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**IMPLEMENTATION OF FAMILY-INTEGRATED NEONATAL CARE BY
HEALTHCARE PROVIDERS IN A DISTRICT HOSPITAL OF LIMPOPO
PROVINCE**

By

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in the

Faculty of Health Sciences

at the

University of Pretoria

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Co-Promoter: Prof C Maree



DECLARATION

I, Morogwana Anna Shokane, declare that this thesis titled “Implementation of family integrated neonatal care by health care providers in a district hospital of Limpopo Province” is my own work, all sources that I have used in this thesis were indicated and acknowledged by using complete references. I further declare that this work has not been submitted for any degree at any institution

.....

M A SHOKANE

.....

DATE



DEDICATION

I would like to dedicate this thesis to all the neonates in the neonatal unit who never complain about the care that we provide to them but only show us by signs that they are not well. This thesis is also dedicated to Doctor Alina Moticoe for her undying love that she had for the neonates. She was an active member of the steering committee who passed away towards the end of the study. Her commitment towards neonatal care in this hospital will surely be missed. Her contribution in the study will always be appreciated and may her soul rest in peace.

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Lastly, I would like to thank God the Almighty for making this thesis a success. God will make a way when there seems to be no way. Thank you for your mercy

ABSTRACT

Parents experience a lot of stress related to the admission of their neonate to the neonatal ward. They therefore need to be empowered to improve bonding and attachment. A new approach, family-integrated care, can be used to empower parents to take care of their own neonates during their admission in the neonatal ward. In this approach, parents are taught caregiving skills in a planned and structured manner to empower them to take care of their own neonates. The care activities range from less invasive primary caregiving activities to more complex activities according to the parents' readiness and abilities. The aim of this study was to implement and evaluate the implementation of family-integrated neonatal care by healthcare providers in a district hospital of the Limpopo Province. The study was conducted in three cycles using the Piggot-Irvine Problem Resolving Action Research Model. Each cycle had its own objectives and consisted of four steps; plan, act, observe and reflect.

In the first cycle, a quantitative tool was used to collect data on the wellbeing of the neonates during their stay in the neonatal unit. Focus groups discussions were conducted with the healthcare providers to understand their experiences on the provision of neonatal care. Findings in the first cycle revealed that mothers infected with the Human Immunodeficiency Virus (referred to as HIV-positive mothers) were not disclosing their status to their family members and were also not willing to breastfeed their neonates, which put the neonate at greater risk of being infected by the virus. Medical errors in relation to prescriptions and incorrect Apgar scoring of neonates exist in the labour ward of the identified hospital. Shortage of human and material resources was also a problem in the neonatal unit.

In the second cycle, eight strategies for family-integrated neonatal care implementation were developed by the steering committee based on the outcome of Cycle I, using the McKinsey 7S Model. Strategies that did not require major changes were implemented successfully.

The third cycle evaluated the implemented family-integrated neonatal care. Quantitative data on the wellbeing of the neonates were collected. Interviews and focus groups were conducted to collect data from the healthcare providers. The themes found in the third cycle were not limited to those found in the first cycle. Findings in the third cycle showed that some mothers portrayed



a negative attitude towards being involved in neonatal care. Fathers who were not afraid were involved in the care of their own neonates. Grandparents were excluded mainly because of their beliefs in traditional medicines. The neonatal unit was too small to provide neonatal care and to accommodate all the fathers at the same time. Recommendations were made in relation to neonatal practice, research and nursing education.

Keywords: family integrated neonatal care, neonate, action research



TABLE OF CONTENTS

DECLARATION	i
DEDICATION.....	ii
ACKNOWLEDGEMENTS	iii
ABSTRACT.....	v

CHAPTER 1 OVERVIEW OF THE STUDY

1.1 INTRODUCTION AND BACKGROUND	1
1.2 RATIONALE	4
1.3 PROBLEM STATEMENT	4
1.4 SIGNIFICANCE of the proposed study.....	6
1.5 RESEARCH QUESTION(S)	6
1.6 AIM AND OBJECTIVES	6
1.6.1 Aim.....	6
1.6.2 Objectives	6
1.7 CONCEPT CLARIFICATION.....	7
1.7.1 Family-integrated neonatal care	7
1.7.2 Implementation.....	7
1.7.3 Neonate	7
1.7.4 Neonatal care.....	8
1.7.5 Healthcare providers	8
1.8 PHILOSOPHICAL ASSUMPTIONS.....	8
1.8.1 Ontological assumptions	8
1.8.2 Epistemological assumptions	9
1.8.3 Methodological assumptions	9
1.9 DELINEATION	10
1.10 RESEARCH DESIGN and methodology.....	10



1.10.1	Action research	10
1.10.2	Research process	11
1.11	RIGOUR.....	12
1.11.1	Measures to ensure validity and reliability	12
1.11.2	Measures to ensure trustworthiness	12
1.12	ETHICAL CONSIDERATIONS	12
1.13	OUTLINE OF THE STUDY.....	13
1.14	CONCLUSION	13

CHAPTER 2

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1	INTRODUCTION.....	14
2.2	PHILOSOPHICAL ASSUMPTIONS.....	14
2.2.1	Paradigm.....	14
2.2.1.1	Ontological assumptions.....	15
2.2.1.2	Epistemological assumptions.....	15
2.2.1.3	Methodological assumptions.....	16
2.3	THEORETICAL FRAMEWORK: FAMILY-INTEGRATED NEONATAL CARE.....	19
2.4	LITERATURE REVIEW RELATED TO FAMILY-INTEGRATED CARE.....	20
2.4.1	Bonding and attachment.....	21
2.4.2	Experiences of mothers in the neonatal unit.....	22
2.4.2.1	Factors related to the environment.....	22
2.4.2.2	Factors related to the neonates' condition or appearance.....	23
2.4.2.3	Factors related to healthcare providers.....	23
2.4.2.4	Feelings and needs of parents during hospitalisation of the neonates	24
2.4.2.5	Noticeable behavioural trends of parents towards neonates, staff and each other	26
2.4.3	Different neonatal care approaches.....	27
2.4.3.1	Conventional neonatal care	27
2.4.3.2	Family-centred care	28
2.4.3.3	Kangaroo mother care	34
2.4.3.4	Developmental care.....	37



2.4.3.5	Family-integrated care	48
2.5	CONCLUSION ABOUT THE REVIEW	49
2.6	SUMMARY	50

CHAPTER 3

RESEARCH METHODOLOGY

3.1	INTRODUCTION.....	51
3.2	RESEARCH DESIGN.....	51
3.2.1	Research question	51
3.2.2	Aim.....	52
3.3	PROBLEM RESOLVING ACTION RESEARCH MODEL.....	52
3.4	CONTEXT	53
3.5	GAINING ACCESS	54
3.6	DESCRIPTION OF THE RESEARCH CYCLES	54
3.6.1	Cycle I: Situational analysis to obtain baseline data	54
3.6.1.1	Objective 1.....	56
3.6.1.2	Objective 2.....	57
3.6.2	Cycle II: Implementation of family-integrated care	61
3.6.2.1	Objective.....	62
3.6.3	Cycle III: Evaluation of family-integrated neonatal care model.....	62
3.6.3.1	Objective 1.....	63
3.6.3.2	Objective 2.....	64
3.6.3.3	Objective 3.....	65
3.7	RIGOUR.....	66
3.7.1	Validity and Reliability.....	66
3.7.2	Trustworthiness	66
3.7.2.1	Credibility	67
3.7.2.2	Transferability	67
3.7.2.3	Confirmability	67
3.7.2.4	Authenticity	68
3.8	ETHICAL CONSIDERATIONS	68
3.8.1	Beneficence	68
3.8.2	Respect for human dignity	69



3.8.3	Justice.....	69
3.9	SUMMARY.....	70

CHAPTER 4

CYCLE I: SITUATIONAL ANALYSIS: OBTAINING BASELINE DATA ON NEONATAL CARE

4.1	INTRODUCTION.....	71
4.2	FINDINGS OF SUB-OBJECTIVE 1 (PLAN, ACT, OBSERVE): SITUATION ANALYSIS OF NEONATAL WELLBEING	72
4.2.1	Demographic data of mothers	72
4.2.1.1	Mother’s age.....	72
4.2.1.2	Mother’s parity	74
4.2.2	Baseline data regarding, weight, length of stay and mortality of neonates.....	75
4.2.2.1	Gender and gestational age of neonates	75
4.2.2.2	Health-related problems of the neonates	77
4.2.2.3	Weight gain.....	78
4.2.2.4	Length of stay	79
4.2.2.5	Neonatal mortality.....	82
4.3	FINDINGS OF SUB-OBJECTIVE 2: HEALTHCARE PROVIDERS’ EXPERIENCES OF THE CARE THEY PROVIDE IN THE NEONATAL UNIT	84
4.3.1	Demographic data of participants	85
4.3.1.1	Age.....	86
4.3.1.2	Gender.....	86
4.3.1.3	Highest level of education.....	86
4.3.1.4	Years of experience in nursing.....	86
4.3.2	Themes, categories and subcategories of healthcare providers’ experiences of the current care they provide in the neonatal unit	87
4.3.2.1	Theme 1: Challenges encountered with mothers and neonates during neonatal care	88
4.3.2.2	Theme 2: Equipment and resources	98
4.3.2.3	Theme 3: Roles of the family in neonatal care	105
4.4	RELATIONSHIP BETWEEN THE RESULTS	109
4.5	SUMMARY.....	110



CHAPTER 5

CYCLE II: IMPLEMENTATION OF FAMILY-INTEGRATED NEONATAL CARE STRATEGIES

5.1	INTRODUCTION.....	111
5.2	DEVELOPMENT OF STRATEGIES FOR THE IMPLEMENTATION OF FAMILY- INTEGRATED NEONATAL CARE	112
5.2.2	Process of development of strategies of implementation of family-integrated neonatal care	115
5.2.1.1	Strategy	117
5.2.1.2	Structure	117
5.2.1.3	Systems.....	118
5.2.1.4	Skills	119
5.2.1.5	Staff	119
5.2.1.6	Style	120
5.2.1.7	Shared values.....	120
5.3	STRATEGIES FOR THE IMPLEMENTATION OF FAMILY-INTEGRATED NEONATAL CARE	120
5.4	IMPLEMENTATION INTENTIONS OF STRATEGIES FOR FAMILY-INTEGRATED	133
5.5	MONITORING OF STRATEGIES OF IMPLEMENTATION OF FAMILY- INTEGRATED NEONATAL CARE	137
5.6	CHALLENGES OF IMPLEMENTATION OF FAMILY-INTEGRATED NEONATAL CARE	142
5.7	SUMMARY.....	142

CHAPTER 6

EVALUATION OF FAMILY-INTEGRATED NEONATAL CARE

6.1	INTRODUCTION.....	144
-----	-------------------	-----



6.2	RETROSPECTIVE AND CURRENT DATA REGARDING WEIGHT, LENGTH OF STAY AND MORTALITY OF NEONATES.....	146
6.2.1	Mother's age	146
6.2.2	Mother's parity.....	148
6.2.3	Gender and gestational age of neonates.....	150
6.2.4	Health-related problems of the neonates.....	152
6.2.5	Weight gain of neonates.....	154
6.2.6	Length of stay of neonates	156
6.2.7	Neonatal mortality	159
6.3	DATA ON THE PERCEPTIONS OF HEALTHCARE PROVIDERS REGARDING FAMILY-INTEGRATED NEONATAL CARE	161
6.3.1	Demographical data of participants	162
6.3.1.1	Age.....	162
6.3.1.2	Gender.....	162
6.3.1.3	Highest level of education.....	163
6.3.1.4	Years of experience in nursing.....	164
6.3.2	Themes, categories and subcategories of perceptions of healthcare providers on family-integrated neonatal care	165
6.3.2.1	THEME 1: Perceptions of healthcare providers on the involvement of the family in neonatal care	166
6.3.2.2	THEME 2: Infrastructure of the neonatal ward	184
6.4	DISCUSSION.....	185
6.5	SUMMARY.....	185

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

7.1	INTRODUCTION.....	187
7.2	CONTEXT OF THE STUDY	187
7.3	RESEARCH DESIGN AND METHOD	187
7.4	GAINING ACCESS	188
7.5	SUMMARY OF FINDINGS	188
7.5.1	Cycle I: Situational analysis to obtain baseline data	188



7.5.2	Cycle II: Implementation of strategies of family-integrated neonatal care.....	193
7.5.3	Cycle III: Evaluation of the implementation of strategies of family-integrated neonatal care	196
7.5.3.1	Quantitative data.....	197
7.5.3.2	Experiences of healthcare providers on the provision of family-integrated neonatal care.....	199
7.6	LIMITATIONS OF THE STUDY.....	203
7.7	RECOMMENDATIONS	204
7.7.1	Recommendations for Neonatal Nursing Practice	204
7.7.1.1	Recommendations for the inclusion of parents in neonatal care	204
7.7.1.2	Recommendations to support mothers during the implementation of family-integrated neonatal care	204
7.7.1.3	Recommendations in terms of requirements for proper implementation of family-integrated neonatal care.....	205
7.7.1.4	Recommendations made in relation to other findings of the study.....	205
7.7.2	Recommendations for Research	206
7.7.3	Recommendations for Nursing Education.....	206
7.8	SIGNIFICANCE OF THE STUDY.....	207
7.9	FINAL CONCLUSIONS OF THE STUDY	207
	REFERENCES	208

TABLES

Table 2.1:	Approaches to neonatal care vs outcomes of neonatal care	48
Table 3.1:	Summary of research methods of Cycle I	55
Table 3.2:	Summary of data processes for Cycle II.....	61
Table 3.3:	Summary of data processes for Cycle III.....	63
Table 4.1:	Frequency distribution for health-related problems	77
Table 4.2a:	Birth and discharge weight distribution	78
Table 4.2b:	Change in weight groups for the neonates	79
Table 4.3:	length of stay of neonates.....	79



Table 4.4:	Mortality by health-related problem	84
Table 4.5:	Demographic data of the participants.....	85
Table 4.6:	Themes, categories and subcategories of healthcare providers' experiences on current care of neonates	87
Table 5.1:	Demographic details of the steering committee.....	Error! Bookmark not defined.
Table 5.2:	Apgar score	122
Table 5.3:	Strategies for improving the Apgar scoring skills of the midwives.....	122
Table 5.4:	Strategies for prevention of medico-legal hazards	124
Table 5.5:	Strategies for prevention of mother-to-child transmission of HIV	125
Table 5.6:	Strategies for supporting the mother in the neonatal unit	127
Table 5.7:	Strategies for sustaining the use of Kangaroo Mother Care after discharge.....	128
Table 5.8:	Strategies for ensuring availability of equipment	130
Table 5.9:	Strategies to ensure the provision of human resources in the neonatal unit.....	131
Table 5.10:	Strategy for ensuring the development of a policy on the roles of family members in the neonatal unit.....	133
Table 5.11:	Summary of strategies for implementation of family-integrated neonatal care	138
Table 6.1:	Frequency distribution for health-related problems Cycle I and III	153
Table 6.2:	Birth and discharge weight distribution for Cycle I and Cycle III	156
Table 6.3:	Change in weight gain for Cycle I and Cycle III	156
Table 6.4:	Length of stay for neonates Cycle I and Cycle III ...	Error! Bookmark not defined.
Table 6.5:	Themes, categories and subcategories of perceptions of healthcare providers of family-integrated neonatal care.....	165

FIGURES

Figure 2.1:	McKinsey 7S Model	18
Figure 3.1:	Piggot-Irvine Problem Resolving Action Research	52
Figure 4.1:	Cycle I situational analysis	71
Figure 4.2:	Mother's age	73
Figure 4.3:	Gravidity (G) Parity (P) of the mothers	74
Figure 4.4:	Gender of neonates	76
Figure 4.5:	Gestation of neonates.....	76
Figure 4.6:	Neonatal mortality	83



Figure 4.7: Neonatal mortality by gender83
 Figure 4.8: Mortality by the length of stay83
 Figure 5.1: Cycle II implementation of the strategies of family-integrated neonatal care111
 Figure 5.2: Packaging of strategies in the McKinsey 7S Model117
 Figure 6.1: Cycle III evaluation of family-integrated neonatal care145
 Figure 6.2: Mother’s age Cycle I147
 Figure 6.3: Mother’s age Cycle III147
 Figure 6.4: Mother’s parity Cycle I149
 Figure 6.5: Mother’s parity Cycle III149
 Figure 6.6: Gender Cycle I150
 Figure 6.7: Gender Cycle III151
 Figure 6.8: Gestational age Cycle I151
 Figure 6.9: Gestational age Cycle III152
 Figure 6.10: Neonatal mortality Cycle I and Cycle III160
 Figure 6.11: Age of participants162
 Figure 6.12: Gender of participants163
 Figure 6.13: Level of education of participants164
 Figure 6.14: Years of experience of participants165

