parents' experiences in the neonatal unit	406	Palliative care in practice	456
Principles of family-centred care	407	Immediate post-death care of the neonate	461
Family-integrated care	408	Bereavement care	463
Developmental care, kangaroo care and skin-to-skin care	408	Chapter 25 Discharge planning and follow-up care	467
Meeting the cultural, religious and spiritual needs of families	410	<i>Trudi Mannix and Victoria Kain</i>	
Caring for vulnerable families	410	Introduction	468
Adolescent parents in the neonatal unit	411	Discharge planning	468
Fathers in the neonatal unit	412	Transfer of the neonate between neonatal units	475
Social and psychosocial challenges in the neonatal unit	412	The role of the discharge coordinator	478
		Long-term follow-up	478
Chapter 22 Developmentally focused neonatal care	417	<i>Glossary</i>	485
<i>Nadine Griffiths and Kim Psaila</i>		<i>Appendices</i>	497
Introduction	418	<i>Index</i>	502
Relationship-based care and co-regulation	423		
The changing neonatal unit environment	423		



PREFACE

We are delighted to be working together again on the second edition of our textbook, bringing together leading neonatal nurses, researchers and midwives to create an exceptional evidence-based guide for the future growth of neonatal and family-centred care. While the central theme to our first edition is enduring – creating a strong scientific foundation for competent family-centred neonatal care – we live in an age where evidence, and therefore practice, is under constant review, and this edition presents that dynamic evidence.

We are eternally grateful to our wonderful neonatal nursing and midwifery colleagues and professional bodies who have helped us along the way by writing, peer reviewing and supporting us. While the second edition represents a labour of love for us, it is also confirmation of the passion and commitment that all contributors feel towards the care of vulnerable newborns and their families. This would not have been accomplished without their assistance. Our appreciation is also extended to the talented and devoted professionals at Elsevier, for guidance in the development of our second edition, and who continue to support us.

Dr Victoria Kain and Dr Trudi Mannix

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FOREWORD

BY PROFESSOR KAREN WALKER

It is a privilege to be invited to write a foreword for the second edition of this superb textbook. Dr Trudi Mannix and Dr Victoria Kain have led a team of extraordinary neonatal nurses and midwives who have contributed to updating this key textbook for neonatal nurses and midwives around the world.

So much has changed in the world since the first edition of the textbook was published. Who would have predicted a pandemic in our lifetime? What has made this edition even more impressive is that the writing of this edition has happened during the pandemic, when we are all well aware of the impact this has had on ourselves, our colleagues and the health system. It is a testament to the dedication and resilience of the nurses and midwives who have contributed to these chapters and who leave this legacy for future neonatal nurses/midwives.

The voices of neonatal nurses and midwives are important and I strongly advocate for neonatal nurses/midwives to be integral to every conversation which impacts our professions. One important challenge globally is the provision of specific education for neonatal nurses and midwives regarding the care of the vulnerable newborn. This high-calibre textbook, written by neonatal nurses and midwives for neonatal nurses and midwives, contributes to the body of knowledge that supports this.

This comprehensive revision now has 25 chapters written and updated by many of the previous edition's authors; however, it is gratifying to see new names as authors also. The first chapter is one of the changes in this edition: a new chapter on global perspectives in neonatal nursing/midwifery. Another new chapter describes the care of the normal newborn. The book then proceeds logically through the knowledge required to care for a small or sick newborn, concluding logically with a chapter on discharge planning and follow-up care.

Two chapters I would like to suggest as critical reading just now are Chapter 21 – Family-centred care in the neonatal unit, and Chapter 22 – Developmentally focused neonatal care. I am a chair committee member for the Global Alliance for Newborn Care, an international parent organisation that published the results of a survey detailing the impact of the pandemic on parents, and I recommend that everyone reads this disturbing report. One aspect of the last 2 years which has caused many of us distress has been the exclusion of parents within our neonatal units. As a mother, I cannot imagine not being allowed to see my baby. As a nurse, like many of you, I have had to enforce these rules, understandable though they may be. With these restrictions, having parents in some units has become less common and many new nurses/midwives are not as familiar or comfortable with parents being present and integral partners in care. Some countries are reporting that they have gone back a decade in parental involvement.

I would like to thank Trudi, Victoria and all the authors who have contributed their time and expertise to writing this second edition. As an author I am well aware of the time and effort required, and as an editor I know this workload is amplified exponentially. I would also like to challenge everyone reading this book to believe in yourself and what you can achieve. Any one of you can be a leader in whichever field of neonatal nursing/midwifery you wish to work in. Thank you all.

Professor Karen Walker

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NEONATAL NURSING: GLOBAL PERSPECTIVES

VICTORIA KAIN, TRUDI MANNIX
AND KAREN WALKER^a

Learning objectives

After reading this chapter you will be able to:

- discuss the evolution of neonatal care
- understand the perspectives of neonatal care for First Peoples of Australia and New Zealand
- understand the demographics of neonatal units and the levels of newborn care
- describe the profile of neonatal nurses and midwives globally, and the impact that neonatal nurses and midwives have on neonatal outcomes
- outline newborn epidemiological data
- discuss the emerging role of neonatal simulation and its impact on patient safety
- describe the role of professional organisations for neonatal nurses and midwives
- describe models of governance within the neonatal unit and the organisation
- identify leadership traits and styles to enable change and staff development within the neonatal unit
- discuss components of organisational culture including teamwork and communication
- analyse the impact of evidence for quality improvement within clinical practice.

Key words, terms and abbreviations

Aboriginal Community Controlled Health Service (ACCHS)

Australian and New Zealand Neonatal Network (ANZNN)

Australian College of Neonatal Nurses (ACNN)

Australian Health Practitioner Regulation Agency (AHPRA)

Australian Nursing and Midwifery Accreditation Council (ANMAC)

clinical governance

Congress of Aboriginal and Torres Strait Islander Nurses and Midwives (CATSINaM)

Council of International Neonatal Nurses (COINN)

culture

leadership

National Aboriginal and Torres Strait Islander Health Plan (NATSIHP)

neonatal intensive care unit (NICU)

Neonatal Nurses College of Aotearoa (NNCA)

neonatal nurse practitioner (NNP)

New Zealand Nurses Organisation (NZNO)

nurse practitioner (NP)

safety

special care baby unit (SCBU)

special care nursery (SCN)

organisational culture

teamwork

World Health Organization (WHO)

^aThe authors would like to acknowledge Professor Roianne West, co-author of this chapter in the 1st edition of this book.

INTRODUCTION

Neonatology is considered a relatively new area of medical and nursing specialisation, emerging as a subspecialty of paediatrics in the 1950s. Within a relatively short time frame, neonatology has emerged as one of the fastest growing fields of medical science. Some of the major historical milestones in the field include the impact of exogenous surfactant in the late 1980s, the near eradication of rhesus (Rh) disease and the introduction of antenatally administered corticosteroids, which have all impacted favourably on the morbidity and mortality of neonates globally. While this is largely due to advances in respiratory care and improved nutritional techniques, neonatal nurses/midwives have tirelessly promoted and enforced the fundamental cornerstones of neonatal care, including simple measures for hygiene, warmth and nutrition with the promotion and support of breastfeeding, and have also championed neurodevelopmental and family-centred care.

This chapter considers the context of systems that underpin care of preterm and unwell neonates both within Australia, New Zealand and globally. The evolution of neonatal practice from a historical perspective, the advances in neonatal practice and patient **safety** will be discussed. An introduction to neonatal care is also provided, to give an understanding of neonatal care and the impact that nurses and midwives have had on outcomes. Inclusive to this are the professional organisations that support the development of neonatal care and an overview of the associated framework and theory.

The provision of safe and best practice in the neonatal unit is dependent on the environment and **culture** within the unit and more broadly within the organisation. This chapter will guide neonatal nurses/midwives through the labyrinth of the structure and processes that support their clinical practice. Issues such as **teamwork**, **leadership** and **organisational culture** are discussed with practical information on how they may incorporate the principles into their practice. Processes such as quality improvement, reflection, family-centred care, competency and mandatory skills acquisition are highlighted to enable neonatal nurses/midwives to gain an understanding of their importance when using critical thinking skills and in providing best practice.

TYPES OF NEONATAL UNITS

The **World Health Organization (WHO)** categorises units which provide newborn care into three levels, with level 1 providing basic newborn care, level 2 special care and level 3 intensive care (WHO, 2018). While these three levels of neonatal units are generally accepted, this can vary, from state to state, region to region and country to country. Some jurisdictions have three levels of care while some have up to six levels of care, with levels 1–2 providing care to low-risk neonates, levels 3–5 caring for moderately at-risk neonates and levels 6A and 6B providing tertiary newborn services. In the interests of a

consistent approach, however, this text will refer to three levels of care as described here:

- Level 1: neonates admitted to a level 1 unit are considered 'low risk' and do not require complex care.
- Level 2: these neonatal units have facilities to manage mildly or moderately ill neonates. This category of unit is also referred to as a **special care baby unit (SCBU)** or **special care nursery (SCN)**. For the purposes of this chapter, the term 'level 2' will be used.
- Level 3: globally, the level 3 unit (commonly referred to as the **neonatal intensive care unit (NICU)**) may be further classified into levels 4 and above to reflect the level of acuity. Level 3 nurseries and above, or NICUs, are located only in tertiary (or 'teaching') hospitals.

In Australia and New Zealand in 2018, neonates born at less than 32 weeks represented the majority (32.1%) of all neonates admitted to an NICU. Of these neonates, 0.4% weighed less than 500 g at birth, with 26.8% of neonates weighing less than 1500 g (Chow et al., 2020).

EVIDENCE-BASED PRACTICE RESEARCH 1.1

Nurses in Australia come from diverse social and cultural backgrounds, with varying degrees of expertise and experience. It is an appropriate environment to explore the complicated and demanding social dynamics across varied nursing workforces. Social exchanges, organisational culture and power relations shape work-related social relations. This study examined how social relations were established at work for neonatal nurses, guided by the following research questions:

- What are the cultural practices of the neonatal unit?
- How do nurses experience their everyday work life in the neonatal unit?
- How are nurses' social relations of work affected by the neonatal unit?

Data were collected over 18 months in the field by observing 76 nurses and interviewing 65 of them.

To understand the intricacies of social relations between nurses in diverse social situations, intersectionality theory was applied.

How nurses related at work was central to this work. Trust and reciprocity enabled nurses to work together. The assistance of senior nurses and opportunities to learn and improve were deemed essential. A good shift was possible because nurses felt valued, included, encouraged and cared for. However, there was a lack of trust and support among nurses of colour. These nurses were deskilled and faced career difficulties. Nurses of colour seemed to be merely filling in for shortages rather than being valued for their expertise. These activities created a toxic workplace culture for nurses, affecting work–life balance and patient safety. Examining how cultural safety affects social relationships among nurses at work promotes authentic engagement.

Source: Nepali (2020).

THE DESIGN OF THE NEONATAL UNIT

Neonatal units in Australia and New Zealand have a range of designs depending upon the age of the facility and the acuity of the neonates they accommodate. As is the case globally, there are two main designs of neonatal units: the open-bay design, which may also have pods where neonates are grouped together, and single/double family rooms. Fig. 1.1 is an example of an open-bay design. The open-bay environment is a more traditional design that is favoured by some clinicians because it allows for communication and interaction among staff, and also allows for the simultaneous monitoring of multiple neonates.

Since the emergence of the trend incorporating neurodevelopmental care principles into all aspects of neonatal care from the mid 1980s, single rooms (and double rooms for multiple births) and family rooms have been considered superior in terms of providing neurodevelopmentally sound neonatal care and enhancing parental satisfaction (O'Callaghan et al., 2019) (see Fig. 1.2).

This design has been linked to improved outcomes such as increased parental involvement in the care of their baby, reduced rates of sepsis, control of noxious stimuli such as noise, improved sleep patterns for neonates, a decreased length of hospital stay and reduced re-admission to a hospital environment (O'Callaghan et al., 2019). See Chapter 22 for further information.

The single-room design has not been without criticism, however, with a significant increase in the nursing workload and level of isolation reported (Doede et al., 2018). These negative impacts have, on balance, been ameliorated by

the increased satisfaction reported by neonatal nurses/midwives upon seeing the benefits to neonates and parents of this design.

EVIDENCE-BASED PRACTICE RESEARCH 1.2

A comparative observational study was conducted to investigate the impact of open-bay and dual-occupancy NICU designs on parent activities and evaluate their opinions of both designs. A parent activity study, parent feedback surveys comparing physical surroundings and parental involvement were all used in the study. To obtain a better understanding of families' experiences in the dual-occupancy NICU, post-transition parent interviews ($n = 10$) were undertaken. Parents spent significantly more minutes per day (24 h) participating in their infant's care in the dual-occupancy NICU than in the open-bay NICU (359.40, 228.70, $p < 0.01$; respectively); similarly, increased participation was recorded in the dual-occupancy special care nursery (SCN) than in the open-bay SCN (295.20, 231.90, $p < 0.01$; respectively). Parents believed that the dual-occupancy design produced a 'home away from home', allowing them to participate in kangaroo care and breastfeeding while attending to their infant's care with minimum interruptions and privacy.

Source: Broom and Kecskes (2020).

AN OVERVIEW OF NEONATAL STATISTICS

There were 315,147 live births in Australia in 2018, and 58,020 live births in New Zealand. In Australia and New Zealand, male births outnumbered female births in 2018,



FIGURE 1.1 A typical neonatal unit in an Australian and New Zealand setting (open-bay design)

Source: iStockphoto/JazzIRT.

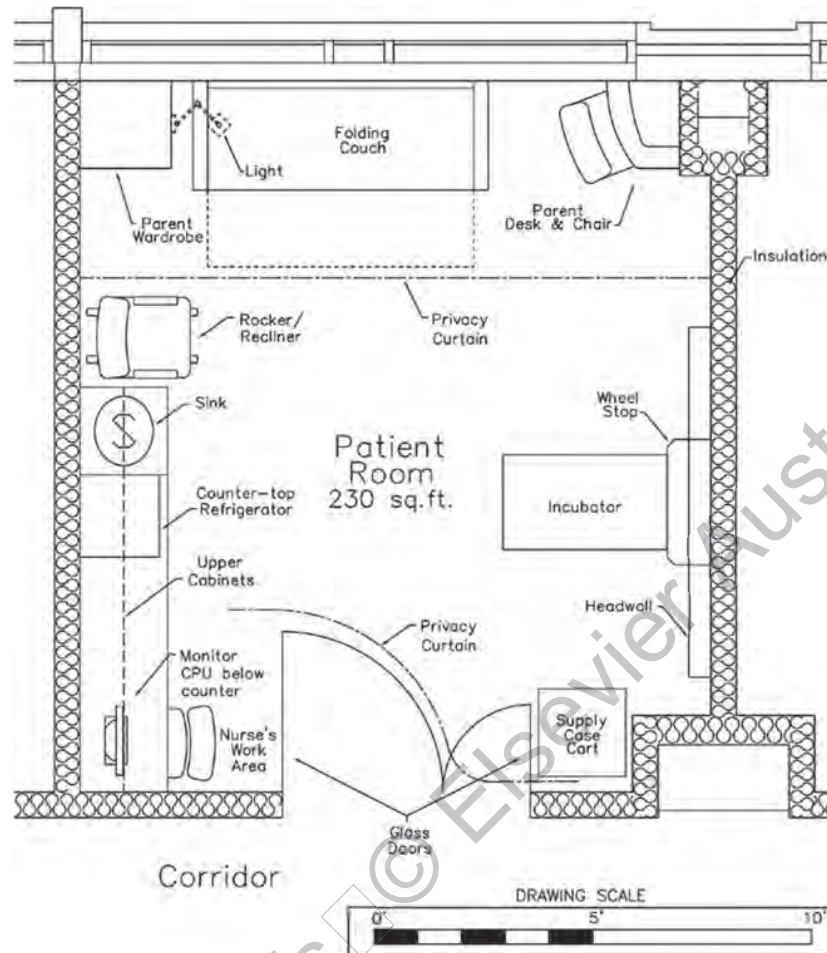


FIGURE 1.2 Example of a single-room design

Source: Stevens, D. C., Akram Khan, M., Munson, D. P., Reid, E. J., Helseth, C. C., & Buggy, J. (2007). The impact of architectural design upon the environmental sound and light exposure of neonates who require intensive care: an evaluation of the Boekelheide Neonatal Intensive Care Nursery. *Journal of Perinatology*, 27(Suppl 2), S20–S28. Reprinted with permission from Springer Nature.

accounting for 51.4% of total live births in both nations. Male births accounted for 58.8% of **Australian and New Zealand Neonatal Network (ANZNN)** registrants, which was higher than the national average. The majority, 55.0% of registrants, born at less than 32 weeks' gestation were male, while 62.4% of births at term were male (Chow et al., 2020).

According to the ANZNN, 10,651 babies were admitted to level 3 NICUs in Australia and New Zealand in 2018 (Chow et al., 2020), representing 2.9% of notified live births. Of these, 80% were delivered in a hospital with tertiary care facilities, with the remainder requiring transfer to a tertiary facility. Of these neonates, 3417 (32.1%) were born at less than 32 weeks' gestation; in Australia, 71.1% of these neonates were delivered from a Caucasian mother, with the second highest ethnicity being Asian (16%). Indigenous neonates were over-represented, with 1 in 13 mothers (7.5%) identifying as of Indigenous descent, which was higher than the proportion of all reported births in Australia in 2018 (4.9%) (Chow et al., 2020).

Although there are many factors that influence perinatal outcomes, one of the most significant is maternal age. In 2018, the ages of mothers of high-risk neonates ranged from 15 to 55 years. Mothers aged 30–34 years had the highest proportion of ANZNN registrants' mothers (33.2%), followed by mothers aged 25–29 years (25.3%). In 2018, they accounted for nearly one-third of all ANZNN registrants' mothers (58.5%) (Chow et al., 2020).

In 2018, 95.9% of ANZNN registrants survived and were discharged home. These records contain babies who were moved to level 2 or level 1 units, as well as those who were transferred to another level 3 unit or to a paediatric hospital. The babies born before 30 weeks' gestation had the highest mortality rate, with a survival rate at discharge rising week by week from 42.1% for babies born before 24 weeks to 95.9% for babies born at 29 weeks.

For 0.8% of registrants, a fatal congenital defect was the cause of death, with the majority of deaths occurring in babies born between 35 and 39 weeks of pregnancy (Chow et al., 2020).

THE GLOBAL NEONATAL AND MIDWIFERY WORKFORCE

Globally, there are challenges for the nursing and midwifery workforce as highlighted in the recent WHO Roadmap on Human Resources for Health Strategies for low- and middle-income countries (WHO, 2020). While this report was not specifically focused on high-income countries, many of the challenges of sustainability of the neonatal workforce are relevant. In many countries, neonatal nursing is not a specialty; however, with increasing survival of small and sick newborns, this is changing and the importance of highly skilled neonatal nurses is becoming more recognised. A sample of the diversity of courses, qualifications and regulatory practices is outlined below.

Australia and New Zealand

In Australia and New Zealand, registered nurses (RNs) and registered midwives (RMs) provide expert care to neonates in the neonatal unit. In both countries, an RN/RM completes a 3-year tertiary degree with a recognised tertiary provider, and, in the case of the latter, the RM may hold a degree in midwifery or both nursing and midwifery. Australian Institute of Health and Welfare (AIHW) and New Zealand Health Workforce (NZHW) data do not capture how many nurses work primarily in neonatal units; however, the majority of clinicians in level 3 units and higher are RNs. In Australia, the **Australian Health Practitioner Regulation Agency (AHPRA)** is the regulating authority for Australia's health practitioners in partnership with the National Boards. For RNs and RMs, this is the Nursing and Midwifery Board of Australia, which is also responsible for developing standards, codes and guidelines for the nursing and midwifery professions, and the **Australian Nursing and Midwifery Accreditation Council (ANMAC)**, which develops and reviews accreditation standards for nursing and midwifery programs of study in Australia.

In order to practise, RNs in New Zealand must be registered with the Nursing Council of New Zealand (which is also the regulatory authority); equally, RMs in New Zealand must be registered with the Midwifery Council of New Zealand. Due to the Trans-Tasman Mutual Recognition Act (TTMRA), those who possess a nursing registration in all states and territories in Australia can apply for registration in New Zealand under the TTMRA, and vice versa with AHPRA.

North America

In North America, nurses may complete a diploma in 2–3 years (a few hospital-based education providers still exist); a 2–3-year Associate Degree in Nursing (ADN) or a 4-year undergraduate Bachelor of Science in Nursing (BSN). After obtaining this nursing education, individuals then sit for the National Council Licensure Exam (NCLEX-RN) and once successful are able to apply for their registered nursing licence. The respective university deans give the student authorisation to test with the Board of Nursing in which they decide to take the exam (each state has its own

board). They then take the NCLEX and, if they pass, they receive their RN licensure for that state.

The US Bureau of Labor and Statistics provides data on the employment and wage statistics for nurses and highlights the substantial variance in employment and mean wages for RNs between states (US Department of Labour, 2021). Neonatal nurse certification may be obtained through the American Association of Critical Care Nurses (AACN) or the National Certification Corporation (NCC) for nurses who have worked a minimum specified number of hours/years in the specialty (Registered Nursing.org, 2021). National certification is required for neonatal nurse practitioners to practise, and this is obtained through the NCC.

Midwifery in the US is a postgraduate course, with all programs accredited by the American College of Nurse-Midwives (ACNM) Accreditation Commission for Midwifery Education (ACME) requiring a Bachelor's degree for entry (ACNM, 2021).

While the National Council of State Boards of Nursing (NCSBN) consists of all states' boards of nursing, governance of nurses is administered through individual state nursing boards, with scope of practice defined and regulated by state laws (NCSBN, 2021; Nursing License Map, 2021).

Neonatal nurses in North America are able to join multiple national professional bodies: the National Association of Neonatal Nurses (NANN); the Academy of Neonatal Nursing (ANN); the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) as well as the Hawaiian state-based organisation Caring for Hawai'i Neonates, translated in Hawaiian as 'Mālama on Nā Keiki'. In 2017 these organisations held an inaugural meeting in Hawaii and agreed to work together with the Council of International Neonatal Nurses (COINN), and the Alliance of Global Neonatal Nursing (ALIGNN) was formed.

Canada

In Canada, all provinces and territories require nurses to have a Bachelor's degree with the exception of Quebec, where diploma programs are still offered. As of 2015, the 11 provincial/territorial bodies require the successful completion of a standardised Canadian RN entry-to-practice exam. Canada has two advanced practice nursing (APN) roles: the clinical nurse specialist (CNS), and the **nurse practitioner (NP)**, both of which require a minimum of a Master of Nursing degree. A PhD in nursing is the most common requirement for university academic/research positions. A Doctor of Nursing Practice (DNP) is less common, with only one university in Canada, as of 2021, offering this program. There is no national licence in Canada, and each province or territory has regulatory bodies (Canadian Nurses Association (CNA), 2021). Nurses can undertake specialisation in neonatal nursing through programs such as the Canadian Nurses Association Certification Program. The Canadian Association of Neonatal Nurses (CANN) was established in 2006 and is the professional body for neonatal nurses in Canada.

The United Kingdom

In the United Kingdom, the National Health System is responsible for the delivery of healthcare and the training, education and development of health professionals. The professional regulator for nurses and midwives is the Nursing and Midwifery Council (NMC), with which all nurses and midwives must be registered (NMC, 2021a). Nurses and midwives must work within 'The Code', which incorporates the professional standards for practice (NMC, 2021b).

While nurses pay an annual fee for registration, registration must be renewed and revalidated every 3 years. This revalidation process requires evidence of 450 practice hours, 35 hours of continuing professional development, five pieces of practice-related feedback, five written reflections, reflective discussion and declarations of health and character (NMC, 2021c). Neonatal nursing is a recognised specialty and there are postgraduate specialisation courses. The Neonatal Nurses Association (NNA) was established in 1977 (NNA, n.d.).

South Africa

South Africa has a two-tier healthcare system, with the public and private sectors working together. Primary, secondary and tertiary care services are all duplicated. The private healthcare sector caters to those who can afford medical benefits or pay for services privately, while the public healthcare system caters to the majority of the population. Both sectors need neonatal nurse specialists. From 2001 to 2012, specialised neonatal nurses were trained and registered with the South African Nursing Council (SANC). Due to a technicality in the initial approval process, SANC stopped licensing specialist neonatal nurses as an independent specialty in 2012. The cancellation has reportedly had a negative impact on neonatal nurse specialist preparation and availability in South Africa (Maree et al., 2021). The Neonatal Nursing Association of South Africa (NNASA) was established in 2007 by a small group of dedicated neonatal nurses who saw a need to enhance the region's neonatal care by assisting and empowering the nurses who care for these neonates (NNASA, 2018).