ANNEXURES

ANNEXURE A: UNIVERSITY OF PRETORIA ETHICS APPROVAL225
 ANNEXURE B: APPROVAL LIMPOPO DEPARTMENT OF HEALTH226
 ANNEXURE C: QUANTITATIVE DATA RECORDING TOOL227
 ANNEXURE D: SAMPLING OF FILES229
 ANNEXURE E: INFORMATION LEAFLET FOR HEALTHCARE PROVIDERS234
 ANNEXURE F: INFORMATION LEAFLET FOR MOTHERS237
 ANNEXURE G: APPLICATION TO DEPARTMENT OF HEALTH LIMPOPO240
 ANNEXURE H: TITLE APPROVAL – SCHOOL OF HEALTH CARE SCIENCES242
 ANNEXURE I: FOCUS GROUP GUIDE CYCLE I243
 ANNEXURE J: FOCUS/INTERVIEW GUIDE CYCLE III245
 ANNEXURE K: LETTER FROM THE STATISTICIAN247
 ANNEXURE L: SUMMARY OF LITERATURE REVIEW248



ANNEXURE M: LETTER FROM THE EDITOR.....258
 ANNEXURE N: ACTION PLANS FOR STEERING COMMITTEE259
 ANNEXURE O: MINUTES AND REFLECTIONS OF STEERING COMMITTEE267

LIST OF ABBREVIATIONS

ARVS	ANTI RETRO VIRAL DRUGS
DHIS	DEPARTMENT OF HEALTH INFORMATION SYSTEM
ESMOE	ESSENTIAL STEPS IN MANAGEMENT OF OBSTERIC EMERGENCIES
FICARE	FAMILY INTERGRATED NEONATAL CARE
HIV	HUMAN IMMUNO DEFICIENCY VIRUS
KMC	KANGAROO MOTHER CARE
MTCT	MOTHER TO CHILD TRANSMISSION
NICU	NEONATAL INTENSIVE CARE UNIT
PMTCT	PREVENTION OF MOTHER TO CHILD TRANSMISSION
PPIP	PERINATAL PROBLEM IDENTIFICATION PROGRAMME
PRAR	PROBLEM RESOLVING ACTION RESEARCH MODEL
WHO	WORLD HEALTH ORGANIZATION
ARC	AIDS RELATED COMPLEX

CHAPTER 1

OVERVIEW OF THE STUDY

1.1 INTRODUCTION AND BACKGROUND

Parents of babies admitted to a neonatal unit need to be empowered to improve bonding, attachment and caregiving skills. According to Herbst and Maree (2006:9), parents want to hold and care for their babies, but it is not always clear how to transfer primary caregiving responsibilities to the parents if the baby is premature or ill and needs specialised healthcare. However, a new approach, family-integrated care, was introduced in neonatal intensive care units (NICUs) as a planned and structured approach to empower parents to take care of their own babies (Bracht, O' Leary, Lee & O'Brien, 2013:116).

The focus of this study was to implement family-integrated care in the neonatal unit in a district hospital in a structured manner. The parents' involvement in caregiving activities ranged from less invasive primary caregiving activities to more complex activities according to the parents' readiness and abilities. The approach was used in order to empower them to take care of their babies during hospitalisation and to continue doing so after discharge.

Naturally, the care of the newborn baby becomes the responsibility of the mother, but when the neonate has been sick and required admission to the neonatal unit, the family tend not to fully participate in the neonate's care. In the traditional way of caring for hospitalised neonates, the care is routinised with limited time for bonding between the neonate and the mother. The mother is usually allowed to visit the infant 3 hourly, and may only assist the healthcare team with a few of the neonatal care activities (Martinez, Fonseca & Scochi, 2007:240).

Araujo and Rodrigues (2010:866) indicated that when neonates needed care in the neonatal unit, the mothers turned into spectators of the specialised care provided by the health team. The delicate and precise way that the nurses care for the neonates demonstrates the mothers' inability to help their own babies. The mothers feel guilty for not knowing how to take care of their baby and therefore consider the nurses as the mother figures for the neonates. This notion was supported by Malakouti, Jabraeeli, Valizadeh and Babapour (2013:175), van Rooyen (2006:8), Sikorova and Kucova (2012:330), Ringland (2008:14) and Gooding, Cooper, Blaine, Franck,

Howse and Berns (2011:21). The traditional way of neonatal care resulted in problems such as poor maternal-infant attachment, which had long-term adverse effects for both the mother and the neonate (Ringland, 2008:14; Isler, Universitesi, Hemsireligi & Bornova, 2007:1).

Family-centred care was developed as an approach to overcome some of these problems. By definition, family-centred care is an approach that focuses on the planning, delivery and evaluation of health care that was grounded in mutually beneficial partnerships among healthcare providers, patients and families (Institute for Patient and Family-Centred Care, 2010). This approach allowed the family to partake in decision making around the care of their neonate but not necessarily in the actual activities of caring for the neonate. According to Martinez, et al. (2007:243), outcomes of including mothers in neonatal care are improved bonding and attachment, and reduced length of stay for the neonate. There was also patient and staff satisfaction with this approach of care. Mothers are commonly not involved in the actual activities of taking care of their neonates but are involved in taking decisions regarding the care of their infants.

In addition to family-centred care, kangaroo mother care (KMC) was introduced as an intervention to provide care to low birth weight neonates who were stable but not yet ready for discharge. KMC is the skin-to-skin contact of a low birth weight neonate between the mother's breasts; this contributes to thermoregulation, the prevention of infection, appropriate stimulation, safety and constant observation, easy access to breastfeeding, and it facilitates bonding and attachment (Solomons & Rosant, 2012:33; Subedi, Aryal & Gurubacharya, 2009:6). However, KMC is seldom implemented in the NICU, and the mothers are usually not fully involved as primary givers of their sick and small neonates prior to them being classified as 'stable'. KMC provides more opportunities for the parents to be involved in the basic care of their infants as primary caregivers, but the healthcare team is still 'in charge'. According to Solomons and Rosant (2012:34), support will encourage mothers to gain confidence in using KMC as soon as the neonate is stable, and it is logistically feasible.

Researchers in neonatal care recommend an approach that addresses the gap within the two approaches discussed. The recommended approach was family-integrated neonatal care, which was pioneered by a Canadian health team based on the Estonian Tallinn approach. This approach of care advocate for the inclusion of the parents in the care of their sick and small neonates in the neonatal unit. The family (mother, father or even close family members or

significant others) are encouraged to be active members of the team that takes care of the neonates during hospitalisation, and in the routine interventions for the particular neonates (Bracht, et al. 2013:116). The parents are not only present in the NICU, but they are taught through a structured process how to take care of their infant while the health care team remains close by and available to assist where needed (Bracht, et al. 2013:116).

The aim of the family-integrated neonatal care approach is to enable parents by becoming part of the neonatal team. Parents receive daily education in a planned and structured manner to become primary caregivers for their infants (Macdonell, Christie, Robson, Pytlik, Lee & O'Brien, 2013:264). Additionally, parents attain specific skills while their babies are still hospitalised in the NICU, including assessment and the provision of appropriate care, charting and giving reports during medical ward rounds. However, the advanced interventions in this approach remain the responsibility of the healthcare professionals (Bracht, et al. 2013:116).

When the family-integrated neonatal care approach was initiated there were concerns about the potential risks, such as possible dislodging of endotracheal tubes with the risk of disruption of ventilation, or dislodging of feeding tubes which might cause problems of aspiration. In a study conducted by Macdonell, et al. (2013:264) regarding the outcomes of family-integrated care in the NICU, contrary results were found. The study indicated that parents gained confidence, comfort and hope, and it improved bonding and psychological wellbeing. Furthermore, there was a decrease in retinopathy of prematurity and necrotising enterocolitis, and reduced medication errors, length of stay in the hospital, hospitalisation costs and mortality (Macdonell, et al. 2013:264). During the course of this study, no research could be found that showed any negative results regarding the implementation of family-integrated neonatal care.

In the United States, family-integrated neonatal care is currently being implemented in Salem hospital, Oregon, however the results are not yet available (Cohen, Kurrnen, Bradshaw, Bell, Scheler, Austin, Cox & McClenny, 2014). In China, family-integrated neonatal care is also being implemented (Hei, Gao, Nong, Zhang, Zhang & Lee, 2016:2). A pilot study has already been done, and a cluster randomised controlled trial is currently in progress. No literature is available regarding the implementation of family-integrated care in neonatal units of sub-Saharan countries, which is the focus of this study.



1.2 RATIONALE

Family-integrated care in neonatal units is a new concept in South Africa. Several studies regarding the implementation of family-integrated neonatal care has been conducted in Canada, with important benefits being reported among the neonates and families (Bracht, et al. 2013:115; Macdonell, et al. 2013:262; O'Brien, Bracht, Macdonell, McBride, Robson, O'Leary, et al. 2013:1). By introducing family-integrated care in a neonatal unit of the district hospital of Limpopo Province, this study could generate new knowledge; it was conducted in a district hospital of an African country with low resources in terms of staff and equipment, in comparison to the Canadian context, which is a first-world country with sufficient resources. This approach might be an affordable model of care to contribute to positive outcomes for neonates and their families and reduce neonatal mortality. However, this approach required a mind shift to introduce change from the traditional approach of health care in the neonatal units.

1.3 PROBLEM STATEMENT

Neonatal care at the identified district hospital was done in the traditional way where neonatal care activities were provided by the healthcare team with dedicated visiting time and limited involvement in care by mothers in the neonatal unit. Mothers visited their infants 3-hourly and only participated in some activities like nappy changing and cord care. Mothers were not allowed to attend the doctors' round and other members of the family were not allowed to take care of the neonate when visiting. There was a KMC room to accommodate six mothers and their infants, but even there the mothers had limited input in decision making and visitors were not allowed into the KMC room; mothers came out of the room to see their visitors.

Bonding and attachment between newborn infants and their parents (especially mothers) is a natural process after birth and is considered crucial for the long-term wellbeing of the infants and the parents (Perry, 2013:2). According to Benoit (2004:541) and Kearvell and Grant (2007:76), bonding contributes to feelings of safety and security, belonging and being cared for, and it facilitates parenting. The risk for neglect, abandonment, developmental delays and even battering is high in the absence of bonding and attachment (Perry, 2013:2).

Bonding and attachment are of special importance for infants who are discharged with morbidity and special needs (Baber, 2015:27). The early separation of a mother and her infant at birth due

to prematurity or an illness, and the infant being admitted for specialised medical care in a neonatal unit, as well as the period of hospitalisation that follows, might interfere with the process of bonding and attachment (Baber, 2015:27). Specialised neonatal care reduces infant mortality as many more infants who would have died, survive. However, they often survive with morbidity and special needs, for example, bronchopulmonary dysplasia, retinopathy of prematurity, feeding difficulty and various neurodevelopmental disabilities (Vazquez & Cong, 2014:281; Baber, 2015:27). This makes the need for bonding and attachment even greater as the parents will be responsible for those special needs and the difficulties associated with it.

Family-integrated care was established to take family-centred care a step further. Conversely, in family-integrated neonatal care, the parents form an integral part of the neonatal intensive care team to provide active care for their infant instead of being in a passive support role. It introduces a gradual and structured process of empowerment where the parents are taught how to take care of their neonates. Parents gradually take more responsibility for the care while the healthcare providers' role also changes gradually from caretaking to supervision and support of the parents. Several studies regarding the implementation of family-integrated neonatal care were conducted in Canada with significant positive outcomes, such as improved weight gain and increased wellbeing of the neonate and parents. Reduced neonatal mortality, medical errors, nosocomial infections, reports of critical incidents and length of stay were also determined (O'Brien, et al. 2013:116; Bracht, et al. 2013:116; Macdonell, et al. 2013:264; Galarza-Winton, Dicky, O'Leary, Lee & O'Brien, 2013:339).

As family-integrated care has been proven to have significant positive outcomes for neonates and their families, it was considered as being important to implement. The implementation of care might differ from a first-world context such as Canada to a rural district hospital in Limpopo Province South Africa. Family-integrated care does not depend on technology or high costs, and might even lead to a reduction in costs. There is a vast cultural and contextual difference between the Canadian hospital and the rural Limpopo district hospital, but it is expected that family-integrated care might make a significant contribution in family empowerment, bonding and attachment in the district hospital of Limpopo Province. This study proposed to improve the quality of care in the NICU of the particular hospital by integrating family care into the current neonatal care system to benefit the neonates and their families in the long term.



1.4 SIGNIFICANCE OF THE PROPOSED STUDY

The implementation of family-integrated care was expected to contribute to neonatal nursing practice by benefiting neonates and their families. A decrease in retinopathy of prematurity, necrotising enterocolitis, infection rate, medication errors, length of stay in hospital and reduced neonatal morbidity and mortality were expected. It was further anticipated that the infants would be closely watched by their mothers (or other family member(s)) who got to know them, who would be present for extended periods, and who would be sensitised to early warning signs of change in the infant's condition, and have the authority to report it immediately to healthcare professionals. They would be taught about hand hygiene and the importance thereof. Implementation of family-integrated care might positively affect staff shortages in the neonatal unit and improve parent-nurse relationships. The study also contributes to an understanding of the implementation of the same model in different contexts, and therefore contributes to the body of knowledge in neonatal care once it gets rolled out to other hospitals.

1.5 RESEARCH QUESTION

The study was aimed at answering this research question: How can family-integrated neonatal care be implemented in a district hospital of Limpopo Province?

1.6 AIM AND OBJECTIVES

1.6.1 Aim

The aim of this study was to develop and implement strategies of family-integrated neonatal care in a district hospital of Limpopo Province.

1.6.2 Objectives

The objectives of the study were:

1. To explore and describe the current care provided in the neonatal unit of a district hospital of Limpopo Province. This objective further consisted of two sub objectives:

Sub-objective 1.1: Obtain retrospective baseline data regarding neonatal mortality, length of stay and weight gain of the neonates in the district hospital in Limpopo.

Sub-objective 1.2: Obtain baseline data regarding the experiences of healthcare providers regarding the neonatal care they provide to families in the neonatal ward of the district hospital in Limpopo.

2. To develop, implement and describe the strategies of family-integrated neonatal care in a district hospital of Limpopo Province.
3. To evaluate the implementation of family-integrated care in a district hospital of Limpopo Province.

1.7 CONCEPT CLARIFICATION

1.7.1 Family-integrated neonatal care

Family-integrated neonatal care is an approach aimed at providing care for infants in the neonatal care unit where parents are encouraged to be active members of the team that take care of the infant in the ward. The parents learn specific skills about caring for their neonate in a structured manner (Bracht, et al. 2013:116). In this study, family-integrated care was seen as full participation and inclusion of the parents in the care of their sick and preterm baby in the neonatal unit of the identified hospital by being taught in a structured manner.

1.7.2 Implementation

Implementation is putting something into effect (Stevenson & Waite, 2011:715). In this study, implementation will mean putting family-integrated neonatal care into practice in the neonatal unit.

1.7.3 Neonate

A neonate is an infant from birth and within the first four weeks of life (Sellers, 2004:1789). In this study, a neonate refers to a sick or preterm baby admitted to the particular neonatal unit for neonatal care from birth until discharge.



1.7.4 Neonatal care

Neonatal care is the provision of what is necessary for the welfare of a neonate from the period immediately following birth and continuing through the first month of life (Freshwater & Maslin-Prothero, 2014:657). In this study, neonatal care means all care that is given to the ill and preterm babies during the period of hospitalisation in the neonatal unit.

1.7.5 Healthcare providers

The concept 'healthcare providers' refers to people who provide preventative or medical procedures necessary to improve a person's wellbeing (Business Directory, 2015). In this study, a healthcare provider refers to doctors, registered, enrolled and enrolled auxiliary nurses working in the neonatal unit, as well as managers supervising the provision of neonatal care in the neonatal unit.

1.8 PHILOSOPHICAL ASSUMPTIONS

The study was based on the pragmatic worldview. Pragmatism as a worldview arises out of actions, situations and consequences rather than antecedent conditions. Pragmatism allows multiple methods, and different worldviews, assumptions, forms of data collection and analysis (Creswell, 2014:10). In this study, both quantitative and qualitative approaches were used to collect and analyse data.

1.8.1 Ontological assumptions

Ontology is the study of claims and assumptions about the nature of social reality, claims about what exists, what it looks like, what units make it up, and how these units interact with each other. It is the starting point for researchers' theoretical framework (Lindsay, 2010:5). The researcher believed that reality was constructed based on individual interpretation, and it is subjective. People interpret and make their own meaning of events. Events are distinctive and cannot be generalised; there are also multiple perspectives on one incident. Causation in social sciences was determined by interpreted meaning and symbols (Lindsay, 2010:5). In this study, interaction was regarded as critical between different people (parents and various members of the neonatal

care team) who had varying perspectives to bring about change in the current neonatal care system in the neonatal unit of the identified hospital. Ontological assumptions are further clarified in Chapter 2.

1.8.2 Epistemological assumptions

Epistemology is the study of how we come to know. Knowledge is something we have but it increases in social relations so that all knowing is doing (Reason & Bradbury, 2008:190). According to Koshy, Koshy and Waterman (2011:14), knowledge can be discovered through scientific means and what people say. How the researcher interprets what people do and say is important for the researcher to create knowledge. Terre Blanche, Durrheim and Painter (2007:6) stated that epistemology specifies the nature of the relationship between the researcher and what can be known. In this study, the researcher adopted a pragmatic approach, and the epistemological assumptions were that the reality to be studied consisted of people's subjective experiences of the external world. The researcher believed that the mothers' and healthcare providers' experiences, understanding and feelings regarding the provision of neonatal care in the neonatal unit were important in deriving knowledge. The only way to gain information is through communication, interaction and participation among people in order to bring about change, but the researcher recognised that the reality of family-integrated care in neonatal practice is multi-faceted. The epistemological assumptions are further clarified in Chapter 2.

1.8.3 Methodological assumptions

Methodological assumptions are made by the researcher regarding the methods used in the process of research. The procedures used by the researcher are inductive and based on the researcher's experiences in covering and analysing data (Terre Blanche, et al. 2007:6). The researcher used action research to attain the objectives of this study. This approach was used for improving conditions and practices in the healthcare environment through action, developing and improving practice while generating and testing theory. It involved healthcare practitioners conducting systematic enquiries in order to help improve their own practices (Metler, 2014:4; Mills, 2014:8). In this study, the researcher utilised the Piggot-Irvine Problem Resolving Action Research (PRAR) Model (Piggot-Irvine, 2009:14) to change neonatal care from traditional to family-integrated care in the particular hospital by means of three cycles. Each cycle had four steps; plan, act, observe, and reflect. This is discussed further in Section 1.10.

1.9 DELINEATION

This study only focused on the implementation and evaluation of family-integrated neonatal care in the neonatal unit of the chosen district hospital of Limpopo Province, as this was the area where the research problem had been identified. It was implemented for approximately 6 months due to time constraints. The progress and changes were monitored throughout, and the outcomes were compared after the 6 months' implementation.

1.10 RESEARCH DESIGN AND METHODOLOGY

1.10.1 Action research

An action research design using multiple methods was used to attain the objectives of the study. Koshy, et al. (2011:1) defined action research as an approach commonly used for improving conditions and practices in the healthcare environment. It involved healthcare practitioners conducting systematic enquiries in order to help improve their own practices (Metler, 2014:4; Mills, 2014:8). The purpose of conducting action research is to bring about change in specific contexts and produce practical knowledge that is useful in everyday lives. The basic process of conducting action research consists of four steps, namely identifying the area of focus, collecting data, analysing and interpreting data, and developing a plan of action (Koshy, et al. 2011:3, Reason & Bradbury, 2008: 3).

The PRAR Model was used in this study to change neonatal care in the identified hospital from routinised traditional care to family-integrated neonatal care. The model depicted a cyclical process of change. This model had three cycles, namely examination of the existing situation, implementation of change, and evaluation of the implemented changes. Each cycle had four steps of planning, acting, observing, and reflecting (Piggot-Irvine, 2009:1). Chapter 3 presents the research methodology in detail.



1.10.2 Research process

The research process involved three cycles. The researcher first conducted a literature review to attain information on the different approaches of neonatal care. Information on a model to be used in formulating the strategies to implement family-integrated neonatal care was also obtained.

Cycle 1

In Cycle 1, a situational analysis was conducted to obtain baseline data regarding the current neonatal care provided by the healthcare providers. In this cycle, retrospective data on weight, length of stay, and neonatal mortality was studied to assess the wellbeing of the neonates. Focus groups were held with healthcare providers regarding their experiences of the neonatal care they provided in the chosen district hospital. Quantitative data were described using descriptive statistics while qualitative data were analysed using Tesch's approach of data analysis. Cycle 1 is fully described in Chapter 4.

Cycle 2

The second cycle was for the development of strategies to implement family-integrated neonatal care. The strategies were established based on the findings of the focus groups held with the healthcare providers in Cycle 1. They were formulated by the steering committee, which was composed of the assistant manager, operational managers and the doctor who were in charge of neonatal care at the district hospital. The strategies formulated were based on the 7s McKinsey

Model of strategic development (Ravanfar, 2015:8). A detailed discussion of this cycle is provided in Chapter 5.

Cycle 3

The third cycle evaluated the implementation of family-integrated neonatal care. The same steps that were followed in the first cycle were repeated in this cycle and findings were compared. This cycle is fully discussed in Chapter 6.

1.11 RIGOUR

The following measures were considered to ensure the rigour of the study as it was both quantitative and qualitative.

1.11.1 Measures to ensure validity and reliability

Measures to ensure internal validity, external validity and reliability were employed and will be discussed in Chapter 3.

1.11.2 Measures to ensure trustworthiness

Measures to ensure trustworthiness were used and will be described in Chapter 3 in terms of credibility, dependability, transferability, confirmability, and authenticity.

1.12 ETHICAL CONSIDERATIONS

The researcher obtained approval from the Ethics Committee of the Faculty of Health Science of the University of Pretoria, and the Limpopo Department of Health. Permission was sought from the Chief Executive Officer of the district hospital in which the study was conducted. A detail discussion of ethical considerations is presented in Chapter 3.



1.13 OUTLINE OF THE STUDY

The chapters of the study are outlined as follows:

Chapter 1: Overview of the study

Chapter 2: Theoretical framework and literature review

Chapter 3: Research methodology

Chapter 4: Cycle I: Situational analysis: obtaining baseline data on neonatal care

Chapter 5: Cycle II: Implementation of family-integrated neonatal care strategies

Chapter 6: Cycle III: Evaluation of family-integrated neonatal care

Chapter 7: Conclusions and recommendations

1.14 CONCLUSION

Chapter 1 discussed the overview of the study, which included the background, rationale, problem statement, significance of the study, research question, aim and objectives. Clarification of concepts, philosophical assumptions, delineation, a brief description of the research methodology, rigour, and ethical considerations were also presented. The next chapter will discuss the theoretical framework and literature review related to family-integrated neonatal care.

CHAPTER 2

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1 INTRODUCTION

Chapter 1 provided an overview of the study and Chapter 2 will present the philosophical assumptions and McKinsey 7S Model as a conceptual framework for the development of the strategies for the implementation of family-integrated neonatal care. Most importantly, this chapter will discuss the literature reviewed related to family-integrated neonatal care.

2.2 PHILOSOPHICAL ASSUMPTIONS

2.2.1 Paradigm

A paradigm is defined as a collection of logically connected concepts and the proposition of a theoretical framework on which an investigation is based. The connected concepts are a basic set of beliefs that guide action. The study is based on the pragmatic worldview which arises from actions, situations and consequences. According to pragmatists, research occurs in social, historical, political and other contexts. The pragmatists emphasise the problem and use all approaches available to understand the problem (Creswell 2014:05).

Pragmatism arose from the work of John Dewey (cited in Everest, 2014:11) who indicated that the critical potential of experience could be tapped if scientists are to mount an effective challenge to the entrenched interests in the study of reality. He further stated that the manifestation of intellectual activity in language contains a specific conception of the world. According to Everest (2014:11), studying reality means that the researcher should interact with the context in which the study is conducted. The end result of the scientific inquiry of a phenomenon in pragmatism is to improve the human experience. The philosophical assumptions of pragmatism will be discussed under meta-theoretical (ontological), theoretical (epistemological) and methodological assumptions.

2.2.1.1 Ontological assumptions

Ontology is the study of reality and it focuses on answering questions on reality and its nature (Everest 2014:8). The essence of ontology is about how reality exists as the product of one's mind (Everest 2014:8). The pragmatists view ontology as both realists and relativists (Everest 2014:8). The reality in pragmatism accepts that there is an external reality but denies that one single unchanging truth can be determined. However, the pragmatists are unsure whether one explanation of reality is better than another. They believe that causation in social sciences is determined by interpreted meaning and symbols (Lindsay 2010:5). Hence, reality is constructed based on individual interpretation and subjectivity.

The reality in the district hospital is that when neonates are admitted to the neonatal unit the normal adaptation of parenting is disrupted. Neonates are cared for by the healthcare providers and the mothers visit the neonates at scheduled times for feeding and some other neonatal care activities. Interaction was therefore a very important aspect in this study as it was between parents and various members of the neonatal care team. Those involved have different perspectives on how parents should be involved and how to bring change regarding the current neonatal care in the neonatal unit of the identified hospital.

2.2.1.2 Epistemological assumptions

Epistemology is the study of how we come to know. Knowledge is something we have but it increases in social relations such that all knowing is doing (Reason & Bradbury 2008:190). According to Koshy, et al. (2011:14) knowledge can be discovered through scientific means and what people say and how the researcher interprets what people do and say is important when creating knowledge. Terre Blanche, et al. (2007:6) state that epistemology specifies the nature of the relationship between the researcher and what can be known. According to Morgan, (2013:39), the pragmatist's epistemological position is that the knower and the known must interact to produce knowledge. Pragmatists are of the opinion that knowledge of the world is based on experience. The pragmatists believe that the world is both real and socially constructed and that knowledge is socially constructed.

Everest (2014:08) describes epistemology as the study of knowledge and its basis. The concern in epistemology is the nature and validity of how knowledge of the phenomena under study is gained. Epistemology is the foundation of true knowledge and its importance in creating knowledge. It provides the means of understanding how researchers generate and activate scientific knowledge. The researcher, through epistemology, is able to answer the questions of how, what and why (Everest 2014:08).

In this study, the researcher adopted a pragmatism approach and the epistemological assumptions were that the reality to be studied consists of people's subjective experiences of the external world. The researcher believes that healthcare providers' experiences, understanding and feelings regarding the provision of neonatal care in the neonatal unit are important in deriving knowledge. The only way to gain information is through communication, interaction and participation with people in order to bring about change. The researcher thus used the PRAR design for data collection.

2.2.1.3 Methodological assumptions

The researcher used action research to attain the objectives of this study. This approach was used to improve conditions and practices in the healthcare environment through actions, development and practice improvement while generating and testing theory (Metler, 2014:4; Mills, 2014:8). The researcher, together with the healthcare practitioners, conducted a systematic inquiry in order to improve neonatal care practices (Metler, 2014:4; Mills, 2014:8). The Piggot-Irvine PRAR Model (Piggot-Irvine, 2009:14) was used to change neonatal care from traditional to family-integrated care in the particular hospital.

Three cycles were implemented and in each cycle there was planning, action, observation and reflection. The study was based on the assumptions that the PRAR Model is iterative and allows tiny cycles of reflection on action. It involves experiential learning where knowledge is gained from observations, questioning and reflection related to experience. PRAR is intra-organisation focused, therefore the researcher has to join the participants in their own context in order to get information. The developmental nature of the model is an aligned educative feature of knowledge generation. In the PRAR Model, multiple perspectives are acknowledged through the employment of multiple data collection methods (Piggot-Irvine, 2009:15). The design is discussed in detail in

Chapter 3. The pragmatism approach, PRAR and McKinsey 7S model were used to improve neonatal care practice in the district hospital

- **McKinsey 7S Model**

This study is about the implementation of family-integrated neonatal care in a selected rural district hospital. In order to implement such, there was a need to develop strategies that could be used to make the implementation processes easy and ensure the attainment of the ultimate goal of the unit in the selected district hospital. The researcher opted for the McKinsey 7S Model to guide the development of the strategies. The following section will provide an essential description of the model to establish clarity of its use in Chapter 5.

The McKinsey 7S Model was developed in 1980 by McKinsey Consultants. The model is one of the most popular strategic tools used by academics and practitioners for the development of strategies. The model is a value-based management model to provide an organisation with a framework to generate value within its overall organisation (Ward & Rivani, 2005:8). It places emphasis on human resource as a key to higher organisational performance (Jurevicius, 2013). The model consists of seven interrelated components divided into the soft and hard areas, which warrant reciprocity for the effective functioning of the organisation. The seven components are strategy, structure, systems, style, staff, shared values and skills. Strategy, structure and systems are considered as the hard areas of the model and are easier to identify and manage. The staff, style, skills and shared values are the soft areas and they are difficult to manage. The soft areas form the foundation of the organisation and are more likely to create a sustained competitive advantage (Jurevicius 2013), with the shared values of a company being central to the process (Ward & Rivani, 2005:8). The components of McKinsey 7S model include strategy, structure, systems, staff, skills, shared values.

Strategy

The strategy in the model refers to the developed plan that the institution wants to achieve and in this study the strategy was to implement family integrated neonatal care in the neonatal unit of the district hospital (Ravanfar (2015:9).

Structure

The structure represents the organisational chart of the unit and which shows the lines of communication in the unit. (Ravanfar 2015:9).

Systems

Systems are the processes and procedures as well as the daily activities and how decisions are made in the intuition (Ravanfar2015:8).

Staff

The staff refers to the number and type of employees that the organization will require and how those employees will be recruited, trained and motivated. (Ravanfar,2015:9). In the healthcare situation the hospital requires healthcare providers such as nurses and doctors to supervise and support mothers during the implementation of family integrated neonatal care.

Skills

The skills refer to the abilities, capabilities and competencies of the employees in performing their duties (Ravanfar 2015:9).

Share values

Shared values are the norms and standards that guide the behaviour of the employees and the organization (Ravanfar 2015:9).

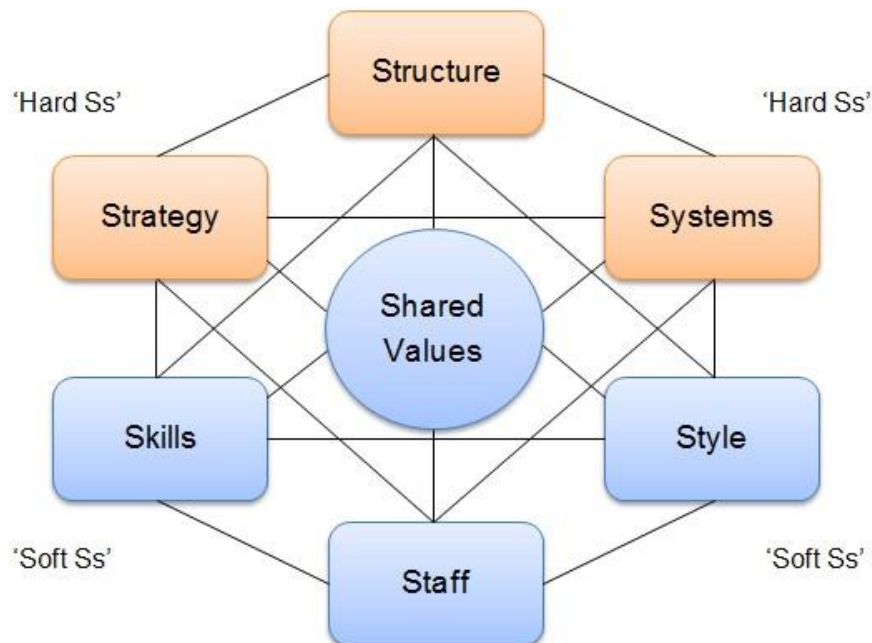


Figure 2.1: MCKINSEY 7S MODEL

As shown in figure 2.1 the seven components of the McKinsey 7S model are interconnected and they are all required to implement change in the any organisation. The McKinsey 7S Model is mainly used in business to improve a marketing strategy. However, these components of the McKinsey 7S model can be applied in healthcare system and in this case neonatal care practice to change from conventional care to family integrated neonatal care. There was no available literature on the use of this model in the healthcare system. The researcher wanted to use the McKinsey 7S Model to develop strategies for the implementation of family-integrated neonatal care in the selected rural district hospital. A detailed discussion of the McKinsey 7S Model is presented in Chapter 5.