The association's goals are to encourage and reward excellence in neonatal care through a national award, to improve skills and knowledge through regional workshops, to foster collaboration and support between nurses in state and private institutions through regional networks, to improve standards of care through the provision of evidence-based best-practice guidelines, and to improve neonatal care through the provision of evidence-based best-practice guidelines.

The neonatal nurse practitioner role

The nurse practitioner (NP) model of an extended scope of practice for the RN has been established internationally since 1966. The **neonatal nurse practitioner (NNP)** position was created in the United States in the 1960s as a result of a physician shortage. This occurred as a result of changes

in medical training that decreased time spent in specialist fields and, as a result of the survival of premature babies and advancements in specialised treatment, the demand for neonatal care increased (Forbes-Coe et al., 2020).

In Australia, NPs are RNs with an advanced (Master's) qualification in addition to significant specialist experience in their field of practice. NPs are authorised to practise in an expanded nursing role in clinical settings, including the neonatal setting. In 1990, the first NP committee model was convened in New South Wales and, in 1994, NP pilot projects were established in Australia. The first NPs (and midwifery practitioners) in Australia were authorised to practise in 2000, and neonatal nursing was identified as one of the first areas for an NP model, with South Australia one of the first states to implement the role. Almost two decades later, the neonatal NP model is continuing to establish itself in most level 3 neonatal units in Australia, but uptake has been somewhat slow in some states.

In New Zealand the role was launched by the Ministry of Health and the Nursing Council of New Zealand in May 2001. The development and implementation of the NP role in New Zealand's health and disability sector followed a key recommendation in the report of the Ministerial Taskforce on Nursing (1998). Subsequently, in 1999 a consensus conference of wide-ranging nursing organisations (the College of Nurses Advanced Practice Workshop in Palmerston North) agreed to progress the issue of advanced clinical nursing practice.

The nurse practitioner position is one of the most sought-after senior clinical roles for neonatal nurses because of its many advantages. The provision of autonomy for patients while ensuring stability and continuity of care in the work environment is one of the role's greatest strengths, which prompted its expansion. NNPs initially offered continuity within the workforce, allowing support and education to both medical and nursing personnel during a period of high turnover of medical registrars. The variety of an NNP's clinical experience helps to create a more diverse and stable workforce, which benefits babies and families, and the position offers a previously inaccessible clinical career path at the senior nursing level (Forbes-Coe et al., 2020) (Fig. 1.3).

The position does, however, have some established challenges and limitations. NNPs in Australia do not have a Medicare provider number unless they operate in a private practice, so they must always be countersigned by a medical practitioner when making referrals. The ongoing obligation to work a revolving 24-hour roster, which is usually not needed in other disciplines at this senior level, is one of the key limitations of the current position. Another drawback is that, in many jurisdictions, only a medical practitioner can certify death, which can be difficult for NNPs performing neonatal retrievals (Forbes-Coe et al., 2020).

Neonatal nursing and cultural safety

The **Congress of Aboriginal and Torres Strait Islander Nurses and Midwives (CATSINaM)** considers cultural safety to be the ultimate step in a continuum of nursing



FIGURE 1.3 A neonatal nurse practitioner in Australia stabilises a neonate pre-retrieval

Source: Dr Jackie Smith.

and/or midwifery care that encompasses cultural awareness, cultural sensitivity, cultural knowledge, cultural respect and cultural competence. Cultural safety is defined by the recipient and cannot be defined by the care giver. CATSINaM advocates for Aboriginal and Torres Strait Islander peoples by promoting a framework of cultural safety to inform attitudes and behaviours in health professionals' provision of care to Aboriginal and Torres Strait Islander individuals and communities, so that individuals and their families feel culturally secure, safe and respected. Cultural safety must be integrated into all aspects of nursing and midwifery practice in order to achieve this state (CATSINaM, 2014).

In terms of cultural safety training for Australian and New Zealand nurses and midwives, Indigenous health education and cultural safety training is inconsistent across universities. This is the reason for the recently developed Aboriginal and Torres Strait Islander Curriculum Framework (Department of Health, 2021).

Aboriginal and Torres Strait Islander (ATSI) people are significantly under-represented in the health workforce, which potentially contributes to reduced access to health services for the broader Indigenous Australian population (AIHW, 2020). A workforce survey published in 2019 showed that there were 5037 ATSI registered as nurses and midwives, with 4012 currently employed as clinicians (Commonwealth of Australia, 2020). Only 0.8% of Australia's nursing and midwifery workforce identify as Indigenous, and only 1414 are registered nurses (CATSINaM, 2015). Given the over-representation of First Peoples' neonates, a commitment must be made to expand and nurture Indigenous neonatal nurses and/or midwives in order to better reflect the population they serve and to provide culturally safe care in neonatal units. It is currently unknown how many Indigenous nurses and/or midwives work in newborn units. In New Zealand, 7% of registered nurses identify as Māori, and 4% as Pacific ethnicity (NZNO, 2021).

NEONATAL CARE AND INDIGENOUS CONTEXTS

In Australia, the development of Indigenous health as a sector in healthcare occurred at around the same time as neonatal nursing emerged as a specialty field in the 1970s, with the establishment of the first **Aboriginal Community Controlled Health Service (ACCHS)** (National Aboriginal Community Controlled Health Organisation (NACCHO), 2016). The ACCHS's mission is to provide holistic, comprehensive and culturally appropriate healthcare in compliance with the protocols established by the community that governs it. There are presently approximately 150 ACCHSs in Australia's cities, towns and outlying areas (NACCHO, 2016).

There is little research in the field of Māori whānau in New Zealand. However, it is clear that there are many similarities associated with neonatal births among Indigenous women, such as poorer birth outcomes, higher infant mortality and higher rates of low-birthweight and preterm neonates. According to New Zealand statistics from 2016, Asian neonates outnumbered Māori neonates admitted to NICUs and SCBUs. Despite the improvement in the ethnic ratio of admissions to the hospitals, Māori neonates remained over-represented in neonatal and perinatal mortality (National Women's Health, 2020). Clinical care provided to whānau, and whether whānau Māori receive medical and clinical care equivalent to that received by non-Māori families within the neonatal unit, highlights the importance of understanding possible health inequities experienced by Māori in relation to New Zealand's colonial history. In order to improve overall wellbeing, a deeper awareness of health inequities is required, as currently articulated through policies and models such as whānau ora.

PERSPECTIVES OF NEONATAL CARE FOR FIRST PEOPLES

The Indigenous population in Australia accounts for approximately 2.5% of the total population, according to census data. The Council of Australian Governments (COAG) decided in 2009 to be accountable for reaching the six 'Closing the Gap' targets (COAG, 2009). The first goal was to reduce the gap in child mortality. The aims have yielded mixed results; for example, in 2018, the Indigenous infant mortality rate was 141 per 100,000, double the rate for the non-Indigenous population at 67/100,000 (Australian Government, 2020). Since the 'Closing the Gap' target was set in 2008, the Indigenous child mortality rate has improved slightly (by around 7%), but at the same time the mortality rate for non-Indigenous children has improved at a faster rate, so the gap has actually widened (Australian Government, 2020). Continued improvements in important determinants influencing the health of Indigenous neonates, such as access to prenatal care and a decrease in rates of smoking during pregnancy, have the potential to continue to meet this target.

According to census data, Aotearoa/New Zealand's Indigenous population accounts for around 15% of the total population, while the estimated percentage of neonates registered as being of Māori heritage is 30% (Statistics Tauranga Aotearoa NZ, 2019a). The Indigenous infant mortality rate in New Zealand has fallen since 2008 to 4.9 per 1000 births – close but still not as good as those of European origin (3.8 per 1000 births) (Stats Tauranga Aotearoa NZ, 2019b). The rates of sudden unexpected death of an infant (SUDI) are significantly higher in the Māori and Pacific Peoples' ethnic groups (Ministry of Health, 2021). To eliminate health disparities for First Peoples' mothers and babies, there has been an increase in demands for more First Peoples' nurses as well as a culturally safe nursing workforce (Taylor et al., 2020).

Given the over-representation of Indigenous neonates in the newborn setting, Indigenous health education and professional development are critical to closing the health outcomes gap between Indigenous and non-Indigenous neonates. The holistic, comprehensive and culturally appropriate care principles used by the Aboriginal Community Controlled Health Services sector should be used in neonatal settings as well. The **Australian College of Neonatal Nurses (ACNN)** and the **Neonatal Nurses College of Aotearoa (NNCA)** articulate the characteristics and qualities expected of neonatal nurses/midwives in Australia and New Zealand in their neonatal nursing standards, which include an expectation that neonatal nurses/midwives provide culturally safe care (NZNO, 2021). This is significant because cultural awareness is essential for providing culturally safe neonatal nursing/midwifery care. More recently, the ability to provide 'culturally appropriate healthcare' has progressed to providing 'culturally safe healthcare' (Department of Health, 2021).

Indigenous health education has advanced significantly in recent years. The Department of Health (2021) authorised a new Aboriginal and Torres Strait Islander Curriculum Framework, which, while aimed at universities, has relevance for service delivery because it intends to equip health professionals to provide culturally safe healthcare. To actively establish stronger cultural safety in health service delivery, the Framework responds to and expands on widespread evidence and recommendations from numerous reports, studies and consultations.

Furthermore, the **National Aboriginal and Torres Strait Islander Health Plan (NATSIHP) 2013–23** stipulates 'the centrality of culture in the health of Aboriginal and Torres Strait Islander peoples, as well as individuals' rights to a safe, healthy, and empowered existence' (Australian Government, 2013, p. 4). The National Framework for Health Services for Aboriginal and Torres Strait Islander Children and Families is a companion document that articulates a vision and principles for the delivery of child and family health services to Aboriginal and Torres Strait Islander children and families across Australia.

It is critical that neonatal nurses and midwives learn not just 'about', but also 'from' Aboriginal people. Indigenous health education and cultural safety training should be valued in neonatal nursing/midwifery professional

development, and they should be recognised as distinct entities.

CLINICAL GOVERNANCE

WHAT IS CLINICAL GOVERNANCE?

Clinical governance is a term widely used to describe systems and processes that support the delivery of safe, high-quality and effective clinical care.

The Australian Commission on Safety and Quality in Health Care (ACSQHC) defines clinical governance as the set of relationships and responsibilities established by a health service organisation between its state or territory department of health, governing body, executive, workforce, patients, consumers and other stakeholders to ensure good clinical outcomes (ACSQHC, 2021).

How does clinical governance work?

Clinical governance originated in the United Kingdom in the late 1990s, with the goal of ensuring that high-quality care is given the same priority as financial control and service performance. There are several examples of inadequate clinical governance leading to negative patient outcomes, including several high-profile failures. There is also a growing body of literature describing specific initiatives to improve patient outcomes, such as antibiotic stewardship and hand hygiene to reduce rates of methicillin-resistant *Staphylococcus aureus*, or the introduction of rapid response teams to reduce hospital-wide mortality and out-of-ICU cardiac arrest (Dwyer, 2019).

Clinical governance is a shared duty that operates at all levels of the organisation and includes a review and improvement program at every level, from the Board to the Executive, the management team, clinicians and non-clinical personnel. A clinical governance framework is subject to the Board's supervision. It must show a commitment to good governance and promote an open and transparent management culture (Dwyer, 2019).

The Chief Executive Officer and the Executive are responsible for leading an organisation in a fair, open and transparent manner while also exhibiting a commitment to strong clinical governance. They must ensure that the essential systems and processes, such as policies and procedures, are in place to enhance clinical quality and patient safety, as well as to report and manage incidents and encourage consumer feedback. They are also in charge of developing a risk management framework that enables the organisation, its patients, employees and visitors to identify, monitor and control hazards. They must ensure that the organisation responds positively and rapidly to change.

Clinical service unit and business unit directors and medical directors are responsible for ensuring that the clinical governance framework is implemented correctly in their domains. This includes maintaining policies and

procedures, adhering to organisational standards in work practices, reviewing risks and taking corrective action. They must make certain that employees are properly trained and qualified for their clinical roles. Directors must maintain processes for assessing clinical outcomes and resolving performance concerns.

Within their areas of accountability, unit/department heads and managers are accountable for implementing the governance framework. This entails creating clear lines of responsibility for the quality and safety of the services delivered within each unit or department. Quality business plans should include work plans for continual improvement in systems and content of care, as well as maintaining and embedding organisational policies and procedures in local practice. At this level, managers are responsible for ensuring that incident management systems are properly implemented, and that a systematic response to local issues and performance improvement takes place. Managers should also make certain that adequate training, education and performance evaluation opportunities are available. At the local level, all employees should take ownership of risk management.