2.3 THEORETICAL FRAMEWORK: FAMILY-INTEGRATED NEONATAL CARE

Family-integrated neonatal care is an approach used to provide care for hospitalised neonates where parents are encouraged to be active members of the team responsible for the neonates' care. It started in 1979 when there was a shortage of nurses in NICUs in Estonia. Levin (1999) initiated the humane care model in which parents provide nursing care for their neonates except for the administration of intravenous fluids, medication and respiratory care, and the nurses teach and guide the parents. Through this model, there was 37% improvement in weight gain in the first 20 days of neonates' lives. The model contributed to the evidence that hospitalised infants may thrive in a quiet environment with good nutrition and consistent love and care by their parents but with minimal stimulation and handling (O'Brien, Bracht, Robson, Ye, Mirea & Cruz, 2015:2). The maternal presence, voice and breast milk odour improved oral feeding, there were fewer critical incidences and shorter lengths of stay for preterm infants. Additionally, parent-infant interaction improved behavioural outcomes. Encouraging parental presence in the NICU provided parents with education and support to reduce their stress levels and improved their knowledge and confidence, which is important to improve preterm infant outcomes (O'Brien, et al. 2015:2).

A Canadian research team under O'Brien, et al. (2015) used scientific evidence and direct observations of the Tallinn Estonia model to formalise the family-integrated neonatal care approach. With this approach, parents are completely integrated into the NICU team. The principle of family-integrated neonatal care is that families should be supported, educated and empowered to provide care to their infant as much as possible during hospitalisation. The programme of family-integrated care includes a parental education programme, nursing

education programme and peer-to-peer support. It is important that unit policies, procedures and infrastructure are adapted to provide social, psychological and physical support that enable parent participation (O'Brien, et al. 2015:2). Family-integrated care is discussed in more detail later on in this chapter.

2.4 LITERATURE REVIEW RELATED TO FAMILY-INTEGRATED CARE

The aim of the literature review in this study was to trace the evolution of neonatal care approaches globally with the intention of implementing family-integrated neonatal care. The current neonatal care practices in many neonatal wards are provided by the healthcare providers. In conventional neonatal care situations, the family, especially the mothers, become spectators to the care of their own infants when they are hospitalised. Family members, in particular the parents, are only allowed to visit their neonates at scheduled times, can only do certain neonatal care activities, and are mainly excluded in the care of their own neonates (Araujo & Rodrigues, 2010:866). The literature review was therefore conducted to create a distinctive form of research that could provide a basis for implementing family-integrated neonatal care in this study.

The literature review was mostly based on information obtained from research articles and some from textbooks. Electronic health-related databases used in the search included: CINAHL, Scopus, Pubmed, Medline, Web of Science, Cochrane Library and PSycinfo.

The following search terms were used: *family-integrated care, family-centred care, neonatal care*. More articles were then searched based on references from the initial articles found. Articles that were included were those that were focused on the inclusion of parents as primary caregivers in the neonatal care unit; the involvement of the healthcare team in the family-centred model or in the family-integrated neonatal care model; and approaches that might release the stress levels of parents in the NICU.

The search was done for articles written in English from the year 2006 to 2017. The search yielded three main themes which were bonding and attachment, the experiences of mothers in the neonatal ward, and different neonatal care approaches.



2.4.1 Bonding and attachment

The admission of a neonate causes emotional and practical challenges for parents due to interruptions in attachment with the infant (Heidari, Hasanpour & Fooladi, 2013:209). Mothers who are highly anxious or depressed are at risk of disturbances in the development of maternal-newborn attachment. The importance of bonding and attachment was the first main theme that the search yielded. The newborn period is distinguished by the inseparable relationship between the mother and the baby. According to Araujo and Rodrigues (2010:865), the stimulation of mother-infant contact is highlighted with a view to the growth and development of healthy children in full balance between their psychological, social and spiritual dimensions. This contact can be developed through daily maternal care for the children such as feeding and bathing, which are exercises for mothers in knowing, recognising and accepting her child. It is unfortunate that mothers seem not to be accepted by the healthcare providers in the neonatal ward (Araujo & Rodrigues, 2010:865).

Attachment refers to a lasting emotional connection between the neonate and the mother. There is an emotional interchange between the infant and the mother. The neonate develops a sense of security, which allows him/her to experience the world as safe. The care provided and the engagement is based on the child's responses (Maree, 2016:2). Attachment between newborn infants and their parents, especially their mothers, should be a natural process after birth and is considered crucial for the long-term wellbeing of the infant and the parents (Perry, 2013:2). It contributes to the infant's feelings of safety and security, belonging and being cared for, and facilitates the process of parents assuming their parental role (Benoit, 2004:541; Kearvell & Grant, 2007:76).

Bonding is the formation of a relationship between the mother and the foetus. This process of bonding begins before birth during the antenatal period where acceptance and nurturing of the growing foetus takes place. Bonding is considered the central force across the child's lifespan. Women become attached to their baby during pregnancy and continue to develop the bond more fully after the baby is born (Kearvell & Grant, 2007:76; Wigert, Johansson, Berg & Hellstrom, 2006:35; Obeidat, Bond & Callister, 2009:23). According to Maree (2017:2), bonding refers to the feelings and sense of connection that a parent develops for a child before birth and the outcome is the parent taking responsibility to care for the child. The tasks in care include nappy changing, bathing, cuddling and feeding.

Araujo and Rodrigues (2010:866) indicated that disturbances in the mother and infant relationship predispose the neonate to develop attachment disorder with characteristics manifesting when confronted with tensions and hostile behaviour that lead to crimes later in life. The risk for neglect, abandonment, developmental delays and even battering is high in the absence of bonding (Perry, 2013:2). Neonates deprived of maternal care manifest with delayed intellectual and mental development. Other signs of neglect include mild depression and speech, language and abstract reasoning delays. Once adults, they may become parents who experience difficulties in caring for their own children (Araujo & Rodrigues, 2010:866).

Specialised neonatal care reduces infant mortality, but they often survive with morbidity and special needs; for example, bronchopulmonary dysplasia, retinopathy of prematurity, feeding difficulties and various neurodevelopmental disabilities (Vazquez & Cong, 2014:281; Baber, 2015:27). Bonding and attachment are of special importance for infants who are discharged with morbidity and special needs (Baber, 2015:27). The early separation of a mother and her infant at birth, when the infant is born prematurely or with illness and is admitted for specialised medical care in a neonatal unit, as well as the period of hospitalisation that follows, might interfere with the process of bonding and attachment (Baber, 2015:27).

2.4.2 Experiences of mothers in the neonatal unit

The second theme was on how mothers experience the neonatal unit. The following subthemes were determined: factors related to the environment, the neonate's condition or appearance, the healthcare providers, the parents' feelings about themselves, observable (noticeable) behaviour of parents, effects of admissions of the neonate, to parent and family expectations of the mother.

2.4.2.1 Factors related to the environment

According to van Rooyen (2006:8), mothers experience parenthood and being in the neonatal unit differently. Mothers of babies who require special care begin their experience of parenthood in the unfamiliar and intimidating environment in the neonatal unit. Mothers often feel like outsiders as they are separated from their infants, they are not alone with their baby, the environment is unfamiliar, and they are unable to be the primary caregiver for their own child. Van Rooyen (2006:8) further states that when parents are faced with the admission of the neonate,

they struggle with the unknown in an unfamiliar and threatening environment which is the neonatal unit. The view of machines, alarms and deafening noise make the mother feel uncertain and insecure about the life of the neonate outside the neonatal unit. Mothers feel alienated towards the environment as they think putting the neonate in the incubator means the infant's condition is worsening. The unexpected alarms from the respiratory machines and monitors connected to the neonate also cause a high level of stress in mothers (van Rooyen, 2006:8).

2.4.2.2 Factors related to the neonates' condition or appearance

Mothers of neonates born prematurely became mothers without being prepared as the neonate was born early. These infants are so tiny and fragile, and the mothers are in a situation filled with anxiety because they fear that the baby may be ill or might not survive (Lindberg & Ohrling, 2008:462; van Rooyen, 2006:8). Neonates who are born ill are separated from their mothers and admitted to a neonatal ward. The mother is left with a sense of alienation towards their neonate because of the size of the infant (Malakouti, Jabraeeli, Valizadeh & Babapour, 2013:175). The mothers are often distressed, and this distress is associated with multiple factors, including adapting to the sick neonate and the emotional and physical isolation from the baby. Parents are also not able to protect their newborn from pain (Obeidat, et al. 2009:27).

Mothers of neonates admitted to the neonatal unit face challenges in terms of the fragile neonate with an overwhelming array of needs. The mothers are angry, shocked and terrified; they grieve the losses that they are unable to express verbally. The mothers are anxious about all aspects surrounding the condition of the neonate and the possibility of death (van Rooyen, 2006:8).

2.4.2.3 Factors related to healthcare providers

When a neonate is born prematurely and needs admission to the neonatal unit, the mother turns into a spectator of specialised care provided by the neonatal nurses. The nurses take care of the neonate in a way that the mothers feel unable to (Araujo & Rodrigues, 2010:865). A power struggle sometimes occurs between the neonatal nurses and mothers. This is observed when nurses limit the mothers' contact with their babies. Healthcare providers often do not allow mothers to cuddle their neonates. At times the mothers are told that the neonates have already been taken care of by the nurses and that the nursery is closed to the parents (Cleveland, 2008:680). The neonatal staff fail to communicate with parents when the neonate's condition

changes or if the infant is transferred to another subunit of the neonatal unit. Some parents feel that the neonatal staff are experienced, committed and knowledgeable about the care that they give to the neonates (Russell, Sawyer, Rabe, Abbott, Gyte & Duley, 2014:6). The support from healthcare providers, the neonate's father and other family members is necessary for the mothers to be able to handle the situation (Lindberg & Ohrling, 2008:466).

2.4.2.4 Feelings and needs of parents during hospitalisation of the neonates

Parents whose neonates are admitted to a neonatal unit are vulnerable because they have not yet established a relationship with their newborn. Separation during admission causes strain on the maternal-newborn relationship, especially because mothers are worried about the outcome (Wigert, Betg & Hellstrom, 2006:35). According to Cleveland (2008:666), neonates are admitted to the neonatal unit for several reasons which include prematurity, sepsis, respiratory problems and other health problems. Admission to the neonatal unit often challenges the development of the parents' parenting roles; and these challenges have long-lasting effects on the functioning of the family. The stress caused by the infant's admission lead to symptoms of acute stress, which predisposes the parents to posttraumatic stress disorder. Cleveland (2008:666) further states that mothers feel nurses hover over them and warn them of over-handling the neonates. This causes mothers to have feelings of anger and frustration. Mothers of neonates want to be perceived positively by the nursing staff; thus, they fear voicing their opinion as this would increase their neonates' vulnerability. Mothers also fear being labelled as difficult and they have to be nice to the nurses to promote a good relationship.

According to van Rooyen (2006:8), mothers perceive nurses to be competent in the care of their neonates but the nurses were not supportive of the mothers. They seldom give adequate explanations about the condition of the infant. There is a lack of personal knowledge and comprehension about the routines and policies of the neonatal ward. Mothers feel that there is a lot they want to do with the care of their neonate, but they are unable since nurses are the ones taking care of the neonate (van Rooyen, 2006:8).

Parents of infants admitted to the neonatal ward commonly experience high levels of anxiety, depression, despair, powerlessness and disappointment. At times, parents feel helpless and emotionally unstable as they lack control of the situation, feel threatened and filled with guilt and insecurity. Parents tend to feel frustrated because they are unable to protect their neonate from

pain. Parents have psychological reactions which include crying, restlessness, physical discomfort and mental instability. These reactions manifest through parents constantly pacing in front of the neonatal ward just to check if the condition of their neonate did not deteriorate. Emotional reactions are observed by a sense of guilt, and a fear of losing the neonate if the condition has worsened (Heidari, et al. 2013:213).

Sikorova and Kucova (2012:332) state that the experience of having a preterm neonate can have a long-term impact on the maternal and neonatal relationship. The disruption in the maternal-neonatal relationship results in high levels of stress to the mother. When the neonate is born prematurely, the normal parental processes are interrupted as they are not yet prepared physically, psychologically and emotionally for this event. This can bring shock, feelings of sorrow and loss. Sikorova and Kucova (2012:332) further state that mothers experience fear, hysteria awe, emptiness, spiritual change and being concerned that the neonate would die. In some cases, mothers are discharged home without their neonates which makes them feel like they are not parents. Mothers feel that nurses hover over them and warn them of over-handling the neonates. This result in feelings of anger and frustration for the mothers. The visitation policy makes the mothers angry, frustrated and they lack control which results in fatigue and insomnia due to their inadequacy in the parenting role (Hutchinson, Spillet & Cronin, 2012:9). Parents of sick neonates often feel left out because they do not know how to care for their neonates (Obeidat et al. 2009:24; Carter, Mulder, Bartram & Darlow, 2005:109).

Lack of control of the situation is observed when the mothers experience fear and insecurity about feeding the neonate. Mothers fear that the neonate will die and they could cause problems to the hospitalised neonate. The mothers also feel guilty for the suffering of their child and become anxious when a new problem arises. It is important for mothers to handle the situation because they know they have no other alternatives (Lindberg & Ohrling, 2008:465).

Parents need to see, hold and touch their babies to facilitate early attachment and bonding. Parents indicate that they want to interact with their neonate by speaking, hugging and embracing them. Russell, et al. (2014:3) found that it is of great importance to allow parents to help with looking after their own neonate, for example, washing, cleaning, nappy changing, touching and holding their neonates. In the reviewed studies, the mothers highlighted that they appreciated being shown how to do these things and wanted to be there when they were done. Parents also

appreciated the fact that the neonatal staff made it easy for them to access their neonates as they were welcomed to visit or call the neonatal ward any time of the day or night.

According to Cleveland (2008:666), parents indicated that part of the stress they experienced was caused by their inability to help, hold, or care for the neonate and protect the infant from pain. Parents also wanted to share the infant with their family members. Lindberg and Ohrling (2008:465) indicated that the family of a mother whose neonate requires admission becomes affected as they cannot spend time together, which results in mothers longing for other family members. Heidari, et al. (2013:213) supported that during the admission of the neonate less attention is paid to the needs of the parents. Family-centred neonatal care should be provided to promote the family's strength and support by encouraging parental involvement. Heidari, et al. (2013:213) further stated that the focus of treatment on the neonate should be on both the neonate and the family. The family is considered as a whole unit and the treatment principles should be based on the family values and beliefs when decisions are made. According to Aliabadi, Kamali, Borimnejad, Rassafiani, Rasti and Shafaroodi (2014:5), support and interaction with the spouse were found to be important for the wellbeing of the mother. The need to get help from other family members was identified as a critical need because mothers got too tired to take care of the neonate by herself while hospitalised in the neonatal ward.

2.4.2.5 Noticeable behavioural trends of parents towards neonates, staff and each other

Behavioural reactions are observed by loss of appetite, insomnia, increased agitation, anxiety and constantly checking the neonate's health condition. Mothers of neonates want to be perceived positively by the nursing staff, so they fear sharing their opinion as this would increase their neonates' vulnerability. Mothers also fear being labelled as difficult and they have to be nice to the nurses to promote a good relationship. The traditional model of care was centred on the provider and not the family. Mothers who were allowed to hold their neonates for the first time after they were stable had mixed emotions as they were nervous and joyful at the same time (Cleveland, 2008:686; Aagard & Hall, 2008: e31).



2.4.3 Different neonatal care approaches

The other theme identified by the review was the different neonatal care approaches, each with its subthemes. The global evolution of neonatal care has brought much change to neonatal nursing practice; it has evolved from the traditional way of care to family-centred care, KMC, developmental care and now to family-integrated care. Family-centred care, KMC and developmental and family-integrated neonatal care improved the maternal-infant relationship. However, the use of traditional neonatal care resulted in problems such as poor maternal-infant attachment which might have long-term effects for both the mother and the neonate (Ringland, 2008:14; Isler, et al. 2007).

2.4.3.1 Conventional neonatal care

In a conventional neonatal care approach, neonates are admitted and care is provided by doctors and nurses while the neonates are separated from the mother and the family. The first special care of premature infants was initiated in the late 1800s and it resulted in lower mortality rates. In 1914 a premature nursery was opened in Chicago and neonatal care was provided by nurses as parents were not involved in the care of their neonates. Rooming in was introduced in 1944 in Yale and skin-to-skin contact was also introduced and done for one and a half hours after birth. This was considered as the first trace of family-centred care. However, some neonates did not survive and this was attributed to germs from the mothers. Mothers were therefore banned from having contact with their neonates (Maree & Downes, 2016:2).