Clinical staff members are expected to follow all policies and procedures that pertain to their area of practice, report any occurrences that have or may have an influence on patient safety, and be aware of any legal requirements while doing their duties. They should have a defined scope of practice in their job description, which should be supported by a proper certification process. Employees should have regular performance reviews with their employers, have their scope of practice reviewed on a regular basis, and seek out suitable continued education and training. Clinical staff must participate in the organisation's monitoring systems and processes, as well as initiatives to improve care delivery.

Through the provision of adequate information about the clinical treatment offered, an informed consent procedure and the ability to provide feedback on the care they receive, consumers should be encouraged to be active participants in decisions surrounding their healthcare (Dwyer, 2019). In neonatal units, this responsibility is delegated to parents in the first instance.

Clinical governance in neonatal units

The Australian College of Neonatal Nurses (ACNN, 2019) provides standards of practice to be used as a guide for curricula development and as a tool to measure clinical practice. In New Zealand the National Neonatal Nurses Knowledge and Skills Framework (New Zealand Nurses Organisation, 2014) guides education and provides a structure for the professional development of neonatal nurses, while the Neonatal Nurses College Aotearoa (NNCA) Standards for Neonatal Nursing Practice (2015) represent the standards of practice required to deliver safe and effective neonatal services. The ACNN and NNCA Standards reflect the principles of the ACSQHC (2021) and align neonatal nursing efforts to improving the safety and quality of neonatal nursing care. These standards

(currently being revised in 2022) meet the requirement for continuing practice and professional development and the domains are in line with quality improvement standards and the drive for continual improvement in the delivery of clinical care. The specific domains of clinical practice, leadership and teamwork, professional development and research share similar requirements to those described in the Nursing and Midwifery Board of Australia's (NMBA) Registered Nurse Standards for Practice and those of the Nursing Council of New Zealand (NCNZ) respectively. Both frameworks are designed to describe practice domains, work within therapeutic relationships, lifelong professional learning and technical advancement. The accountability for practice extends to all contexts, clinical decision making and provision of care. Both professional colleges and the NMBA and NCNZ link education and skill development as key requirements for nurses and midwives.

Neonatal nursing managers carry the responsibility of leading clinical teams within clinical governance frameworks (Fig. 1.4). Shared governance is a model that extends power, control and authority to front-line teams to promote positive patient outcomes, inclusion and positivity (McKnight & Moore, 2021).

This model supports decision making within clinical units by clinical teams. Similar to other models of governance, the foundational domains of accountability, compliance with legislation, transparent performance reporting and data systems, competence and organisational capacity are necessary for effective implementation. Key organisational goals will include partnerships with families, recognition and management of deteriorating patients, analysis and trending of clinical incidents, recommendations for process improvements, availability of and compliance with clinical practice guidelines (evidence based wherever possible), compliance with legislation, organisational and professional policies and guidelines, continuing professional development support and consumer engagement. These goals are supported by national standards and accreditation systems in Australia and New Zealand and their respective neonatal nursing and midwifery colleges.

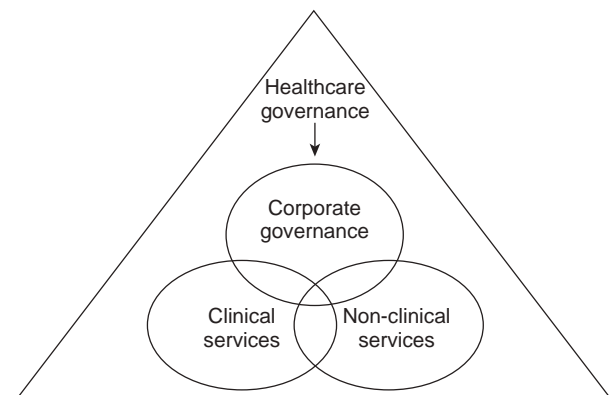


FIGURE 1.4 Key components of clinical practice

Source: McSherry and Pearce (2011, Fig. 3.3, p. 55). Reprinted with permission of John Wiley & Sons Inc.

Collaborative working arrangements extend from shared governance and are aimed at supporting organisations to learn from changes that have worked elsewhere. International examples of these neonatal networks include the Vermont Oxford Network (<<https://public.vtoxford.org>>), whose voluntary membership extends to 1000 neonatal units across the globe and hosts the Neonatal Intensive Care Quality Improvement Collaboratives, aimed at improving care through evidence, and the Cochrane Neonatal Review Group (<<http://neonatal.cochrane.org/>>), which disseminates systematic reviews to support evidence-based neonatal practice. Application of the learning shows mixed results and may reflect the different levels of reliability in processes in different organisations. The networks focus on key habits of high-reliability organisations and enable the distribution of good practice and the opportunities to learn. The Australian and New Zealand Neonatal Network (ANZNN, 2021) is a collaborative network that includes all level 3 units in both countries and one Singaporean level 3 unit, all New Zealand level 2 units, and an increasing number of level 2 neonatal units in Australia. The collaborative brings together information from a minimum data set to monitor morbidity and mortality and provide an external quality assurance process.

Clinical governance is centred on promoting and achieving continuous improvement within the organisation. Neonatal nurses and midwives need to bring together six key systems and processes to successfully implement clinical governance:

- 1 risk management
- 2 performance management
- 3 quality improvement
- 4 information
- 5 accountability
- 6 communication (McSherry & Pearce, 2011).

Risk management

Risk management frameworks strive to limit, minimise or prevent adverse events occurring. A risk may be described as an event that may potentially occur that prevents an organisation from achieving their objectives (Park & Sharp, 2019). Significant patient risk is described as the high probability of a substantial event that has a demonstrable adverse impact. It is the responsibility of all clinical staff to be able to identify and escalate potential risks so they can be considered by the leadership team. Control, interventions, system changes and treatment actions need to be identified and put in place to treat and mitigate the identified risk. Common risks in the neonatal unit include hospital-acquired infections, medication errors and neonates receiving expressed breast milk from another mother and having an incorrect test due to incorrect identification. Monitoring and preventing the occurrence of adverse events such as these, as well as accessing new knowledge or technology, standardisation of practices based on external guidelines or regulations, and participation in research, has been shown to facilitate innovation and improve and sustain patient care outcomes in NICUs (Cuttini et al., 2020).

CLINICAL PRACTICE 1.1

An important role for neonatal nurses/midwives is to report, monitor and manage incidents. There are several clinical indicators associated with risk that neonatal nurses/midwives are in a position to minimise and prevent. Some of these indicators are:

- unplanned extubation
- central line infections
- nasal integrity
- extravasation injuries
- skin integrity.

Consider your environment and how these potential risks are monitored.

- 1 When a risk does occur what is the process for review?
- 2 How can prevention be incorporated into the review and management?
- 3 How are trends in indicators fed back to the staff in your neonatal unit?

Performance management and quality improvement

This proactive approach strengthens patient safety. Performance management is a responsibility of unit managers and includes the principles of trust, review of consumer feedback and clinical incidents, budget integrity, staff support and development and patient safety. Service performance is shown to be impacted by leadership styles. Leaders who show appreciation, respect and concern for the welfare of others, and who clearly articulate role expectations, set clear team objectives and have a commitment to excellence, enhance performance and patient safety (Kiwanuka et al., 2021).

EVIDENCE-BASED PRACTICE RESEARCH 1.3

In a study of the traditional, collaborative and individualistic managerial models in 51 NICUs in Italy, the authors found that outcomes were better in NICUs that operated under a collaborative model (Fanelli et al., 2020). In the 'traditional' model, the doctor was responsible for the top-down leadership and management of the NICU (and seen as 'above the nurse' in the hierarchy). In the 'individualistic' model, evaluation was left to interested individuals, and there was no focus on organisational effectiveness. In the 'collaborative' model characterised by a participatory leadership model, nurses had autonomy and were involved equally in the decision-making processes. The collaborative model showed the best results in almost all outcomes considered (e.g. quality of care, safety and staff satisfaction), and the traditional model had the worst. The individualistic model was in the middle, although its values were very close to those of the traditional model.

Continuous quality improvement and organisation-wide audit review is the basis of the Australian National Safety and Quality Health Care Standards and those of the

Health Quality and Safety Commission in New Zealand (HQSC, 2021). Accreditation with this or a like organisation is required by Departments of Health in Australia and New Zealand. It is a path to clinical excellence. New Zealand's *Health and Safety at Work Act 2015* (New Zealand Government, 2017), enacted on 4 April 2017, moved from focusing on recording incidents relating to health and safety to a requirement to identify and treat workplace health and safety risks. This pivotal change to include the concept of a 'person undertaking a business or undertaking' pushes the creator of the risk to manage the risk. These concepts are also found in the various Australian Commonwealth and state workplace health and safety acts. The *Safe Work Australia Act 2008* (2009) was adopted to harmonise workplace safety laws across Australian states and territories. Enacting a 'safety culture' involves the willingness of front-line staff to disclose errors, multidisciplinary discussions to highlight potential threats to the safety of the neonatal patient and a safe environment for staff and families to speak up and act in ways that improve safety (Ravi et al., 2021).

Information

High-quality information is required to guide and inform decision making. Clinical teams need to know how they are performing. The Australia and New Zealand Neonatal Network provides an annual report (Chow et al., 2020) that benchmarks neonatal units' performance and describes care given and morbidity and mortality at the unit level against peer care providers. Measures include ventilation rates for gestational age groups, types of assisted ventilation and rates of chronic lung disease and neonatal sepsis, and morbidity data include the prevalence of retinopathy of prematurity and intraventricular haemorrhage. Many neonatal unit teams now participate in service line reporting that measures the acuity, quality, health and safety and human resource indicators. The continued focus on measuring the outcomes that matter most to neonatal patients and contributing factors will move the neonatal unit towards excellence.

Accountability

Accountability is the individual's requirement to be responsible for their professional decisions and actions (Oldland et al., 2020). Accountability at a service level is made possible by clinical pathways. Clinical pathways have been used to improve the quality of healthcare and have four criteria. They include: (1) a structured multidisciplinary plan of care, (2) guidelines and evidence that are translated into local structures, (3) timeframes or a criteria-led progression and (4) standardisation of care for a specific population (Rotter et al., 2019). In Australia, the use of pathways is developing and is mainly focused on term neonates. This ownership of pathways, a zero tolerance for complacency, the will to investigate things that go wrong and managers and clinical staff who are accountable for their performance support a sound basis for continuous quality and cost improvement (Backhouse & Ogunlayi, 2020).

Clinical communication

A key factor in the success of any clinical governance system is communication among carers, parents and families to ensure optimal care for neonates in a neonatal unit. A meta-synthesis regarding the characteristics of adequate communication in NICUs found that communication between parents and healthcare providers should be tailored to each individual (Wreesmann et al., 2021). In their communication framework they emphasised the need to enhance parents' participation in care, regulate parents' emotions and distress, and manage uncertainty about an infant's prognosis. The effective exchange of information about an infant's medical situation facilitates parental empowerment and their independent care of their infant upon discharge. Wreesman et al. (2021, p. 1512) found that 'having regular conversations in a secluded location ... increases parents' sense of privacy, their confidence to ask questions' and the feeling of being listened to.

Doctors are trained to communicate concisely, emphasising time-sensitive issues, while nurses tend to be more descriptive in their communication. With the integration of the model of developmentally supportive care in most neonatal units, open and honest communication between healthcare professionals and parents is paramount. Enabling parents to be at the cot-side during rounds, and participate, facilitates this model of open communication.

Healthcare is a high-risk environment. The processes required to support clinical governance are now being refined to support the development of services to become a high-reliability health service provider, as has been achieved by other industries. Such organisations have moved from individual and autonomous roles to multifunctional teams that prioritise clinical excellence and prevention of failure throughout the organisation (Profit et al., 2017). Benchmarking, the review of data and evidence and the quest for excellence and safety will lead organisations towards a culture focused on optimal safety and quality. The challenge to realising this goal is the adoption of standardised processes to achieve a reduction in patient harm.

Throughout the developed world, healthcare costs are growing and healthcare providers are under increasing pressure to reduce costs. The established links between clinical governance and improved clinical outcomes drive greater efficiencies and assist in controlling costs while achieving safer care.

PERSON-CENTRED CARE FRAMEWORK

To be successful, the team needs to believe in the value of clinical governance. Neonatal nursing/midwifery requires a benchmark of good quality and instruments to measure practice, and it needs to make changes to improve practice and then re-measure quality of care. The person-centred care framework developed by McCormack and McCance (2010) is a tool to support improvement to clinical practice.

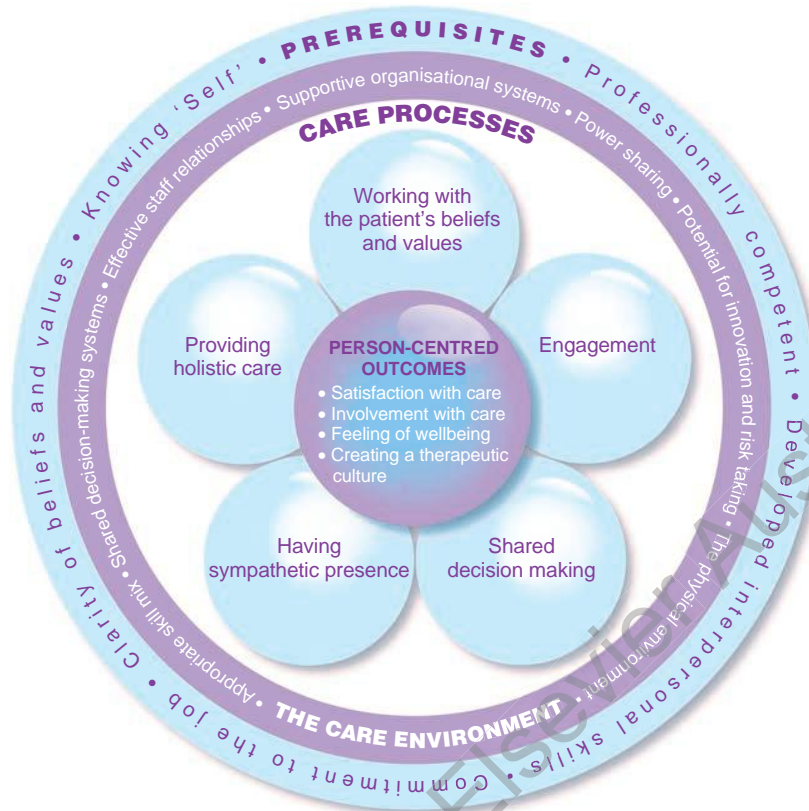


FIGURE 1.5 Person-centred nursing framework
 Source: McCormack and McCance (2010, Fig 3.2). Republished with permission of John Wiley & Sons Inc.

Person-centred care has been evolving as a concept since the 1980s and is developing in different ways globally (McCormack, 2020). Fig. 1.5 describes the relationships among the four constructs of prerequisites (the attributes of nurses/midwives), the care environment (the context of care delivery), person-centred processes (the activities through which care is delivered) and outcomes (the results when person-centred care is effective). This framework has shaped nursing practice, education, evaluation and policy development across the world and within Australia (McCormack, 2020).

McCormack (2020) argues that person-centredness happens when there is a person-centred culture in place in workplaces, where staff are able to experience person-centredness and are able to work in a person-centred way. When this culture is present, person-centred care will flourish and there will be healthy relationships between care providers and service users. Person-centred care, including the principle of self-determination, is aligned to the principles of family-centred care and partnership models of care that are common to many units. Utilisation of a practice development framework has been shown to improve patient and family engagement, clinical outcomes and staff satisfaction and retention (McCormack, 2020).

EVIDENCE-BASED PRACTICE RESEARCH 1.4

Multidisciplinary safety rounds focus attention on the potential threats to the neonatal patient and address them with input from all members of the team. Practising 'humble enquiry' allows questions to be asked based on genuine curiosity, humility and a willingness to learn. Use of ISBAR (Introduction, Situation, Background Assessment, Recommendation) and adding safety-focused items to a rounding checklist (such as any medications that could be stopped or changed to enteral route, any laboratory work or imaging procedure that could be cancelled, any central line that can be discontinued) offers a structure for the safety rounds.

Source: Ravi et al. (2021, p. 2556).

The successful integration of clinical governance, healthcare standards and quality frameworks will support neonatal clinicians to develop a program of interventions that specifically support their local context. Neonatal nurses/midwives who understand the importance of a broad knowledge of clinical governance and the development of a specific skill set that includes communication, strategic planning and management skills will be equipped to provide high-quality and safe clinical

care. The next step is the development of leadership skills to ensure the successful engagement of the team to transform the workplace into a high-resilience care unit.

LEADERSHIP

One of the key principles of neonatal nursing is to provide holistic and family-centred care. To be effective, neonatal nursing managers and those in leadership positions are required to develop and support team members to adapt to change and to inspire colleagues. Managers are often selected on their technical abilities and knowledge. However, in the twenty-first century, managers and staff are required to guide teams through rapidly changing environments, which include electronic medical records, government regulations and changing funding models, the adoption of new technology and evidence that is published at an ever-increasing rate. This is in the context of a clinical environment that requires a high level of sensitivity and emotional intelligence.

Leadership is influential within an organisation and the leadership style will directly influence the culture and job satisfaction (Specchia et al., 2021). Nurse managers and healthcare leaders need to address nursing workload and consider the related variables that can affect a unit's workplace culture (Specchia et al., 2021). In practice, leadership and management are intertwined. The leadership team needs to acknowledge those who value learning. The way nurses/midwives interact with each other while providing care is instrumental in establishing interactions and behaviours that facilitate learning in the clinical context and provide a culture of learning. One example is using a 'buddy' system where a more-experienced nurse/midwife works alongside a less-experienced nurse/midwife while new skills are acquired. Team nursing/midwifery models using innovative strategies such as handover 'huddles' where nurses/midwives spend 2–3 minutes identifying key issues for the shift ahead can contribute to a supportive environment. When there are supportive interactions between the leader and team there are positive contributions to team communication to accomplish the goals of the unit, which in turn enhances job satisfaction (Aldawood et al., 2020).

Contemporary healthcare organisations are focused on ensuring their managers, those that have the day-to-day responsibility for supporting sound clinical governance, budget integrity and meeting activity targets, are developed to become leaders. Nursing and midwifery leaders can become fatigued with the demands of organisational change, and developing skills in leadership, coupled with resilience training, has been shown to enhance critical thinking and decision making, improve the quality of care for patients, contain costs and reduce staff turnover (Spiva et al., 2021).

Styles of leadership including transformational (doing the right thing), considerate (demonstration of concern, respect and welfare for others, display of support and appreciation) and resonant (possessing emotional intelligence) have been associated with significantly

higher job satisfaction, which in turn has been associated with lower mortality rates in patients. A systematic review of leadership styles and nurses' job satisfaction found that the transformational style of leadership had the highest positive correlation with nurses' job satisfaction, followed by authentic, resonant and then servant styles (Specchia et al., 2021).

Cope and Murray (2017) encouraged an approach that develops leaders as whole people. Helping people to develop social and emotional intelligence and the capacity for resonant leadership enhances their ability to help others in their intentional change process. Resonant leaders are relationship focused (Specchia et al., 2021), and they coach and inspire those around them, create a positive, trusting work environment and communicate effectively and articulately with teams and colleagues. In a neonatal unit this may include inclusion of teams in decision making, regular meetings and a compassionate approach to understanding others' wants and needs in order to meet individual and team learning agendas.

The influence of leadership on quality-of-care outcomes is widely recognised, using measures such as mortality, family experience and outcomes of infection control such as central-line sepsis. Staff outcomes include morale, productivity and job satisfaction. Kiwanuka et al. (2021) found that a leadership style that promotes information sharing, fosters decision making and acknowledges the contributions of staff in an intensive care unit environment inspires confidence and respect, and enhances quality of care outcomes.

An effective way of leading teams is by supporting a learning organisation. Peter Senge's (2013) seminal management book, *The fifth discipline: the art and practice of the learning organization*, was first published in 1990. It inspired organisations to develop a workplace that nurtures teams to be innovative and successful by working with new ideas, building knowledge, transferring this knowledge and embedding it by developing policies and processes to enable teams to respond to a changing environment. This process requires a supportive learning environment, concrete learning processes and practices and leadership behaviours that provide positive reinforcement (Kwon et al., 2020). Psychological safety is paramount to the success of a learning organisation. This is demonstrated by a blame-free organisation – an environment where seeking feedback, requesting help and reporting mistakes contribute to learning (Kwon et al., 2020). The pillars of the learning environment and learning process and the behaviours of leaders impact the ability of the teams to move to a no-blame culture. Managers need to respond to incident reports in a no-blame manner to enable reporting in the first instance, and then learning about the risk in order to prevent its reoccurrence (Kwon et al., 2020). A multidisciplinary review team should process each incident report and, when the incident is complex, analyse it according to a risk management tool. All employees should be made aware of completed reports using a staff email, and annual statistics should be analysed to observe for trends. In the aftermath of an incident, managers

can facilitate reflection, establish a clinical audit or use a systematic debrief to hear alternative points of view and to support the discussion of these ideas in a safe way (Kwon et al., 2020).

Individual leadership capabilities can be learned and improved upon with well-designed leadership training programs (Lacerenza et al., 2018). Neonatal nurses and midwives should be supported in developing leadership and managerial skills and identifying mentors who demonstrate emotional intelligence and resonant leadership. Most major health services have online self-directed learning packages and in-house short courses. Other options include support through professional organisations including the Australian College of Neonatal Nurses and the Neonatal Nurses College Aotearoa (NNCA) and participation in mentoring opportunities through leadership, education and research special interest groups, and ongoing continuing professional development courses and scholarships offered by the respective colleges.

ORGANISATIONAL CULTURE

Organisational culture is influenced by the shared assumptions, values and beliefs that contribute to how people behave within the organisation. Most healthcare organisations have a set of core values that are displayed and available for staff and consumers alike. These values inform the organisational culture, and within health contexts guide the staff to know what to do and what not to do (Mannion & Davies, 2018). This includes how they do their work, how they work together and how they perform their respective roles. A supportive culture can ensure job satisfaction among the employees and ultimately impact on the quality of healthcare.

Organisational culture can be described through the competing values framework (Quinn & Rohrbaugh, 1983), where organisational behaviours are assigned to one of four cultural types (Fig. 1.6).

The model enables leaders to examine their contexts on either an internal or external focus and can identify with stability or flexibility in terms of the effects on the staff, quality care and patients' outcomes. The framework can be applied to the whole organisation or to the specific units within an organisation.

Nursing unit culture

Nursing unit culture is seen as an overriding set of beliefs, assumptions and attitudes, and is reflected in activities, behaviours, practices and interactions. Even if the shared ways of thinking and behaving are dysfunctional, they can be seen as legitimate and acceptable within the workplace or organisation (Braithwaite et al., 2017). The culture has a direct influence on and plays a role in contributing to a happy and healthy work environment when staff members are supportive of each other, and a sense of a cohesive, high-functioning team prevails (Catling et al., 2017). When the culture supports a learning focus and values the contributions of the staff, a healthy and sustained work environment exists, which contributes to good patient outcomes.

When discussing organisational culture, we need to consider how culture can vary across the organisation. Fig. 1.7 shows dominant interlinking cultures within an organisation, where the families in the neonatal unit contribute with their own sets of values and expectations, supported by the nurses and their identified nursing unit culture. This sits within the neonatal unit where the nurses work in a multidisciplinary team that may challenge their

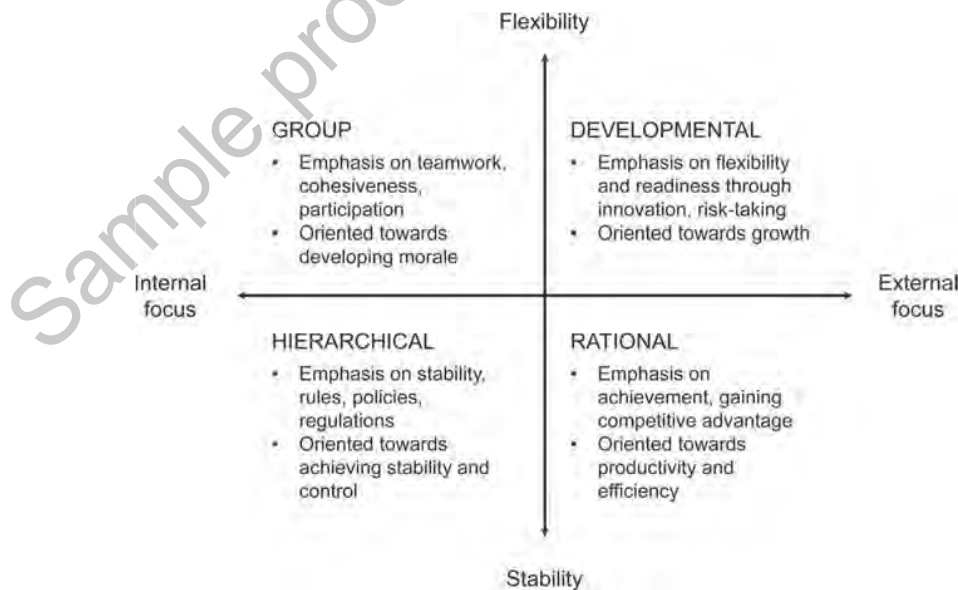


FIGURE 1.6 Competing values framework of organisational culture

Source: used with permission: Mahl et al. (2015). Adapted with permission from Quinn & Rohrbaugh (1983).