The NICU is a high technological environment and care is mainly provided to the neonate with the exclusion of the mother in the care. According to Araujo and Rodrigues (2010:866) Most mothers watch their infants receiving care from professionals and do not have the opportunity to satisfy their bio psychological and spiritual needs. In the conventional approach of neonatal care nursing professionals perform most of the routine care such as changing nappies, feeding and bathing while the mothers remain in the background. In this approach of care mothers end up not feeling apt to take their infants home after discharge due to the fact that they are insecure to take the responsibility for the necessary care. Re admissions in the conventional approach are persistent due to reasons such as weight loss associated with feeding errors, diarrhoea, dehydration and malnutrition. Other infants die in the hands of the mothers because they aspirated the milk during feeding (Araujo and Rodrigues, 2010:866). According to Ali, Sharma,

Sharma and Alam, (2009:158) infants on conventional method of care had poor weight gain of 10.4+-4.8grams per day as compares to other neonates that were on other methods of neonatal care such as kangaroo mother care. During the hospital stay there are higher incidences of nosocomial sepsis, hypothermia and apnoea in neonates on conventional neonatal care. During follow up visits Ali et al (2009:159) found that there was a high incidence of infections such as respiratory tract infection, diarrhoea and pneumonia leading to hospitalization.

According to Sankar, Batra, Saroha, and Sadiza (2017:54), visits to the neonates were scheduled and the parents were given information about their infants in counselling sessions. Parents were not allowed to attend the clinical rounds of their own neonates. At times parents expressed breastmilk and the nurses would feed the neonates. This generated some feelings of contact loss and lack of information on the side of the parents. Sankar, et al. (2017:54) added that separation of the neonate from the mother caused the parents to have feelings of sadness, fear, stress, depression and insecurity about the life of the neonate. They ended up feeling guilty because they thought they were the ones who put their neonates in that situation (Oliveira, Fernandes, Fernandes, Solano, Santos & Monteiro, 2013:4453; Flacking, Lehtonen, Thomson, Axelin, Ahlqvist, Moran, et al. 2012:1033). This separation also put the mother at risk of developing postpartum depression, both during the neonates' admission and during the postpartum period (Sankar, et al. 2017:54).

Craig, Glick, Phillips, Hall, Smith and Browne (2015:55) added that the mother and the neonate get to bond with each other when the neonate is discharged from the hospital. Parents in this type of model of care lack support and opportunities to engage in their parenting roles leading to misperceptions of their neonates' cues later in life. Separation of the mother and neonates causes some disturbances in the mother-neonate relationship leading to the baby developing delayed social, emotional, behavioural and cognitive functioning.

2.4.3.2 Family-centred care

Mothers are considered the best nurses for their neonates and separation is discouraged; family-centred care was said to be a natural addition to birth. In order to overcome the negative experiences that mothers had in the neonatal unit and to facilitate attachment, a family-centred approach to neonatal care was introduced. Family-centred care is defined as an approach to the planning, delivery and evaluation of health care that is grounded in mutually beneficial

partnerships among healthcare providers, patients and families (Institute for Patient and Family-Centred Care 2010, Kuo, Houtrow, Arango, Kuhlthau, Simmons & Neff, 2012:298). This model of neonatal care, however, allowed the family to partake in decision making around the care of their neonate but not necessarily in the actual activities of caring for the neonate. Many neonatal care units only allow the family to visit the neonate. In the twentieth century, policies began to change to allow rooming in, open visiting hours and parents accompany their neonates to surgery (Kuo, et al. 2012:299). The principles of family-centred care are discussed in the following section.

Principles of family-centred care

- ***Family support***

Herbst and Maree (2006:8) indicate that family members and friends should be informed about their role in supporting the mother during admission of their neonate in the neonatal unit. According to Gooding, Cooper, Blaine, Franck, Howse and Berns (2011:20), it is important for the nurses to provide care to the neonate and the family as a whole. Family support activities are conducted in order to assist the family in coping with the stress of admission of their neonate in the neonatal ward. Nurses see that it is important to include the entire family as caregivers and decision makers in the care of the neonate. These family members include mothers, fathers, siblings, grandparents and friends. Parental involvement can start with the father, siblings or any other member of the family while the mother is still recovering from the birthing process. Other members of the family are important as they contribute to the wellbeing of the mother and the sick neonate. Gooding, et al. (2011:20) further state that it is important for the nurses to know the needs of parents in order for them to deliver specific and individualised care. There is also a need to develop a trusting relationship with parents. Nurses see their role as involving the parents in the day-to-day care, sharing information and guiding parents on the condition of their neonate (Trajkovski, Schmied, Vickers & Jackson, 2012:2480). Family-centred care acknowledges that family is a constant in the baby's life and they need to be considered as equal partners. Hospital care is planned around the whole family and each member is recognised as having a role in the baby's care (Cockcroft, 2011:108).

When healthcare providers collaborate with parents, families become more involved in decision making and are empowered to influence the process of their neonate's recovery and may discuss the care plan of the neonate with the doctors. The families indicated that they needed a designated nurse to support them as nurses provided them with the best information about the condition of their neonate. It was further said that this designated nurse helped the parents to deal

with their stress as they became more confident, informed and attached to their neonate and were prepared for discharge (Gooding, et al. 2011:20).

- ***Support groups***

Peer support is also important for the parent who does not have support from other family members. There is a need to establish parent support groups when a neonate is admitted to the neonatal ward. A parent who has had an experience of her baby being admitted to the neonatal unit can be a valuable source of information, hope, advice and support to mothers undergoing the same experience. An online technologically based support group can be used for mothers who do not want to join the face-to-face support group (Gooding, et al. 2011:22).

- ***Parental education***

Parents are educated about the neonatal unit environment, conditions of the neonate and procedures that will help to facilitate their participation in family-physician discussions. Parental education will reduce stress and increase parental confidence. Parents should be involved in decision making and are informed about the medical rounds, which will help them to understand the condition of their own neonate. Parents should be present from the admission of their neonate to discharge. This is to allow them to participate fully in the care of their neonate (Gooding, et al. 2011:22).

- ***Addressing needs of parents***

According to Staniszewska, Brett, Redshaw, Hamilton, Newburn and Jones (2012:244), parents should be prepared about what to expect in the neonatal unit before admission. This is to build their confidence and understanding which will enable realistic expectations. This can be done by taking parents for tours in the neonatal unit. During admission to the neonatal unit, parents should be introduced to the unit healthcare providers and they should be given full information about the condition of their neonate. Staniszewska, et al. (2012:244) further state that when neonates are transferred to another institution, parents should be prepared in relation to policies and practices of that particular institution. Upon discharge, parents should be informed on how to manage their neonates at home and consistent information should be given for check-ups. Furthermore, parents are to be supported through support visits from neonatal staff with specialist knowledge and expertise. Coyne, O'Neill, Murphy, Costello and O'Shea (2011:2564) added that it is important for the nurses to provide the parents with accurate information in order for them to make

an informed decision about the care of their neonate. Information can be in the form of workshops specifically designed for families.

According to Araujo and Rodrigues (2010:867), parents need to be supported by the healthcare team to recognise the needs of their premature and sick neonate. The healthcare providers should allow the mothers to be present and should communicate with them to reduce their anxiety. Araujo and Rodrigues (2010:867) further state that parents go through various stages of behaviour in order to gain affective bonding and security in the care of their neonate. These stages include interest in information about the neonate, observation of the neonate's movement, and stimulation through touch. The mother should also show confidence and acceptance of manipulation through holding, rocking and feeding the neonate. Finally, the mother must believe that she can comfort and treat her infant.

Staniszewska, et al. (2012:246) state that in order to promote the delivery of family-centred care, both the hospital and the ward environment needs to be more family friendly. The hospital must improve its facilities to meet the social, emotional and psychological needs of the family. There was a need for specific rooms like breastfeeding rooms, family rooms, patient leisure facilities, teaching rooms and kitchen facilities to cater to the needs of the parents. Social services should be included for the social wellbeing of the mother while psychological services should offer counselling to the mother. Staniszewska, et al. (2012:246) further mention that parents should be provided with overnight accommodation and emotional support during this stage. Parents also need to be involved in the care of their neonate without limitations, thereby building the confidence of the mother.

- ***Staffing needs and attitudes***

Appropriate staffing and skill mix was reported to be a need as increased workload, insufficient staffing and inadequate skill mix were factors that negatively affected the delivery of family-centred care. Guidelines and policies that promote family-centred care should be developed by the hospital (Coyne, et al. 2012:2568). Family-centred care requires a mind shift from task orientated, routine nursing care to individualised family-driven care. It should be a partnership between families and healthcare workers based on two-way discussion between healthcare providers and families. Healthcare providers have to be present to interact with the family of the neonate during admission in the neonatal ward (Trajkovski, et al. 2012:2482). A happy medium

should be created between the mother and the neonatal team in order for them to work together and to promote maternal wellbeing (Trajkovski, et al. 2012:2482).

- ***Parental involvement in care activities***

According to Herbst and Maree (2006:4), when a sick or preterm neonate is admitted to the neonatal ward, support is required for the neonate to adjust from uterine life to extra-uterine life to maintain normal body functions. The neonate will need specialised healthcare provided by healthcare providers with specific knowledge and skills utilising available medical technology. The parents are not allowed and able to provide basic care due to the fear of the risks involved such as accidental extubation. Empowering parents is crucial, but it was not clear how to transfer primary caregiving skills to the parents. Guidelines were developed based on the needs, experiences and suggestions of the mothers. One of the guidelines was that parents should be encouraged to participate in the care of their neonates. Parents must be informed about the principles of developmental care, how to implement it and how to change nappies and feed while preventing potential risks such as disconnecting intravenous lines and respiratory tubes. Parents should be encouraged to visit the baby as often as possible to make skin-to-skin contact and to talk softly to their neonate (Herbst & Maree, 2006:4).

Gooding, et al. (2011:23) indicate that parents should be allowed to see, touch, and take pictures of their infant. Parents should be encouraged to feed, do skin-to-skin contact and hand cupping as this makes the parents feel connected to their neonate, promoting bonding. It is important for both the parents to participate in the care of their neonate during admission to the neonatal ward. Martinez, et al. (2007:24) added that the presence of mothers favours the neonate's clinical stability, growth and development. The interaction of the mother with the neonate through touching, caressing, talking and singing to the neonate increased the establishment of affective bonding. The workload of the nurses was found to have been reduced with the presence of the mother in the neonatal unit.

According to Harris (2014:22), parents need to be present for bedside management rounds if possible and whenever desired by the parent. This allows the parent to discuss what transpired with the baby in the last 24 hours, thereby promoting an opportunity of information exchange and partnering in decision making regarding the baby. The family-centred rounds help the parents to understand the condition of their baby better. Harris (2014:22) further claims that the involvement of parents in ward rounds improves communication between the health team and the parents.

Thus, parents are able to ask and respond to questions and learn first-hand what has happened, the daily plan of care and further plans from all disciplines. The attendance of ward rounds also increases parental satisfaction. However, Harris (2014:22) indicates that there were challenges with family-centred rounds which included barriers in teaching other medical staff. Parents raised concerns of other parents overhearing them during ward round as the beds are close together and parents can be educated about confidentiality issues.

Outcomes of family-centred care

According to Ramezani, Shirazi, Sarvestani and Moattari (2014:272), outcomes of family-centred care are divided into the long term and the short term. Short-term outcomes are decreased the length of stay and readmissions of neonates to neonatal units. Bonding, deep sleep episodes, pain relief as well as control of restlessness were promoted in family-centred care. The long-term outcomes consisted of behavioural and nervous system development, diminishing physical and emotional abuse and positive impacts on the neonates' learning. Gooding et al (2011:28) and Ortenstrand, Westrup, Brostrom, Sarman and Akerstrom (2010: e280) indicate that family centred care improves bonding due to developmental care activities and skin-to-skin contact while length of stay is decreased by 4.5 to 5.3 days. Ramezani, et al. (2014:272) further indicated that the outcomes on the family included increased emotional wellbeing, improved self-esteem and independence, and a sense of control. Family-centred care also enhanced decision making and responsibility as well as a logical understanding of the condition of the neonate. Parents gained sufficient information and the permanent ability to provide care at home. According to Ramezani, et al. (2014:272) family-centred care led to reduced costs, improved professional satisfaction and increased knowledge about neonatal care.

Shields, Pratt, Flenady, Davis and Hunter (2007:3) state that the disadvantages of family-centred care are that some healthcare providers and families lacked adequate education and commitment in understanding and implementing the model. Families may feel that they are expected to provide input into the care of their neonate beyond their expectations and capabilities, or they might be given information that they are not ready to hear. This might lead to additional stress for the parents.



2.4.3.3 Kangaroo mother care

According to Charpak, Ruiz, Zupan, Cuttaneo, Figueroa and Tessier (2005:514) kangaroo mother care (KMC) was started as an alternative method of care for stable low birthweight infants. This method of care is now seen as a feasible, readily available and preferred method for reducing neonatal morbidity and mortality in developing countries. KMC is being used to empower mothers and the family as a whole and involve them directly in the care of their infant. It also gives the father to an opportunity to increase his involvement in the care of the infant. KMC was introduced as an intervention to provide further care to low birth weight neonates who are stable but not ready for discharge. KMC started in Bogota, Colombia, as an alternative to traditional incubator care for low birth weight neonates because of overcrowding, cross infections, infant abandonment and scarcity of resources in the country. The neonate is placed in an upright position against the mother's chest with early skin-to-skin contact between the mother and the neonate. In this method of neonatal care, warmth, prevention of infection, stimulation, safety and easy access to breastfeeding is provided to the neonate (Solomons & Rosant, 2012:33; Subedi, et al. 2009:6; Shrivastava, Shrivastava & Ramasamy, 2013:341).

Components of kangaroo mother care

- ***Skin-to-skin care***

Skin-to-skin contact is a technique where newborn babies are kept chest-to-chest and skin-to-skin with their parents. This technique is especially used for low birth weight preterm babies who are more likely to suffer from hypothermia while admitted to the neonatal ward. Skin-to-skin contact is described as the most natural, immediately available way to warm a newborn. All newborns are said to be at risk of hypothermia due to large body surface areas and immature thermoregulatory systems. Hypothermia may cause hypoxia, hypoglycaemia, respiratory distress, acidosis, renal failure, hyperbilirubinemia and coagulation defects. Skin-to-skin contact was found to be the most effective method of preventing hypothermia in neonatal care. If initiated within 24 hours, it helped to establish thermal stability, breastfeeding, and it increased neonatal blood glucose levels. It also reduces crying in newborns as separation and hunger are resolved with KMC (Rodgers, 2013:249).

According to Charpak et al (2005:515) skin-to-skin contact should be started as early as possible from the delivery room or in the neonatal intensive care unit and separation of the mother and the

infant should be avoided. Different modalities of skin-to-skin can be provided to infants according to the needs of the institution; continuous and intermittent skin-to-skin contact. Continuous skin-to-skin can be provided to infants who have already adapted to extra uterine life and are able to suck and swallow properly, are thriving well in a neutral thermal environment. Charpak et al (2005:515) the infant's temperature stays within the normal range due to heat from the mother's body. In order to replace the incubator, the KMC position should be maintained for 24 hours per day. In continuous skin-to-skin position the mother function as human incubators that provide physiological homeostasis and appropriate stimulation. The basic physiological variables such as temperature, oxygenation and heart rate are maintained within clinically acceptable limits in the kangaroo position. Skin-to-skin should be provided until the infant can no longer tolerate the position, it sweats and refuses the skin-to-skin position which indicate that temperature regulation has been achieved (Charpak et al 2005:515).

Charpak et al (2005:515) further state that intermittent skin-to-skin can be provided to infants who still need technical care in the neonatal intensive care when continuous skin-to-skin is not possible. The intermittent skin-to-skin position provide emotional and breastfeeding benefits. It should be offered for as long possible each time ideally 2 hours or more provided that the infant tolerates it. The 2- hour span is important as it provide the stimulation that the mother needs to increase milk volume and facilitate the milk let-down. The 2-hour span also provides the infant with the opportunity to awaken spontaneously, self-regulate feeding and experience a complete sleep cycle (Charpak et al 2005:515).