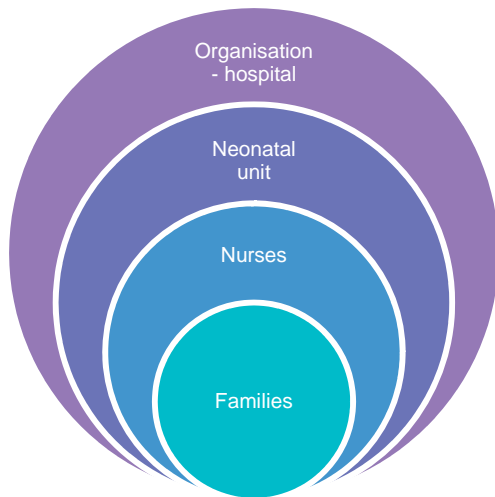


FIGURE 1.7 Interlinking cultures within an organisation

assumptions and beliefs. The overarching organisational culture of the hospital can influence the other cultures; however, when there is a mismatch in the beliefs and myths, potential conflict, stress and burnout can occur. This can result in a faster turnover of staff at all levels and disciplines.

In order to capitalise on the intergenerational differences amongst baby boomers, Gen Y and Gen X nurses, leadership practices need to be flexible. Research has shown that Gen Y nurses need more feedback than other generations, and this influences their intention to stay in a neonatal unit (Stevanin et al., 2020). All generations reported a need for flexible rosters and self-scheduling, and all generations agreed that leadership affects their professional development.

Effective teamwork is vital for acute clinical situations such as neonatal resuscitations. Salih and Draucker (2019) found that when each staff member is allocated a task and role according to their proficiency prior to the emergency, including a designated leader, communication improves during a code and outcomes are improved. Nurses/midwives have a key role as they are at the cot-side and coordinating multiple inputs from the patients/parents and multidisciplinary team. This places them in a good position to contribute to the decisions of the day, thereby ensuring they feel part of the team.

REFLECTION

Reflection is a powerful strategy that allows nurses/midwives to review their practice and support their learning. Clinical supervision provides an ideal framework for using reflection. There are different models of clinical supervision, reflecting the differing work contexts and the professional training needs and expectations of staff, and there is no one model of clinical supervision that will suit all occasions.

The NSW Health clinical supervision framework (2015) identifies that consideration should be given to the supervisees' and clinical supervisors' experience and knowledge when determining a particular clinical supervision model/s.

The fundamental components needed to support safe and high-quality patient care through clinical supervision in various clinical/professional settings form four distinct domains. These are:

- 1 clear concepts and definitions – foundational building blocks that are required in order to provide clarity and understanding about clinical supervision
- 2 practical tools and resources – practical approaches that would support clinical supervision and enhance clinical practice in various settings
- 3 positive learning culture and respect – emphasising the importance of two-way feedback, prioritising patient needs and supporting the supervisees in discussing their clinical supervision needs
- 4 reporting, measuring and monitoring – clear and structured mechanisms for accurately describing and monitoring clinical supervision practices.

For some disciplines, specific requirements such as minimum continuing professional development activities exist to maintain professional registration with the AHPRA.

TEAMWORK

Good teamwork necessitates not only knowledge and use of the team's specific resources and equipment, but also good administration and an acute understanding of the safety culture, or the environment in which the team works. An effective team communicates with the patient and their family in an efficient manner by combining knowledge, skills and decision making to optimise treatment. Interactions between patients, families and clinicians are critical in establishing a therapeutic relationship. This is why, in recent decades, there has been a focus on the quality of communication in the health sector. The neonatal unit environment poses unique challenges because teams are more fluid in composition and experience. In order for neonates to get the best possible care, how the neonatal staff function as a team is vital. Good teamwork requires good communication skills to address the challenges of changing circumstances, such as acute, chronic or complex situations (Sonali & Kaur, 2020). Forbes et al. (2019) found there were significant differences in the perception of communication between doctors and nurses, with nurses having poorer perceptions of the effectiveness of communication between the disciplines. The hierarchical systems that exist in healthcare environments emphasise the power imbalance between doctors and nurses/midwives and emphasise physician authority over decision making (Forbes et al., 2019).

The daily ward round in the neonatal unit is the primary time of interdisciplinary dialogue and

communication. The neonatal unit has unique challenges arising from uncertainty about specific neonatal diseases and outcomes. These challenges can be embraced by acknowledging diverse professional perspectives and differing communication styles of the team. A possible option is the use of comprehensive care rounds (CCR) (Boos et al., 2010), which have the potential to significantly lessen the impact of stress caused by complicated/complex cases by fostering good communication and collaboration. The CCR seeks to improve communication by using a systems approach and open communication to identify barriers and identify goals for safe care (Fig. 1.8).

Using such a process enables all members of the team to contribute to patient safety and outcomes. In complex, fast-paced care settings such as the neonatal unit, patients are particularly vulnerable to medical errors. In the neonatal unit, adverse events are common but frequently preventable. Leadership walk-rounds (Sexton et al., 2018) are suggested as a way to improve patient safety through discussions with bedside staff to create a culture of safety. Looking at innovative ways to change requires a group model of organisational culture. However, if caregiver burnout is prevalent, it can be associated with lower perceptions of a patient safety culture (Profit et al., 2017).

WORKPLACE ENVIRONMENT

Evidence-based practice (EBP) is a problem-solving approach for excellence in practice that drives better outcomes for nurses/midwives, members of the healthcare team and their patients. However, to build and sustain EBP, systemic organisational barriers such as staff turnover and movement, insufficient staff and lack of organisational commitment must be overcome (Sharplin et al., 2019). The introduction and integration of changes to practice are driven by the availability of new knowledge or technology, external guidelines, the need to standardise practices, participation in research, adverse events and the desire

to improve care (Cuttini et al., 2020). Understanding the culture of the work environment and what the nurses find to be interesting, exciting and frustrating can help in implementing a new model of practice. There are several key components to consider during times of change. These include (Lewis, 2015):

- 1 organise, plan and improve work efficiencies during the initial phase
- 2 identify the key elements for improvement in nurse and family satisfaction
- 3 develop or maintain a healthy work environment
- 4 establish adequate staffing levels and staff education to successfully care for patient populations following the transition
- 5 support the staff and patients during the transition.

NEONATAL SIMULATION TRAINING

Simulation in newborn care, especially in newborn resuscitation and stabilisation, has grown at an exponential rate over the last few decades. Simulation is best described as an instructional technique that replaces or enhances real-world experiences with directed experiences that evoke or replicate substantial aspects of the real world in a completely interactive manner. Simulation training has become a critical component of how training is organised to provide better patient care (Garvey & Dempsey, 2020).

The patient safety agenda has a significant impact on the use of simulations-based education. Failures in communication and coordination are often blamed for adverse events and the resulting patient harm. Any of the underlying causes of adverse events can be reduced by practising in virtual learning settings. The term 'fidelity' refers to how closely a simulation resembles life. It also refers to the psychological impact of 'immersion' or 'being there' as well as the degree to which the clinical environment is adequately

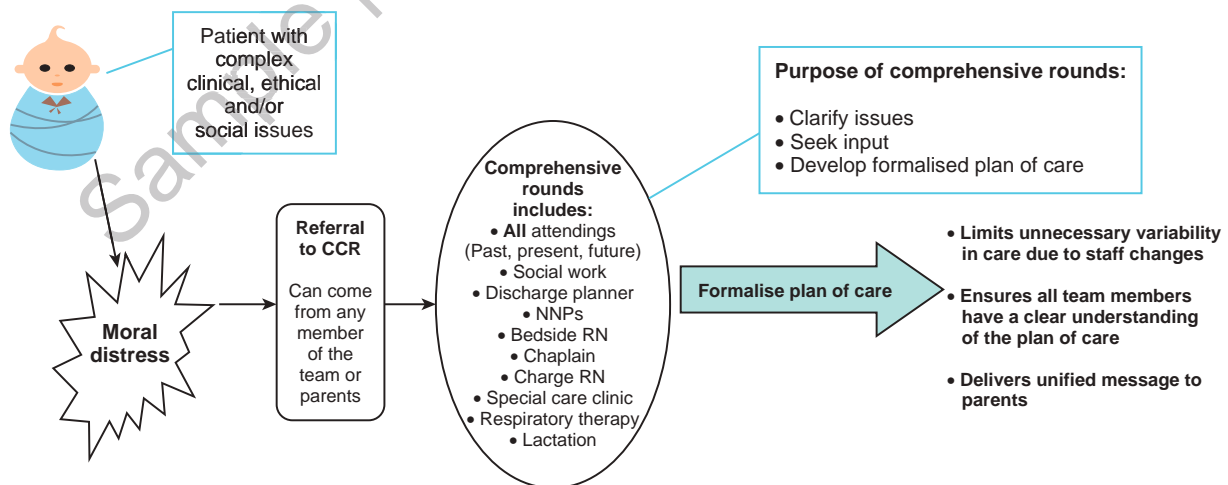


FIGURE 1.8 Schematic representation of comprehensive care rounds

Source: Boos et al. (2010).

portrayed. As too much realism and sophistication can distract students, particularly novices, from learning basic skills, the degree of realism of a simulation technique, and hence the choice of simulator device, must be carefully balanced with the educational level.

While simulation has proven to be beneficial, there are a number of obstacles to long-term implementation. Prior to implementation, simulations often necessitate several hours of preparation. Creating concrete learning goals, conducting practice simulations to recognise and solve possible problems such as insufficient materials or realistic equipment and planning sufficient staffing are just a few of the time-consuming challenges. Staff are required to operate the mannequin, act as immersed participants and promote successful pre- and post-briefing, for example. The number of people needed will vary depending on the simulation's fidelity and configuration. A dedicated space is needed to create a suitable environment for the simulation. Finally, getting management and staff on board with simulation may be a challenge. Depending on the cost of materials, staff and equipment, simulation costs can vary from low to high.

While simulation can be expensive, forming an academic–practice relationship can help health systems by distributing resources and exchanging information. The body of knowledge about the advantages of academic–practice collaborations continues to grow. Academic–practice collaborations foster a mutually beneficial collaboration that helps the health system and nursing program enhance patient care and innovate. An academic–practice collaboration could offer an infrastructure to help the health system navigate and incorporate simulation training, as well as several other initiatives to promote long-term quality improvement. Nursing would profit in two ways: practising nurses would improve and advance their expertise, and nursing students would have a seamless transition to practice (Smith et al., 2020).

EVIDENCE-BASED PRACTICE RESEARCH 1.5

The purpose of this study was to see whether simulation-based training influenced self-efficacy, self-perceived leadership qualities and team performance in a neonatal intensive care unit.

A convenience sample of 71 nurses and midwives were studied using a time series approach in a referral neonatal intensive care unit in a general hospital in Flanders, Belgium.

Three simulation-based training sessions were held for participants. A set of validated questionnaires was completed before and after these series to assess the participants' self-efficacy and self-perceived leadership qualities. Each session was recorded, and team performance ($n = 8$) was evaluated.

Participating in repeated high-fidelity in situ simulation-based training resulted in a significant increase in self-efficacy ($p < 0.001$) and self-perceived leadership traits ($p < 0.001$), according to this study. The intervention had no significant effect on team performance ($p < 0.209$).

The study concluded that repeated high-fidelity in situ simulation-based training in the NICU had a positive effect on registered nurses' and midwives' self-efficacy and self-perceived leadership abilities in acute care situations. Participation in simulation-based training on repeated occasions enhanced these results, regardless of the number of years of NICU experience.

Source: Maenhout et al. (2021).

THE ROLE OF NEONATAL NURSING AND MIDWIFERY ORGANISATIONS

Professional organisations and associations in any field of specialty practice are critical for generating energy, flow of ideas and the proactive work needed to maintain a healthy profession that advocates for the needs of its clients and nurses/midwives and the trust of the community.

In terms of professional neonatal organisations, Australia and New Zealand have a vibrant and collegial culture that transects with international neonatal organisations and are affiliate members of the **Council of International Neonatal Nurses (COINN)**. COINN, an affiliate member of the International Council of Nurses (ICN), was officially incorporated in 2005 to act as the global voice for neonatal nursing. It is not an individual membership-driven organisation but rather a group that works on global health policy, advocacy, capacity building and developing regional networks throughout the world, for nurses who specialise in the care of newborn infants and their families. COINN supports countries to form national or local organisations and is a key member of global clinical and advocacy boards including the WHO: <<https://www.coinnurses.org/>>.