- ***Kangaroo nutrition***

According to Thukral, Chawla, Agarwal, Deorari and Paul (2008:4) kangaroo nutrition is the delivery of nutrition to kangarooed infants as soon as oral feeding is possible. It is based on exclusive breastfeeding by direct sucking whenever possible (Thukral et al 2008:4). Breastfeeding provides benefits to newborns and their mothers. Exclusive breastfeeding for 6 months reduces the risk of diseases such as asthma, diabetes, respiratory tract infections, ear infections, serious colds and leukaemia. Breastfeeding is associated with reduced risk of sudden infant death syndrome, gastrointestinal infection, childhood inflammatory bowel syndrome disease and adolescent and adult obesity. Breastfed neonates have better cognitive outcomes (Rodgers, 2013:250). Breastfeeding decreases postpartum blood loss, helps to increase the time between pregnancies, and reduces the risk of postpartum depression. Breastfeeding also increases maternal attachment and improves parental behaviour shown with a lowered risk of child abuse

or neglect. Cumulative lifetime breastfeeding reduces the risk of cardiovascular disease, hypertension, type 2 diabetes, rheumatoid arthritis and both breast and ovarian cancers (Rodgers 2013:250).

- **Early discharge**

The third component of KMC is early discharge which is mainly due to reduced exposure to nosocomial infections, lower neonatal costs due to reduced length of stay and better use of neonatal intensive care unit resources (Rodgers, 2013:50). Charpak et al (2005:518) indicate that infants can be discharged home irrespective of their weight and postconceptional age once the mother- infant dyad has adapted to the KMC intervention and a feeding policy has been adopted. The infant should be maintained in the KMC position until the infant rejects the position and be followed up at the hospital until 40 weeks of postconceptional age.

Outcomes of kangaroo mother care

Positives outcomes of KMC are associated with decreased mortality in newborns. It increases the likelihood of exclusive breastfeeding and decreases the risk of newborn sepsis, hypothermia and hospital readmission. There was improved vital signs, greater head circumference growth and lower pain scores. Neonates under KMC had improved physiological regulation, i.e. oxygenation, thermoregulation and respiration (Boundy, Dastjerdi, Speigelman, Fawzi, Missmer & Lieberman, 2016:10). Conde-Agudelo and Diaz-Ressello (2016:18) added that kangaroo mother care is associated with reduction of mortality at discharge, reduction of infections, hypothermia, and lower respiratory disease at follow up. Intermittent KMC decreased the length of stay of by 1.6 day. Infants provided with KMC showed increased weight gain per day and increase in head circumferences as well as an increase in length per week. Breastfeeding and mother-infant attachment and bonding were also improved. According to Ramanathan, Paul, Deorari, Taneja and George (2001:1022) found that neonates nursed in KMC showed better weight gain after the first week of life (15.9 +- 4.5gram/day vs 10.6 +-4.5gram/day in the KMC group and in the control group) and these neonates were discharged 7.4 days earlier than the neonates in the control group.

Skin-to-skin contact reduces postpartum bleeding, increases oxytocin levels, decreases cortisol levels resulting in happier childbirth experiences. Bonding and confidence in the ability to care for the neonates are also improved (Rodgers, 2013:249). The sense of responsibility and

competence of fathers providing KMC to their infants was improved (Conde-Agudelo and Diaz-Ressello, 2016:24).

There are no negative outcomes associated with KMC. However, the mothers are still not fully involved as primary caregivers to their sick and small neonates during admission in the neonatal ward prior to being classified as 'stable'. Mothers need to be supported on how to handle their neonates in order to encourage them to gain confidence in using KMC (Solomons & Rosant, 2013:34). In KMC parents are partially involved in the activities of the care of their neonates. They should be fully engaged in the care of their infants before they are transferred to the KMC unit for continuity of care. This will assist the mother to gain the confidence and support required to care for the baby in the KMC unit of the neonatal ward.

2.4.3.4 Developmental care

Developmental care is an individualised developmental approach to support and care based on reading each preterm infant's behavioural cues. A care plan which enhances and builds upon the infant's strength, and supports the infant in areas of sensitivity and vulnerability, is formulated (Als & Mc Anulty, 2011:294). Developmental care interventions are aimed at facilitating the infant to cope with the environmental demands and to modulate the sensory experiences as a result of its early exposure to the environment. The expected outcome of developmental care activities is an improvement in the physical, cognitive, social and emotional development of the newborn (Ramachandran & Dutta, 2013:765). According to Post and Maree (2009:38) developmental care allows care-givers to provide simple and effective methods of reducing the negative short and long term outcomes of the infant by adapting the handling of and the Neonatal Intensive Care Unit environment to which the preterm and sick infant are exposed. Post and Maree (2009:39) further state that developmental care should be implemented to improve the management and outcomes of the preterm and sick infants in order to improve the quality of medical care given to these infants, thus reducing the level of stress and thereby protecting the neurological system of the preterm and sick infants. The principles of developmental care are discussed in the following section.

Principles of developmental care

- ***Tactile stimulation***

During pregnancy, the foetus receives tactile stimulation when it is bathed by the amniotic fluid. In the neonatal unit, the preterm neonates are deprived of this stimulation but are exposed to various touch stimuli on the handling during routine medical care. Such handling procedures cause adverse effects like stress, hypoxia, bradycardia, deprivation of sleep, increased intracranial pressure and behavioural agitation. Supplemental stimulation is indicated with minimal and gentle handling. Swaddling, which involves wrapping the neonate with sheets of cloth prior to positioning in the cradle can assist with providing appropriate tactile stimulation (Ramachandran & Dutta, 2013:765). Infant massage therapy, which includes gentle touch stroking or rubbing the neonate's head and back using light pressure can be done if the infant's reaction does not indicate a stress response. This improves the mental development, sucking and behavioural reactions of the neonate (Ramachandran & Dutta, 2013:765; Craig, Glick, Phillips, Hall, Smith & Browne, 2015:s6).

- ***Healing environment***

The healing environment refers to the environment of the neonatal intensive care unit mimicking the intra-uterine environment, which includes safety, the temperature of the environment, touch, smell, taste, sound, light as well as people and their interaction. According to Altimier and Phillips (2016:232), premature infants show improved outcomes when the stress of environmental sensory overstimulation is reduced. The neonatal intensive care unit should facilitate psychological support, minimise sensory impact and enable positive parental experiences. Parents should be offered single-family rooms to improve the physical environment for the family and improve family accommodations for parents. Single-family rooms can assist in reducing infection rates. The presence of single-family rooms also enhances the ability to control light and noise, which can result in improved infant sleep (Altimier & Phillips, 2016:232).

- ***Positioning and handling***

According to Altimier and Phillips (2016:233), the main goal of supporting the body of the premature infant is to keep the infant in the position that he/she would have been in the womb. In the womb, the infant is confined in a circumferential enclosed space with 360 degrees well-defined restrictions. The provision of developmental supportive positioning is essential for musculoskeletal development, physiologic function stability. Thermal regulation, bone density, neurobehavioural organisation and sleep facilitation, calmness, comfort, skin integrity, optimal

growth and brain development is enhanced with the developmental supportive position. Altimier and Phillips (2016:233) further state that the developmental supportive position is an intervention that has proven to improve postural and musculoskeletal, physiological outcomes as well as sleep states. Supportive body containment of the infant's body in the neonatal intensive care unit increases the infant's feeling of security, decreases stress and reduces excessive energy expenditure. The infant should be kept in the nest, which provides postural, behavioural and physiological stability. According to Altimier and Phillips (2016:234), infants who are nursed in a supportive developmental position are calmer, require less medication, sleep longer and gain weight more rapidly. According to Lubbe, Van der Walt and Klopper (2012:256) positioning the preterm infant in a contained, flexed posture with firm boundaries, neck neutral, shoulders protracted and the body symmetric support the development of flexor tone prior to term and provides the preterm with a sense of containment and hand to midline position that allows better self-organisation and self-consoling behaviour. The prone or side-lying position with adequate support is preferable to supine positioning. Lubbe et al (2012:256) further indicate that the preterm infant should be swaddled as swaddling reduces physiological distress, improves motor organization and self-regulatory abilities, generalised motoric containment of preterm infant's arms and legs close to the body while side-lying or supine position results in lower mean heart rates, shorter mean crying and sleep disruption times and fewer sleep-state changes after painful procedures.

Furthermore, Altimier and Phillips (2016:234) and Lubbe et al (2012:256) report that tasks should be performed with slow, gentle, modulated movements with the infant's extremities flexed and contained, which may require a four-handed technique in very fragile infants. When a preterm infant is handled for therapeutic procedures, nappy changing, bathing and feeding, they can react negatively for several minutes during and after the procedure until becoming exhausted. This results in unnecessary expenditure of energy which can result in signs of distress, pain, bradycardia, tachycardia, drop in saturation and apnoea, fatigue and difficulty in sleeping. Altimier and Phillips (2016:234) further mention that frequent handling and touching can disturb sleep, leading to weight loss, decreased state regulation and detrimental effects on brain development. Infants do not always tolerate all of the handling that is clustered in the caregiving period. The practice of clustering caregiving should therefore be done according to the behavioural cues of the infant. According to Altimier and Phillips (2016:234), parents should be educated and coached on appropriate developmental positioning and handling, which is beneficial to both parents and infants.

- ***Non-nutritive sucking***

According to Foster, Psaila and Patterson (2016:5), non-nutritive sucking occurs in the absence of nutrient flow and may be used to satisfy an infant's basic sucking urge or as a state regulatory mechanism. Pacifiers can be used in non-nutritive sucking which replaces the role of thumb sucking that occurs in the womb as early as 12 weeks of gestation. Pacifiers can be used in non-nutritive sucking because they facilitate sucking, swallowing and the breathing cycle in preterm infants as it is not yet well developed. Foster, et al. (2016:5) further found that pacifiers have a calming effect on the infant. The development of sucking behaviour is facilitated and digestion of enteral feeds is improved by non-nutritive sucking. According to Foster, et al. (2016:5), non-nutritive sucking improves the initiation and duration of the first nutritive suck, enhances weight gain and reduces the transition time between gavage and oral feeding. Moreover, Foster, et al. (2016:5) also state that the provision of non-nutritive sucking in preterm neonates also improves oxygen saturation and is effective as a pain relief for infants.

- ***Pain management***

According to Altimier and Phillips (2016:234), minimising pain in developmental care is important as routine care can be stressful, harsh and painful to the preterm infant. Premature infants are subjected to noxious sounds, bright lights, painful procedures such as bathing, weighing and non-nurturing handling, which causes stress to the neonate. This altered sensory experience is stressful and has a negative effect on the brain development of the infant. Altimier and Phillips (2016:234) further state that painful interventions can raise cortisol, limiting neuroplastic reorganisation and therefore altering learning, memory, and motor skills. Increased exposure to procedural pain has been associated with poorer cognitive and motor scores, impairments of growth, reduced white matter, subcortical grey matter maturation and altered corticospinal tract structure. Minimising pain has neurologic benefits such as reducing the likelihood of programming abnormal stress responsiveness, thus preserving neuroplastic capacity. Painful procedures such as heel pricks, and the insertion of orogastric tubes can be managed by non-pharmacological measures which include the maternal presence, breastfeeding, skin-to-skin contact, swaddling and rocking the neonate after painful procedures (Ramachandran & Dutta, 2013:767; Altimier & Phillips, 2016:234).

- ***Family involvement***

According to Altimier and Phillips (2016:233), the neonatal intensive care unit is a frightening and strange environment for the mother. However, this environment can be comfortable and inviting if the caregivers are compassionate and enable parents to be at the bedside of their neonates. The neonatal care unit can also be less frightening for parents if they are coached on how to understand the behavioural cues of their neonates and how to provide appropriate caregiving. Altimier and Phillips (2016:233) further report that neonatal intensive care unit staff can listen actively to the parents as they process their shock, anger, and grief over the loss of a normal pregnancy or healthy term infant, and empower them to be active participants in the caregiving team. The family is essential in developmental care, and normal development cannot occur without the family. All families should be considered as essential members of the caregiving team rather than visitors to the neonatal intensive care unit; they should be given 24-hour access to the neonate during admission. Furthermore, Altimier and Phillip (2016:233) added that creating an effective partnership between the family and the professionals showed benefits such as reduced length of stay, increased satisfaction for both staff and parents, and improved neurodevelopmental outcomes for the neonate. Stress among parents was also reduced when they were involved in the care of their own neonates. The establishment of the family-professional partnership in the neonatal intensive care unit is seen as a best practice, which includes mutual respect, information sharing, collaboration, confidence building and joint decision making. Lubbe, Van der Walt and Klopper (2012:257) emphasised that parents should be taught how to interact with the preterm infant which include reading of behavioural signs and stress cues. According to Craig et al (2015:56) Parents should be incorporated as full participatory, essential healing partners within the NICU caregiving team. Parents should provide hands on care to their babies including skin-to-skin with the guidance and support of caregivers. Parents should also be allowed to participate in the medical rounds and nursing shift reports. Parents as partners in care giving need to have access and input to both written and electronic records.

- ***Management support***

According to Post and Maree (2009:40) management should participate effectively in the implementation of quality of developmental care in the institution. There is a need for broad-based leadership to reduce conflict and enhance optimal outcomes. Leadership should include a multidisciplinary team who have the required authority and power to ensure that participants are accountable. A developmental care committee can be formed to ensure that they drive the implementation of developmental care in the institution.

- **Staff education and empowerment**

Post and Maree (2009:40) highlighted that staff should be trained especially on the practical part of the developmental care. On spot teaching can be utilised to educate the staff on developmental care. Parent empowerment should be emphasised during training of staff. Aita and Snider (2003:227) and Lubbe, Van der Walt and Klopper (2012:256) added that all professionals who come into contact with preterm babies should have knowledge of infant development in order to provide developmental care. Therefore, all health professionals such as nurses, neonatologists, physiotherapists and all staff should be taught about developmental care. Professional knowledge is provided to staff so that they are able to read the cues of the infants during interaction.

- **Parental education**

According to Craig et al (2015:57) parents should be supported to engage in developmentally appropriate care in order to become competent caregivers and advocates for neuroprotection of their babies. Components of parental support should include provision of security through consistency of their presence for their babies. Craig et al (2015:57) further state that parents should be taught behavioural communication of the baby so that they are able to interpret and respond to the babies' needs. Parental education should also include how to create and sustain a healing environment and how to provide, support and handle the baby including oral feeding, skin-to-skin contact and infant touch. Parents should also be guided on how to safeguard their babies' sleep, recognise the importance of sleep to healing growth and brain development.

- **Policies and procedures**

According to Post and Maree (2009:40) policies and procedures should be changed to accommodate developmental care. The mission, vision and philosophy of the unit should be according to developmental care. Common procedures should be regarding basic and advanced care need to be revised in the unit.

- **Resources**

Resources such as linen, blankets, pacifiers, individual containers for pacifiers and nappies should be available and controlled to ensure that they are always available (Post & Maree, 2009:40).

Outcomes of developmental care

According to Symington and Pinelli (2009:5), the outcomes of developmental care on preterm infants include improved growth, weight gain, reduced hospitalisation costs, reduced length of stay, as well as improved neurodevelopment. However, Symington and Pinelli, (2009:5) state that the neonatal intensive care unit should be favourable of developmental care. Unfavourable NICUs might negatively affect the infant's growth and the vulnerable brain of the infant. Post and Maree (2009:38) added that outcomes of developmental care include improved respiratory status, earlier transition from nasogastric tube to oral feeds, increased self-regulatory abilities, physiological stability, reduced morbidity, diminished length of hospitalisation as well as improved behavioural organisation.

2.4.3.5 Family integrated neonatal care.

Family-integrated care is defined as the philosophy that guides how we provide care for infants in the neonatal care unit where parents are encouraged to be active members of the team that take care of the infants during hospitalisation, including interventions that are done on a regular basis for the particular infants. Family integrated neonatal care incorporates other models of neonatal care such as developmental care, family centred care and kangaroo mother care. Thus family integrated neonatal care includes the principles of family centred, care, developmental care and kangaroo mother care. The difference with family integrated neonatal care is that parents are taught specific skills about the care of their neonate in a structured manner. The parents are not only present in the neonatal intensive care unit, but they are taught through a structured process how to take care of their own infant while the healthcare team remains close by and available to assist where needed. During their participation, parents learnt how to provide all care except for intravenous fluid administration and medications for their neonates in the neonatal ward. Initially, there was a concern around the potential risks with this model of care, such as the possibility of dislodging feeding tubes which might cause problems of aspiration during feeding or dislodging endotracheal tubes that might result in disruption of ventilation. Studies during the implementation of this model of care yielded positive results and there are no studies yet that show negative results regarding the implementation of family-integrated neonatal care (Macdonell, et al. 2013:264; Bracht, et al. 2013:116). Family-centred care is therefore taken one step further in involving the parents in the care of their preterm or sick infant (Macdonell, et al. 2013:264; Bracht, et al. 2013:116).