Aboriginal and Torres Strait Islander nurses and midwives are also represented. Neonatal units in Australia and New Zealand should encourage, promote and support all neonatal nurses/midwives to engage in the professional organisations and associations that are available because such organisations contribute to the accountability and voice of the neonatal nursing profession at a societal level.

Organisations in New Zealand

The **Neonatal Nurses College of Aotearoa (NNCA)** is a college within the **New Zealand Nurses Organisation (NZNO)**. The NNCA is committed to Te Tiriti o Waitangi (the Treaty of Waitangi) as the founding document of Aotearoa/New Zealand.

The role of the NNCA is to provide significant benefits to its members, for example:

- promoting the networking of neonatal nurses, nationally and internationally
- providing educational opportunities for neonatal nurses and disseminating information regarding neonatal educational programs

- supporting and encouraging New Zealand neonatal nurses to contribute to the international body of neonatal knowledge
- raising public awareness of issues relating to the care of neonates
- ensuring that the views of neonatal nurses are represented in relevant health policy issues
- disseminating information to neonatal nurses throughout New Zealand via regular newsletters and electronic media
- developing/formalising standards and recommendations for neonatal nursing practice (Neonatal Nurses College of Aotearoa, 2015).

Organisations in Australia

The Australian College of Neonatal Nurses is a national, not-for-profit organisation that serves as the peak professional body for neonatal nurses in Australia. The College is a full member of COINN. The ACNN proudly provides direction and leadership for neonatal nurses, thereby enhancing their professional development within their chosen specialty.

The ACNN is committed to:

- maintaining the highest international standards in clinical practice, teaching and research
- promoting and sustaining a philosophy of family-centred and individualised care for neonates and their families
- advancing the welfare of Australian families, recognising the particular needs of disadvantaged and vulnerable groups
- working with other national and international professional and multidisciplinary bodies to extend and enhance the quality of clinical practice, education and research activities
- maintaining a rewarding environment for the neonatal nursing community through advocating for advancing

professional practice within the context of complex and evolving systems of health service provision (ACNN, 2019).

Multinational organisations in Australia and New Zealand

The collaboration of New Zealand and Australia in improving prenatal and postnatal care of the newborn resulted in the foundation of the Perinatal Society of Australia and New Zealand (PSANZ) in 1983. PSANZ is multidisciplinary and includes a wide range of members such as neonatologists, neonatal nurses, obstetricians, midwives, epidemiologists and scientists. The aim of the society is to communicate internationally current research projects and research findings. The society also provides expert advice to governmental bodies on current and future trends in perinatology.

Congress of Aboriginal and Torres Strait Islander Nurses and Midwives

CATSINaM was founded in 1997 to formally represent Aboriginal and Torres Strait Islander nurses and midwives. CATSINaM's primary aim is to increase the numbers of Aboriginal and Torres Strait Islander peoples qualified in nursing and midwifery. CATSINaM is also dedicated to ensuring all nurses/midwives have meaningful cultural safety training to ensure they can provide the best care for Aboriginal and Torres Strait Islander patients, including neonates and their families.

Maori nurses and midwives

Te Rau Matatini is the lead agency for engagement with the Māori health sector providing a strategic focus that is underpinned by Māori workforce development, education, clinical and cultural capability and the capacity for the advancement of Indigenous health and wellbeing for Māori people and their communities.

CONCLUSION

Neonatal nurses and midwives have played a pivotal role in what is arguably the greatest success story in newborn care in the last few decades: dramatically increased preterm neonatal survival. The position of

the neonatal nurse/midwife has developed to include the neonatal nurse practitioner (NP) and tertiary level training, recognising the highly specialised nature of this specialty.

Recommended Reading

Forbes-Coe, A., Dawson, J., Flint, A., & Walker, K. (2020).

The evolution of the neonatal nurse practitioner role in Australia: a discussion paper. *Journal of Neonatal Nursing*, 26(4), 197–200. doi: 10.1016/j.jnn.2020.01.008.

Online Resources

Academy of Neonatal Nursing: <[https:// academyonline.org/](https://academyonline.org/)>

American Academy of Pediatrics: <<https://www.aap.org/en-us/Pages/Default.aspx>>

Australian and New Zealand Neonatal Network (ANZNN): <<https://npesu.unsw.edu.au/data-collection/australian-new-zealand-neonatal-network-anznn>>

Australian College of Neonatal Nurses (ACNN): <<https://www.acnn.org.au/>>

Australian College of Neonatal Nurses (ACNN). (2019). Australian standards for neonatal nurses (4th ed.).

- <<https://www.acnn.org.au/resources/resources/ACNN-Standards-for-Practice-4th-Ed.pdf>>
- Cochrane Neonatal Review Group: <<https://neonatal.cochrane.org/>>
- Congress of Aboriginal and Torres Strait Islander Nurses and Midwives: <<https://catsinam.org.au/>>
- Council of International Neonatal Nurses: <<https://www.coinnurses.org/>>
- National Association of Neonatal Nurses: <nann.org/>
- Neonatal Nurses College of Aotearoa: <https://www.nzno.org.nz/groups/colleges_sections/colleges/neonatal_nurses_college/>
- Perinatal Society of Australia and New Zealand (PSANZ): <<https://www.psanz.com.au/>>
- Te Rau Matatini: <<https://teraumatatini.com/>>
- ## References/Acknowledgements
- Aldawood, F., Kazzaz, Y., AlShehri, A., Alali, H., & Al-Surimi, K. (2020). Enhancing teamwork communication and patient safety responsiveness in a paediatric intensive care unit using the daily safety huddle tool. *BMJ Open Quality*, 9, e000753. doi: 10.1136/bmjopen-2019-000753.
- American College of Nurse-Midwives (ACNM). (2021). About us. <<https://www.midwife.org/>> (Accessed 2 March 2022).
- Australian and New Zealand Neonatal Network (ANZNN). (2021). Improving clinical practice through collaboration. <<https://www.anznn.net/>> (Accessed 2 March 2022).
- Australian College of Neonatal Nurses (ACNN). (2019). *Australian standards for neonatal nurses* (4th ed.). <<https://www.acnn.org.au/resources/resources/ACNN-Standards-for-Practice-4th-Ed.pdf>> (Accessed 2 March 2022).
- Australian Commission on Safety and Quality in Health Care. (2021). Clinical care standards. <<https://www.safetyandquality.gov.au/our-work/clinical-care-standards/>> (Accessed 2 March 2022).
- Australian Government. (2013). *National Aboriginal and Torres Strait Islander Health Plan 2013–2023*. Canberra, ACT: Australian Government.
- Australian Government. (2020). *Closing the Gap report 2020; child mortality*. <<https://ctgreport.niaa.gov.au/child-mortality/>> (Accessed 2 March 2022).
- Australian Institute of Health and Welfare (AIHW). (2020). Tier 3 – Health system performance. 3.12 Aboriginal and Torres Strait Islander people in the health workforce. <<https://www.indigenoushpf.gov.au/measures/3-12-atsi-people-health-workforce/>> (Accessed 3 March 2022).
- Backhouse, A., & Ogunlayi, F. (2020). Quality improvement into practice. *British Medical Journal*, 368, 865. doi: 10.1136/bmj.m865.
- Boos, V. D., Okah, F. A., Swinton, C. H., Wolff, D. M., & Haney, B. (2010). The comprehensive care rounds: facilitating multidisciplinary communication among caregivers of complex patients in the neonatal intensive care unit. *Advances in Neonatal Care*, 10(6), 301–306.
- Braithwaite, J., Herkes, J., Ludlow, K., Testa, L., & Lamprell, G. (2017). Association between organisational and workplace cultures, and patient outcomes: systematic review. *BMJ Open*, 7(11), e017708. doi: 10.1136/bmjopen-2017-017708.
- Broom, M., & Kecskes, Z. (2020). Exploring the impact of a dual-occupancy NICU design on parental experience. *Journal of Neonatal Nursing*, 26(4), 217–221.
- Canadian Nurses Association. (2021). About us. <<https://www.cna-aicc.ca/en/home>> (Accessed 2 March 2022).
- Catling, C. J., Reid, F., & Hunter, B. (2017). Australian midwives' experiences of their workplace culture. *Women and Birth*, 30(2), 137–145. doi: 10.1016/j.wombi.2016.10.001.
- Chow, S. S. W., Creighton, P., Chambers, G. M., & Lui, K. (2020). *Report of the Australian and New Zealand Neonatal Network 2018*. Sydney, NSW: ANZNN.
- Commonwealth of Australia. (2020). *2019 workforce survey: ATSI nurses and midwives*. <<https://hwd.health.gov.au/resources/publications/factsheet-nrmw-atsinrmw-2019.pdf>> (Accessed 2 March 2022).
- Congress of Aboriginal and Torres Strait Islander Nurses and Midwives (CATSINaM). (2014). *Cultural safety position statement*. Canberra, ACT: CATSINaM. <<https://www.aph.gov.au/DocumentStore.ashx?id=0e423afd-5982-4099-ab4b-47559701d5d7&subId=411853>> (Accessed 2 March 2022).
- Congress of Aboriginal and Torres Strait Islander Nurses and Midwives (CATSINaM). (2015). *Recruitment and retention position statement* (pp. 1–6). Canberra, ACT: CATSINaM.
- Cope, V., & Murray, M. (2017). Leadership styles in nursing. *Nursing Standard*, 31(43), 61–70. doi: 10.7748/ns.2017.e10836.
- Council of Australian Governments (COAG). (2009). *National Indigenous reform agreement (Closing the Gap)*. Canberra, ACT: Council of Australian Governments.
- Cuttini, M., Forcella, E., Rodrigues, C., Draper, E. S., Martins, A. F., Lainé, A., et al. (2020). What drives change in neonatal intensive care units? A qualitative study with physicians and nurses in six European countries. *Pediatric Research*, 88, 257–264. doi: 10.1038/s41390-019-0733-9.
- Department of Health (Higher Education Environment). (2021). *Aboriginal and Torres Strait Islander curriculum framework* (updated 2021). <<https://www.health.gov.au/sites/default/files/documents/2020/12/aboriginal-and-torres-strait-islander-health-curriculum-framework.pdf>> (Accessed 2 March 2022).
- Doede, M., Trinkoff, A. M., & Gurses, A. P. (2018). Neonatal Intensive Care Unit layout and nurses' work. *Health Environments Research and Design Journal*, 11(1), 101–118. doi: 10.1177/1937586717713734.
- Dwyer, A. (2019). Clinical governance and risk management for medical administrators. In: E. Loh, P. W. Long, & P. Spurgeon (Eds.), *Textbook of medical administration and leadership* (pp. 99–125). Singapore: Springer Singapore.
- Fanelli, S., Bellù, R., Zangrandi, A., Gagliardi, L., & Zanini, R. (2020). Managerial features and outcome in neonatal intensive care units: results from a cluster analysis. *BMC Health Service Research*, 20, 957. doi: 10.1186/s12913-020-05796-0.
- Forbes, M. P., Iyengar, S., & Kay, M. (2019). Barriers to the psychological well-being of Australian junior doctors: a