O'Brien et al. (2013:1) claim that programmes such as KMC and family-centred care encouraged parental involvement. However, in all these models of care, healthcare providers still provide care to the neonate while parents play a supportive role. Revolutionarily, the Canadian health team wanted to further understand and enhance the process of family-centred care; they adopted the Estonian Tallinn model of care which resulted in the development of family-integrated neonatal care. Family-integrated neonatal care is an approach to provide care for infants in the neonatal intensive care unit where parents are encouraged to be active members of the team that take care of the infant.

Levin (1994:39) explained the Estonian Tallinn model of care. According Levin (1994:39) during birth of a baby the umbilical cord between the baby and the mother is cut but the two remain connected by a conceptualised psychological and biological umbilicus. It is important to maintain the integrity of the biological umbilical cord for the first month of life to ensure best development of the infant and the mother. Levin (1994:39) further states that the mother infant tie can be ensured by normal vaginal delivery without the use of drugs, breastfeeding immediately after birth so that the infant can benefit from the colostrum, continuous physical contact between the mother and the infant as well as minimal physical contact with the care givers or technological equipment. Levin (1994:39) added that the biological umbilical cord serves as the natural incubator that protects the infant from pathogenic environmental organisms. The high technological medical therapy creates increased problems for the infant as it breaks the natural biological umbilicus. The psychological umbilical cord represents the emotional bond between the infant and the mother. The emotional bond is formed during pregnancy and increases during the first month of life and must be maintained throughout the development of the child.

According to Levin (1994:39) the Tallinn children's hospital in Estonia is based on the principles of maintenance of the integrity of the biological and psychological umbilical cord. The advantages of maternal care for the infant include better weight gain. Fewer infections, decreased need for aggressive medical care and improved social and psychological development. Advantages for the mother include rapid physical recovery from birth, confidence in caring for the infant and development of strong attachment. The Tallinn infant unit was established in 1979 for the care of preterm and full term sick infants. Due to the shortage of nursing staff mothers took care of their infants excluding the technical medical and nursing care. Mothers are taught and expected to provide all for the infant's care and stay in the hospital until discharge. Nurses administer drugs,

injections and supervise the infants' feeding program as well as helping mothers with breastfeeding and caring for their infants.

The leading principles of the Estonian Tallinn model of care are 24-hour care by the mother, with assistance from nurses and hospital staff, promotion of breastfeeding, minimal use of technology, little contact and handling by the neonatal healthcare team that might expose the infant to pathological microbes. These principles help in maintenance of the biological and psychological ties between the mother and the infant. This model of care reduced the number of infections, duration of intravenous infusions and antibiotic therapy as well as improved neurological development in the infant (Levin 1994:40). The principles of family integrated neonatal care are explained in the following sections.

Principles of family integrated care

- ***Inclusion and exclusion criteria of neonates in family integrated care***

According to O'Brien et al (2015:3) infants that were born at less than or equal to 33 weeks of gestation, on no respiratory support or on low level respiratory support such as continuous positive airway pressure (CPAP), biphasic CPAP and nasal intermittent positive pressure ventilation. Infants that were less than 33 weeks of gestation were not discharged home until 36 weeks' postmenstrual age. The primary care giver parent must be a minimum of at least 6 hours per day with the infant to enable the parent to attend medical rounds and education sessions.

O'Brien et al (2015:3) further state that infants that are excluded from family integrated neonatal care are those who are on palliative care, have a major life threatening congenital abnormalities, have critical illness and are likely not to survive. Infants that are on a high level of respiratory support such as mechanical ventilation, high frequency oscillatory or jet ventilation, extra corporeal membrane oxygenation, and those that are scheduled for transfer to another hospital are also excluded from family integrated neonatal care. Infants whose parents are unable to participate due health, family, social, or language issues that might inhibit their ability to integrate with the health care team are also excluded from family integrated neonatal care.

- ***Environmental outline and policies***

According to O'Brien, et al. (2015:4), environmental resources should be provided to the mother to facilitate her ability to spend as much time as possible in the neonatal unit. Physical support, which includes parking, rest and sleeping rooms should be provided to parents during admission

in the neonatal ward. A kitchen area, screens and breast pumps need to be provided to assist mothers with breastmilk expressions. Comfortable reclining chairs should be provided to the mothers who practice skin-to-skin contact.

- ***Parental education and care activities***

Parents are expected to provide most of the primary care for their neonates with the exception of intravenous procedures and medication, while nurses provide supervision and education. Parents need daily education to become primary caregivers for their neonate and attain specific skills while still hospitalised in the NICU. The skills include feeding, bathing, hand cupping and skin-to-skin care, swaddling, cord care, giving reports during rounds, participating in developing care plans, monitoring, charting, assessing the neonate, and providing appropriate developmental care which will enhance speedy discharge of the neonate (Bracht, et al. 2013:117; Galarza-Winton, et al. 2013:336; Ramachandran & Dutta, 2013:765).

The parental educational programmes are important because they offer a flexible and comprehensive education series, facilitate the development of a peer-to-peer support network for mothers, and strengthen the relationship between the family-integrated care families and the healthcare providers. The educational programme gives the mothers tools to assist in parenting their neonates, recognise their strengths, and increase their problem-solving skills as well as being emotionally prepared for discharge (Bracht, et al. 2013:125).

- ***Staff education***

The neonatal staff should be educated in order to adopt the role of a facilitator and consultant for the parents. They should be educated on strategies to engage families in the care of their infant (Galarza-Winton, et al. 2015:337).

- ***Support for parents***

Veteran parents who had prior experience of having a neonate admitted to the neonatal ward can assist mothers with peer support. The veteran parents can also facilitate recreational facilities such as arts and crafts in order to develop a sense of community within the family-integrated care programme. Social workers should be available to address problems that may arise and assist in communication between parents, veteran parents and healthcare providers. Psychologists should be available for psychological support (O'Brien, et al. 2013:2).

Outcomes of integrated family care

- ***Outcomes for neonates***

In a study conducted by O'Brien, Bracht, Macdonell, Mc Bride, Robson et al (2013:4) on outcomes of family integrated care it was reported that there was 24% increase in weight gain that were family integrated care group compared with the control group. There was a significant decrease in the incidence of stage 3 or higher retinopathy of prematurity (0 vs. 14.4%) and an increase in the incidence of breastfeeding (82.1%vs. 45.5%) at discharge in infants that were on family integrated care than those in the control group. When compared with the control group it was reported that there was a decrease in the incidence of nosocomial infections (0vs. 9.7) and the number of incidents reports (0.84 vs 1.15 per 1000 patient days) among infants in the family integrated group. According to Lee, (2014:846) care by parent programs in the neonatal units have been reported to reduce length of stay by 3,2 to 5.3 days and decrease hospital admissions. Galarza-Winton Dicky O'Leary, Lee and O'Brien (2013:336) added that infants that were enrolled in the family integrated program showed improvement in weight gain, reduction in nosocomial infections, reports of critical incidents and medication errors. Macdonell, Christie, Robson, Pytlik. Lee and O'Brien (2013:263) reported that implementation of family integrated care result in decrease in the duration of intravenous therapy, and improvement in neurological outcomes.

- ***Outcomes for the parents***

Positive outcomes for the mother in this model of care were that mothers gained comfort and hope, improved bonding, reduced stress and it provided the mothers with psychological support. The mothers also gained confidence and knowledge in caring for their own baby. The relationship between mothers and healthcare providers was improved (O'Brien, et al. 2013:5). Furthermore, Broom, Parsons, Carlise and Kecskes (2017: E15) reported that family integrated improved parental confidence in aspects of caring for and decision making during the admission of the infant. Parents are more assured in providing care and in asking the staff questions relating to the infant. Bedside education made parents to gain knowledge regarding the care of their infant. Broom et al (2015: E15) further indicate that group Information sessions empowered parents and gave them confidence to be able to participate actively in the care of their infant and thereby building a trusting relationship with the staff. Parents took ownership of their own infants through family integrated neonatal care.

According to Broom et al (2017:E17) family integrated neonatal care enhanced two-way communication between families and staff. Parents were also able to meet and support each

other through the family integrated neonatal care. Macdonell et al (2013:267) support that parents found it easier to talk to veteran parents than talking to the nurses. Veteran parent role helped in facilitation of companionship and bonding between other family in the NICU. Veteran parents provided other parents with confidence in caring for their own infant.

- **Outcomes for healthcare providers**

Outcomes for healthcare providers were that their role had changed as they were doing less hands-on caregiving and more teaching. The relationship between parents and healthcare providers improved as nurses felt closer to parents (O'Brien, et al. 2013:5, Broom et al 2017: E17). Broom et al (2017: E17) further state that the workload of the nurses was reduced when parents became confident in participating actively in care giving activities of observation, attending to the hygiene and feeding of their own infant.

2.4.3.6 Summary of approaches in neonatal care

Table 2.1 provides a summary of the approaches in neonatal care as related to neonatal care outcomes.

TABLE 2.1: Approaches to neonatal care vs outcomes of neonatal care

Neonatal outcomes	Conventional care	Family-centred care	Kangaroo mother care	Developmental care	Family-integrated care
Weight gain	Poor weight gain per day 10.4+-4.8 grams (<i>Ali et al 2009, Araujo & Rodrigues, 2010</i>)	Improved due to skin-to-skin (<i>Ortenstrand et al 2010</i>)	Better weight gain in first week of life (15.9+- 4.5gm/day vs 10.6+- 4.5gm/day (<i>Ramanathan, 2001</i>))	Improves weight gain (<i>Aita & Snider, 2003, Post & Maree 2009</i>)	24.5% increase in weight gain (<i>O'Brien et al 2013</i>)
Length of stay	Stay long in the neonatal ward (<i>Ali et al 2009</i>)	Decreased by 4.5 – 5.3 days (<i>Gooding et al 2011, Ortenstrand et al 2010</i>)	Reduced by 7.4 days (<i>Ramanathan 2001</i>)	Reduced length of stay (<i>Aita & Snider, 2003, Post & Maree, 2009</i>)	Reduced length of stay (<i>Bhutta et al 2004</i>)
Bonding	Parent child interaction hampered due to separation (<i>Charpak et al, 2004</i>)	Improved due to skin-to-skin contact (<i>Gooding et al 2011</i>)	Enhanced due to skin-to-skin contact (<i>Charpak et al 2004</i>)	Improved due to skin-to-skin contact	Bonding is improved due parental integration (<i>O'Brien 2013</i>)



Neonatal outcomes	Conventional care	Family-centred care	Kangaroo mother care	Developmental care	Family-integrated care
Communication	Poor communication between staff and families (Russel et al, 2014)	At times difficult to have an honest and open communication with staff (Finlayson et al 2014)	Minimal communication	Parents and nurses are to share information on infant's development and how to recognize cues (Aita & Snider 2003)	Improved communication between staff and families (Broom, et 2017)
Parental education	Minimal education to parent	Information sharing to be open, objective and unbiased, promotes active parental participation (Kuo et al 2012, Gooding et al 211)	Educated on skin-to-skin (Charpak et al 2004)	Assist parents in assessment of infant growth and family adaptation, enhances parenting skills and abilities (Aita & Snider, 2003, Lubbe et al 2012)	Increased parental confidence and decision making (Broom et al 2017)
Neonatal infections	Increased nosocomial infections and other infections (Ali et al 2009),	Reduced incidence of infections (Gooding et al 2011)	Reduction in severe infection 6.6%vs13.1% (Conde-Agudelo & Rosello 2017)		Decrease in nosocomial infections (0 vs 9.7% (O'Brien et al 2013)

The aim of table 2.1 was to compare the outcomes of neonatal in the different approaches. There is no literature available that compares all the five approaches of neonatal. However family-centred care, developmental care, kangaroo mother care and family integrated care had better neonatal and maternal outcomes as compared to conventional care. The improved measurable neonatal outcomes included weight gain and reduced length of stay. Parental involvement and communication were also said to be better with family-integrated neonatal care. The neonatal care approaches are summarised in Annexure L

2.5 CONCLUSION ABOUT THE REVIEW

Family-centred care is familiar, but family-integrated neonatal care is a new concept in South Africa. Several studies regarding the implementation of family-integrated neonatal care have been done in Canada (Bracht, et al. 2013:115; Macdonell, et al. 2013:262; O'Brien, et al. 2013:1). This study generated new knowledge as it was conducted in a district hospital of an African country with low resources in terms of staff and equipment, in comparison to the context in Canada which is a first-world country with good resources. It might be an affordable model of care to reduce neonatal mortality and contribute to sustainable development, with a target of reducing the neonatal mortality rate to less than 12 per 1000 live births by 2030 (World Health Organization,



2016). However, it will require a mind shift to introduce change in the traditional roles of healthcare providers and parents in the neonatal ward.

2.6 SUMMARY

This chapter discussed the theoretical framework related to implementing family-integrated care as well as the McKinsey 7S Model. Most importantly, the chapter presented the literature review related to family-integrated neonatal care. In the next chapter, the research methodology will be discussed.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The previous chapter discussed the paradigm of the study, the origin of family-integrated neonatal care, as well as the literature review related to family-integrated neonatal care. This chapter presents the research methodology, population, sampling, inclusion criteria, setting, data collection methods, rigour and ethical considerations.

3.2 RESEARCH DESIGN

An action research design using multiple methods was utilised in this study. Action research is defined as an approach commonly used for improving conditions and practices in the healthcare environment (Metler, 2014:4; Mills, 2014:8; Koshy, et al. 2011:1; Piggot-Irvine, 2009:11). The purpose of conducting action research is to bring about change in specific contexts and produce practical knowledge that is useful in everyday lives. Action research contributes to knowledge creation and improved practice simultaneously. It has a participatory character as it recognises the interconnection of human interaction and the power of working together towards a shared goal (Maree, Creswell, Ebersohn, Eloff, Ferreira & Ivankova, 2016:136). The basic process of conducting action research consists of four steps: identifying the area of focus, collecting data, analysing and interpreting data, and developing a plan of action (Koshy, et al. 2011:3; Reason & Bradbury, 2008:3).

The PRAR Model was used in the study. The researcher chose this model as it was appropriate in bringing change regarding neonatal care in the identified district hospital. The model allowed the researcher to examine the situation, implement, and evaluate the implemented change in neonatal care in the neonatal unit. The PRAR Model is discussed in the following section.

3.2.1 Research question

The research question was: How can family-integrated neonatal care be implemented in the district hospital of Limpopo Province?

3.2.2 Aim

The aim of the study was to develop and implement strategies of family-integrated neonatal care in the district hospital of Limpopo Province.

3.3 PROBLEM RESOLVING ACTION RESEARCH MODEL

The Piggot-Irvine PRAR Model was used in this study to change neonatal care in the identified hospital from routinised neonatal care to family-integrated neonatal care. The model depicts a cyclical process of change. This model has three cycles, namely examination of the existing situation, implementation of change, and evaluation of the implemented changes. Each cycle has four steps of planning, acting, observing and reflecting (Piggot-Irvine, 2009:14). Figure 3.1 is a diagrammatic representation of the PRAR Model.

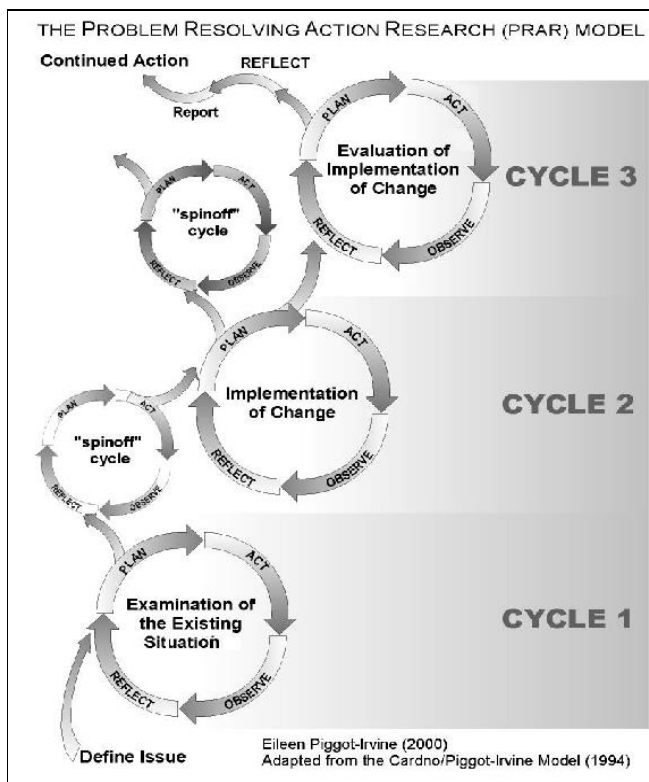


FIGURE 3.1: Piggot-Irvine Problem Resolving Action Research

The PRAR Model is in an upward direction which denotes the perception of action research as a continuous improvement approach. It is iterative or cyclical in nature, whereby it allows reflection in a systemic way and collaboration with the people who are committed to change. The PRAR Model encompasses experiential learning where knowledge is gained from observations, questioning and reflection related to experience. It is also context-specific, which means that research is conducted within the context of the participants. The PRAR Model is transformative and also allows for professional development (Piggot-Irvine, 2009:15). The first step in the model is to define the issue or identify the problem. In this study, the identified problem was the use of routinised neonatal care in the district hospital. Cycle I examined the existing situation. Quantitative data on the wellbeing on the neonates and focus group discussions were held in order to examine the existing situation. In Cycle II of the PRAR Model, strategies to implement the family-integrated neonatal care model were developed and implemented. Cycle III was employed to evaluate the implementation of the family-integrated neonatal care model.