- qualitative analysis. *BMJ Open*, 9(6), e027558. doi: 10.1136/bmjopen-2018-027558.
- Forbes-Coe, A., Dawson, J., Flint, A., & Walker, K. (2020). The evolution of the neonatal nurse practitioner role in Australia: a discussion paper. *Journal of Neonatal Nursing*, 26(4), 197–200. doi: 10.1016/j.jnn.2020.01.008.
- Garvey, A. A., & Dempsey, E. M. (2020). Simulation in neonatal resuscitation [review]. *Frontiers in Pediatrics*, 8, 59. doi: 10.3389/fped.2020.00059.
- Health Quality and Safety Commission New Zealand (HQSC). (2021). Our programmes. <<https://www.hqsc.govt.nz/>>. (Accessed 2 March 2022).
- Kiwanuka, F., Nanyonga, R. C., Sak-Dankosky, N., Muwanguzi, P. A., & Kvist, T. (2021). Nursing leadership styles and their impact on intensive care unit quality measures: an integrative review. *Journal of Nursing Management*, 29(2), 133–142. doi: 10.1111/jonm.13151.
- Kwon, C. K., Han, S.-H., & Nicolaidis, A. (2020). The impact of psychological safety on transformative learning in the workplace: a quantitative study. *Journal of Workplace Learning*, 32(7), 533–547. doi: 10.1108/JWL-04-2020-0057.
- Lacerenza, C. N., Marlow, S. L., Tannenbaum, S. I., & Salas, E. (2018). Team development interventions: evidence-based approaches for improving teamwork. *American Psychologist*, 73(4), 517–531. doi: 10.1037/amp0000295.
- Lewis, B. (2015). Leading change evidence-based transition. *Clinical Nurse Specialist*, March/April, E1–E7.
- Maenhout, G., Billiet, V., Sijmons, M., & Beeckman, D. (2021). The effect of repeated high-fidelity in situ simulation-based training on self-efficacy, self-perceived leadership qualities and team performance: a quasi-experimental study in a NICU-setting. *Nurse Education Today*, 100, 104849.
- Mannion, R., & Davies, H. (2018). Understanding organisational culture for healthcare quality improvement. *British Medical Journal*, 363, k4907. doi: 10.1136/bmj.k4907.
- Maree, C., Lubbe, W., Barlow, H., Davidge, R., Prullage, G. S., Scheepers, M., et al. (2021). South African neonatal nurse specialization – is professional licensing justifiable? *Journal of Neonatal Nursing*, 27(2), 69–76. doi: 10.1016/j.jnn.2020.08.004.
- McCormack, B. (2020). The person-centred nursing and person-centred practice frameworks: from conceptual development to programmatic impact. *Nursing Standard*, 35(10), 86–89. doi: 10.7748/ns.35.10.86.s40.
- McCormack, B., & McCance, T. (2010). *Person-centred nursing: theory and practice*. Oxford: Wiley Blackwell.
- McKnight, H., & Moore, S. M. (2021). Nursing shared governance. In: *StatPearls*. Treasure Island, FL: StatPearls Publishing. <<https://www.ncbi.nlm.nih.gov/books/NBK549862/>> (Accessed 2 March 2022).
- McSherry, R., & Pearce, P. (2011). *Clinical governance: a guide to implementation for healthcare professionals* (3rd ed.). Chichester, UK: Blackwell.
- Ministerial Taskforce on Nursing. (1998). *Report of the Ministerial Taskforce on Nursing: releasing the potential of nursing*. <[https://www.moh.govt.nz/NoteBook/nbbooks.nsf/0/380F282D7CAEDADC4C25669B007C00CA/\\$file/report-ministerial-taskforce-nursing.pdf](https://www.moh.govt.nz/NoteBook/nbbooks.nsf/0/380F282D7CAEDADC4C25669B007C00CA/$file/report-ministerial-taskforce-nursing.pdf)> (Accessed 2 March 2022).
- Ministry of Health. (2021). Fetal and infant deaths web tool. <<https://www.health.govt.nz/publication/fetal-and-infant-deaths-web-tool>> (Accessed 2 March 2022).
- National Aboriginal Community Controlled Health Organisation (NACCHO). (2016). *Annual report*. <https://f.hubspotusercontent10.net/hubfs/5328468/Resources/Publications%20and%20Resources/Annual%20Reports/J2880-NACCHO-Annual-Report_ACCESSIBLE.pdf> (Accessed 2 March 2022).
- National Council of State Boards of Nursing (NCSBN). (2021). About us. <<https://www.ncsbn.org/index.htm>> (Accessed 2 March 2022).
- National Women's Health: Auckland District Health Board. (2020). *National women's health report 2020*. <<https://nationalwomenshealth.adhb.govt.nz/assets/Womens-health/Documents/ACR/2020-Annual-Clinical-Report.pdf>> (Accessed 2 March 2022).
- Neonatal Nurses Association (NNA). (n.d.). About us. <<https://nna.org.uk/about-us/>> (Accessed 2 March 2022).
- Neonatal Nurses College of Aotearoa (NNCA). (2015). *Standards for neonatal nursing practice*. <https://www.nzno.org.nz/groups/colleges/_sections/colleges/neonatal_nurses_college/standards> (Accessed 2 March 2022).
- Neonatal Nursing Association of South Africa (NNASA). (2018). About us. <<https://nnasa.org.za/>> (Accessed 2 March 2022).
- Nepali, S. (2020). What matters at work: an ethnography of nurses' social relations in a neonatal intensive care unit. Sydney, NSW: University of Sydney, eScholarship database. <https://ses.library.usyd.edu.au/bitstream/handle/2123/24424/Nepali_S_Thesis.pdf?sequence=2> (Accessed 2 March 2022).
- New South Wales Health. (2015). *Clinical supervision framework*. Health Education and Training Institute (HETI), NSW, Australia. <<http://www.heti.nsw.gov.au/Programs/CSSP/The-NSW-Health-Clinical-Supervision-Framework/>> (Accessed 2 March 2022).
- New Zealand Government. (2017). *Health and Safety at Work Act 2015*. Wellington: New Zealand Government. <<http://www.worksafe.govt.nz/worksafe/hswa>> (Accessed 2 March 2022).
- New Zealand Nurses Organisation (NZNO). (2021). *NZNO strategy for nursing 2018–2023*. <https://www.nurses.org.nz/nursing_workforce> (Accessed 2 March 2022).
- New Zealand Nurses Organisation, Neonatal Nurses College Aotearoa. (2014). *National neonatal nurses knowledge and skills framework*. <<http://www.nzno.org.nz/Portals/0/Files/Documents/Groups/Neonatal%20Nurses/2014%20National%20Neonatal%20Nurses%20Knowledge%20and%20Skills%20Framework.pdf>> (Accessed 2 March 2022).
- Nursing and Midwifery Council (NMC). (2021a). About us. <<https://www.nmc.org.uk/about-us/>> (Accessed 2 March 2022).
- Nursing and Midwifery Council (NMC). (2021b). The code. <<https://www.nmc.org.uk/standards/code/>> (Accessed 2 March 2022).
- Nursing and Midwifery Council (NMC). (2021c). Revalidation. <<https://www.nmc.org.uk/revalidation/>> (Accessed 2 March 2022).

- Nursing License Map. (2021). Nursing licensure by state. <<https://nursinglicensemap.com/states/>> (Accessed 2 March 2022).
- O'Callaghan, N., Dee, A., & Philip, R. K. (2019). Evidence-based design for neonatal units: a systematic review. *Maternal Health, Neonatology and Perinatology*, 5(1), 6. doi: 10.1186/s40748-019-0101-0.
- Oldland, E., Botti, M., Hutchinson, A. B., & Redley, B. (2020). A framework of nurses' responsibilities for quality healthcare – exploration of content validity. *Collegian*, 27(2), 150–163. doi: 10.1016/j.colegn.2019.07.007.
- Park, S., & Sharp, A. (2019). Improving health and health care efficiency through risk management. *Journal of Hospital Management and Health Policy*, 3, 9. <<https://jhmp.amegroups.com/article/view/5054>> (Accessed 2 March 2022).
- Profit, J., Sharek, P. J., Kan, P., Rigdon, J., Desai, M., Nisbet, C. C., et al. (2017). Teamwork in the NICU setting and its association with health care-associated infections in very low-birth-weight infants. *American Journal of Perinatology*, 34(10), 1032–1040. doi: 10.1055/s-0037-1601563.
- Quinn, R. E., & Rohrbaugh, J. (1983). A spatial model of effectiveness criteria: towards a competing values approach to organizational analysis. *Management Science*, 29, 363–377.
- Ravi, D., Tawfik, D. S., Sexton, J. B., & Profit, J. (2021). Changing safety culture. *Journal of Perinatology*, 41, 2552–2560. doi: 10.1038/s41372-020-00839-0.
- Registered Nursing.ORG. (2021). Neonatal nurse certification. <<https://www.registerednursing.org/certification/neonatal-nurse/>> (Accessed 2 March 2022).
- Rotter, T., de Jong, R. B., Lacko, S. E., Ronellenfisch, U., & Kinsman, L. (2019). Clinical pathways as a quality strategy. In: R. Busse, N. Klazinga, D. Panteli, & W. Quentin (Eds.), *Improving healthcare quality in Europe: characteristics, effectiveness and implementation of different strategies* (pp. 309–327). European Observatory on Health Systems and Policies. Health Policy Series, No. 53(12). Copenhagen: WHO Regional Office for Europe. <<https://www.ncbi.nlm.nih.gov/books/NBK549262/>> (Accessed 2 March 2022).
- Salih, Z. N. I., & Draucker, C., B. (2019). Facilitators of and barriers to successful teamwork during resuscitations in a neonatal intensive care unit. *Journal of Perinatology*, 39(7), 974–982. doi: 10.1038/s41372-019-0380-3.
- Senge, P. M. (2013). *The fifth discipline: the art and practice of the learning organization*. New York: Crown Business.
- Sexton, J. B., Adair, K. C., Leonard, M. W., Frankl, T. C., Proulx, J., Watson, S. M., et al. (2018). Providing feedback following leadership walk rounds is associated with better patient safety culture, higher employee engagement and lower burnout. *BMJ Quality and Safety*, 27, 261–270.
- Sharplin, G., Adelson, P., Kennedy, K., Williams, N., Hewlett, R., Wood, J., et al. (2019). Establishing and sustaining a culture of evidence-based practice: an evaluation of barriers and facilitators to implementing the best practice spotlight organization program in the Australian healthcare context. *Healthcare (Basel, Switzerland)*, 7(4), 142. doi: 10.3390/healthcare7040142.
- Smith, T. S., Dudding, K., Knight, C., Sanders, A., Currie, E., & Shorten, A. (2020). Highlighting simulation practices in the neonatal environment. *Neonatal Network*, 5, 257–262. doi: 10.1891/0730-0832.39.5.257.
- Sonali, S., & Kaur, H. (2020). The human factor: the critical importance of effective teamwork and communication in providing quality and safe care. *Journal of Clinical Engineering*, 45(3), 150–154. doi: 10.1097/JCE.0000000000000404. <https://journals.lww.com/jcejournal/Fulltext/2020/07000/The_Human_Factor_The_Critical_Importance_of.10.aspx> (Accessed 2 March 2022).
- Specchia, M. L., Cozzolino, M. R., Carini, E., Di Pilla, A., Galletti, C., Ricciardi, W., et al. (2021). Leadership styles and nurses' job satisfaction. Results of a systematic review. *International Journal of Environmental Research and Public Health*, 18(4), 1552. doi: 10.3390/ijerph18041552.
- Spiva, L., Hedenstrom, L., Ballard, N., Buitrango, P., Davis, S., Hogue, V., et al. (2021). Nurse leader training and strength-based coaching: impact on leadership style and resiliency. *Nursing Management*, 52, 42–50. doi: 10.1097/01.NUMA.0000792024.36056.c0.
- Stats Tauranga Aotearoa NZ. (2019a). Demographic tables 2019. Wellington: Statistics New Zealand. <<https://www.stats.govt.nz>> (Accessed 2 March 2022).
- Stats Tauranga Aotearoa NZ. (2019b). Infant mortality declines. <<https://www.stats.govt.nz/news/infant-mortality-rate-declines>> (Accessed 2 March 2022).
- Stevanin, S., Voutilainen, A., Bressan, V., Vehviläinen-Julkunen, K., Rosolen, V., & Kvist, T. (2020). Nurses' generational differences related to workplace and leadership in two European countries. *Western Journal of Nursing Research*, 42(1), 14–23. doi: 10.1177/0193945919838604.
- Taylor, E. V., Lyford, M., Parsons, L., Mason, T., Sabesan, S., & Thompson, S. C. (2020). 'We're very much part of the team here': a culture of respect for Indigenous health workforce transforms Indigenous health care. *PLOS One*, 15(9), e0239207. doi: 10.1371/journal.pone.0239207.
- US Department of Labour. (2021). Occupational employment and wage statistics. <<https://www.bls.gov/oes/current/oes291141.htm>> (Accessed 2 March 2022).
- World Health Organization (WHO). (2018). *Survive and thrive: transforming care for every small and sick newborn. Key findings*. Geneva: WHO. WHO/FWC/MCA/18.11. Licence: CC BY-NC-SA 3.0 IGO.
- World Health Organization (WHO). (2020). *Human resource strategies to improve newborn care in health facilities in low- and middle-income countries*. Geneva: WHO. Licence: CC BY-NC-SA 3.0 IGO.
- Wreesmann, W. W., Lorie, E. S., van Veenendaal, N. R., van Kempen, A. A. M. W., Ket, J. C. F., & Labrie, N. H. M. (2021). The functions of adequate communication in the neonatal care unit: a systematic review and meta-synthesis of qualitative research. *Patient Education and Counselling*, 104(7), 1505–1517. doi: 10.1016/j.pec.2020.11.029.