3.4 CONTEXT

The study was conducted in the neonatal unit of the maternity ward. The neonatal unit is comprised of 16 beds in total, including the high care area with four beds, low care area with six beds and a six-bed KMC unit. There were about 5000 deliveries per year in this hospital and approximately 500 neonates are admitted to the neonatal unit per year. Common causes of morbidity in this hospital are birth asphyxia, prematurity, neonatal sepsis and other problems. The Department of Health information system (DHIS) and the Perinatal Problem Identification Programme (PIPP) of the identified district hospital showed a high neonatal mortality rate of about 21 per 1000 live births, and most of the deaths were related to prematurity and sepsis (PIPP, 2013). Neonatal care in the neonatal unit of this district hospital is routinely provided by the neonatal health care team, which was comprised of six doctors and 26 nurses. These nurses included six registered nurses, eight enrolled nurses and 12 enrolled auxiliary nurses. Mothers with sick and small neonates in the neonatal unit are accommodated in a lodger room in the postnatal ward that is within the maternity ward. The mothers stay there until the neonate is due for discharge home or for transfer into the KMC unit where the mother can stay with the neonate.

3.5 GAINING ACCESS

In order to conduct the study in this district hospital's neonatal unit, the researcher obtained permission from the Research Ethics Committee of the Faculty of Health Sciences, University of Pretoria (Annexure A), as well as the Provincial Department of Health of the Limpopo Province (Annexure B). Additionally, permission from the Chief Executive Officer, and the Nurse Manager of the chosen hospital were sought. The researcher obtained permission from the assistant and operational managers of the neonatal ward of the identified hospital. The researcher utilised the ward meetings in which the neonatal staff were introduced to the concept of family-integrated neonatal care by giving them general information regarding the concept. Written information leaflets were distributed to all the staff members. The information on the leaflet explained the nature and the purpose of the study. The staff members were then invited to participate by signing the informed consent form. This was done in order to adhere to the principles of ethical considerations of research.

The researcher then requested a meeting with the stakeholders (medical and nursing staff and hospital management) of the district hospital in order to form a steering committee. A presentation was made to the stakeholders regarding the implementation of family-integrated neonatal care. The steering committee's function was to steer the implementation of family-integrated neonatal care. The steering committee consisted of the assistant manager of the maternity ward, the acting operational manager of the postnatal and neonatal unit, as well as the doctor in charge of the neonatal unit.

3.6 DESCRIPTION OF THE RESEARCH CYCLES

As mentioned, Piggott-Irvine's PRAR Model was used in the study, and the cycles are discussed separately in the forthcoming sections.

3.6.1 Cycle I: Situational analysis to obtain baseline data

The main aim of Cycle I was to explore and describe the care provided in the neonatal ward of the district hospital of Limpopo.

There were two sub-objectives that assisted the researcher in attaining the main objective, namely:

Sub-objective 1: Obtain retrospective baseline data regarding neonatal mortality, length of stay and weight gain of the neonates in the district hospital in Limpopo.

Sub-objective 2: Obtain baseline data regarding the experiences of healthcare providers regarding the neonatal care they provide to families in the neonatal ward of the district hospital in Limpopo.

- **Plan**

A plan was presented to the steering committee for consideration on how to obtain retrospective baseline data and the instrument used was presented for approval. The information focused on measurable data associated with neonatal wellbeing, namely neonatal mortality, length of stay and weight gain, as the other aspects potential outcomes of family integrated care are not easily measurable. Three measurable aspects were considered to provide a clear trend in terms of outcomes of implementation of family integrated care. The researcher also obtained baseline data on the experiences of healthcare providers regarding the care they provide to families in the neonatal unit. The research methods used in Cycle I are summarised in Table 3.1 and discussed in the sections that follow.

TABLE 3.1: Summary of research methods of Cycle I

OBJECTIVE	POPULATION/ UNIT OF ANALYSIS	SAMPLING/SIZE	DATA COLLECTION	DATA ANALYSIS
1.To obtain measurable data on mortality rate, weight gain and length of stay of neonates.	All records of neonates admitted to the neonatal unit from January 2015 to December 2015	Systemic random sampling was used to select 228 files of neonates	Data were recorded on the data collection instrument or tool (Annexure C)	Descriptive statistics were used to analyse data
2. To explore and describe experiences of the healthcare providers regarding the provision of care to families	Neonatal healthcare providers: registered nurses, enrolled and auxiliary nurses	Purposive sampling was used and the sample size was 9	Focus groups: 1 for registered nurses and 1 for both enrolled auxiliary and enrolled nurses	Qualitative thematic data analysis using Tesch approach

3.6.1.1 Objective 1

The first objective was to obtain retrospective baseline data regarding neonatal mortality, length of stay and weight gain of the neonates in the district hospital in Limpopo. The unit of analysis was all records used in the neonatal unit. These records included the neonatal admission and discharge books and the neonates' files at the identified hospital. They were chosen because they contained valuable information for the researcher to assess before the implementation of family-integrated care. The information required by the researcher included the neonatal mortality rate, weight gain and length of stay of the neonates as measurable outcomes in the neonatal unit.

- **Sampling and sample size**

According to Burns and Grove (2011:291) and Grove, Burns and Gray (2013:352), sampling involves the selection of a group of people, events, behaviours or other elements with which to conduct a study. The sampling criteria is described as the characteristics that the subject or element must possess to be part of the targeted population. All records of neonates admitted to the neonatal unit from January 2015 to December 2015 were selected as the unit of analysis in the first cycle. The number of files selected to represent the unit of analysis was determined by the biostatistician based on the number of admissions for the year 2015. There were 500 neonates admitted to the neonatal unit of the identified district hospital in the year 2015. The sample size was calculated using Yamane's formula (Yamane, 1967):

$$n = \frac{N}{1 + N(e)^2}$$

where, n = the sample size, N = population size (500 neonates per annum), e = the error of 5 percentage points and 95% confidence level and $p = 0.05$ are assumed. Substituting all these values in the equation gave a sample size of 222 neonatal files per annum, which were assessed in order to describe the wellbeing of the neonates during their stay in the neonatal unit. To have an equal sample size distribution of files per month, a systematic random sampling method was used to select 19 neonatal files for each month for a period of 12 months; this gave a sample size of 228 neonatal files. The researcher first assigned a number to all the files of neonates admitted to the neonatal ward each month. The total number of files for the particular month was divided by the sample size in order to get the sampling digit. The sampling digit was used to select the neonatal files to be assessed (Annexure D).

- **Act**

Data collection

Obtaining baseline data regarding retrospective data in the neonatal ward

In the second step of the process, the researcher obtained retrospective data on the wellbeing of the neonates. A data recording tool that was designed by the researcher was used to capture measurable data associated with the wellbeing of neonates for the year 2015 (Annexure C). The measurable data included mortality rate, length of stay and weight gain of neonates. Data on the wellbeing of the neonates were obtained from the neonatal admission and discharge books and neonatal files. Two hundred and twenty-eight files were assessed in order to get a trend on the identified indicators before implementing the family-integrated neonatal care model. The neonatal mortality rate was the key outcome indicator for newborn care as it directly reflected on the quality of intrapartum and neonatal care. Weight gain and length of stay were indicators that measured the wellbeing of the neonate and indirectly measured the quality of care provided.

- **Observe**

Data analysis

In the third step, the retrospective data were analysed by means of descriptive statistics to describe the outcomes of neonatal care prior to implementing the family-integrated neonatal care model. Frequency, percentages and graphs were used to describe the mortality, length of stay and weight gain of neonates as described by Burns and Grove (2011:383), Grove, et al. (2013:551) and Polit and Beck (2012:382), with the assistance of a biostatistician. A detailed discussion of results on the wellbeing of the neonates is provided in Chapter 4.

- **Reflect**

In the fourth step, the meaning of the analysed quantitative data was interpreted by the steering committee, and was used again after six months of implementing the family-integrated neonatal care model to determine the difference, and therefore the impact, of the intervention.

3.6.1.2 Objective 2

The second objective was to obtain baseline data regarding the experiences of healthcare providers on the neonatal care they provide to families in the neonatal unit of the district hospital in Limpopo.

- **Plan**

Population

The population is a particular group of individuals who are of focus to the researcher (Burns & Grove 2011:290; Grove, et al. 2013:351; Polit & Beck 2012:273; Babbie & Mouton 2008:100, Tereblanche, et al. 2007:133; Babbie 2007:190). In this study, the population was all healthcare providers working in the neonatal unit of the district hospital of Limpopo Province. They were chosen because they provided and supervised the care to neonates in the neonatal unit of the identified district hospital.

Purposive sampling was used to select participants for this study. This method was used because it allowed the researcher to gain insight and obtain an in-depth understanding of the phenomenon under study (Burns & Grove, 2011:313; Grove, et al. 2013:365; Babbie, 2007:184; Babbie & Mouton, 2008:166).

The sample size consisted of nine participants who included five enrolled and enrolled auxiliary nurses and four registered nurses. The registered nurses were separated from other categories of nurses. This was to enable the lower category of nurses to be unrestrained in their focus group interview. The selection criteria were that the healthcare providers had to agree to participate in the study and should have worked in the neonatal unit for a period of three months or more. Healthcare providers who worked in the neonatal unit for less than three months and those who did not want to participate in the study were excluded. The researcher started by giving the healthcare providers a bit of general information on family-integrated care during morning meetings. Additional information followed later for those who showed an interest. Participants were invited by using information leaflets with full information about the study (Annexure E).

- **Act**

Data collection

Data were collected using two focus group interviews, which were conducted by the researcher. De Vos, Strydom, Fouché and Delport (2005:299) state that focus group interviews is a means of better understanding how people feel or think about an issue. Participants are selected because they have common characteristics related to the issue under discussion. According to de Vos, et al (2005:305), a focus group should consist of six to ten people. However, Krueger and Casey, 2009 :67) state that the ideal size for most non-commercial topics is five to eight participants and further indicate that a focus group can also be conducted with four to six people because smaller

groups are easier to recruit and host and are more comfortable for participants. According to Krueger and Casey, 2009:67) if the study is to gain understanding of the participants' experiences, the researcher wants more in-depth insights which can be best accomplished with smaller focus group. In this study, the two focus groups were used to understand the experiences of healthcare providers regarding the care they provide neonates and their families in the neonatal unit. The researcher had planned to include doctors in the focus groups, but some doctors were allocated to other wards and others resigned to other institutions. The doctor that was in charge of the neonatal unit served on the steering committee. Registered nurses were in their own focus group, while the enrolled and auxiliary nurses were in a shared focus group. This allowed participants to speak freely without being intimidated. Data collection was planned in a way that did not interfere with patient care. The researcher conducted the focus groups during the two-hour interval after the healthcare providers had completed their routine care.

Appointments were made the day before the interviews with the healthcare providers in order for them to choose the time most convenient for them and to be prepared for the focus group discussion. The focus group discussions were held in a side ward, which is used for the admission of neonates. This ward is within the neonatal unit and there were no neonates in this room at that time. This made the room accessible, convenient and free from noise and disturbances. The seating arrangement was circular, which allowed the participants to be close to each other, to listen and engage with one another during the focus group discussions, as suggested by Masadeh (2012:65).

The researcher as a trained facilitator, facilitated the focus group discussions. Before starting with the focus group, the researcher welcomed and introduced herself to the participants. The participants were then informed about the purpose of the study and the principles of confidentiality that would be adhered to during the focus group discussion. Permission to use an audio-recorder was requested from the participants.

The researcher adopted a non-judgemental role and avoided dominant behaviour. She encouraged the participants to speak freely about their experiences as healthcare providers providing neonatal care in the neonatal unit. The participants and the researcher were of the same age group, spoke the same language and were all females. The participants thus felt comfortable during the focus group discussions.

Each focus group contained at least four to five participants. The focus group conducted with registered nurses had four participants while the other focus group contained one enrolled nurse and four enrolled auxiliary nurses. Field notes were taken during the focus groups and all nonverbal cues were noted. An audio-recorder was used to record the interviews with consent from the participants. The question that was asked was “could you please tell me your experience about the current care that you provide in the neonatal ward?” The second question was “What do you think about the involvement of the mother in the care of their neonate in the neonatal ward?” (See Annexure I).

- **Observe**

Data analysis

According to Grove, et al. (2013:279), data analysis is a process of examining and interpreting data in order to produce meaning, gain understanding and develop empirical knowledge. Data were analysed using thematic data analysis method. Tesch’s eight steps of data analysis, as described by Creswell (2014:198) and de Vos, et al. (2005:333), were used to analyse the data. Only data obtained from the healthcare providers on their experiences of the provision of neonatal care were analysed. The eight steps were:

- The researcher got a sense of the interviews by reading all the transcripts and jotting down ideas as they came to mind.
- One interview was picked, the researcher read it and asked herself what the interview was about.
- All the transcripts were read, and a list of topics was made. Similar topics were clustered together. The topics were formed into columns and arranged as major, unique and leftover topics.
- A list was made, topics were abbreviated as codes, and codes were written next to the appropriate segments of the transcribed interviews.
- The most descriptive words were found for the topics and were turned into categories.
- A final decision was made on the abbreviation for each category and the codes were put in alphabetic order.
- Data belonging to each category were assembled in one place and a preliminary analysis was performed.

The researcher first recorded the focus group discussions after requesting the participants' permission to do so. Recorded data were then transcribed verbatim. The researcher read the transcript to obtain the general sense of the information, thus immersing herself in the data and reflected on its meaning. The transcripts were read and reread to get the sense of the focus group discussion and the researcher asked herself what the transcript was about. The researcher wrote memos in the margins of the transcripts, highlighting important words about the recorded data. The researcher read the transcripts again and created categories in relation to the data. A list of topics was made, and similar topics were clustered together. The researcher then abbreviated topics as codes which were written next to the appropriate text. The most descriptive words from the topics were used to generate categories. A final decision was made on the abbreviation for each category and the codes were put in alphabetic order. Data belonging to each category were assembled in one place and preliminary analysis was performed. Preliminary analysis was done by using narrative passages to convey the findings of the analysis. The existing data would be recoded if there was a need, but there was no such need. The researcher interpreted the data as she read and reread them and inductively developed a thematic analysis and integrated the themes into a unified whole to draw legitimate conclusions. The demographic data of the participants and the results of the focus group discussions are described fully in Chapter 4.

- **Reflect**

The researcher presented the findings of the qualitative data analysis to the steering committee for interpretation. Problems were identified during this session and decisions were made on solutions to those problems by developing strategies to implement family-integrated neonatal care. The developed strategies are addressed in Chapter 5.

3.6.2 Cycle II: Implementation of family-integrated care

Table 3.2 provides a summary of the data processes for Cycle II.

TABLE 3.2: Summary of data processes for Cycle II

OBJECTIVE	POPULATION/	SAMPLING/SIZE	DATA COLLECTION	DATA ANALYSIS
To develop and implement strategies of family-integrated neonatal care	Steering committee	Purposive sampling and sample size consisted of 3 members (operational, assistant manager	Minutes of structured meetings held with the steering committee, and data obtained in Cycle I	Review of minutes of meetings

		and doctor in charge of the neonatal unit)		
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3.6.2.1 Objective

The objective of Cycle II was to develop and implement strategies of family-integrated neonatal care.

- **Plan**

In the first step, the steering committee met to plan for the implementation of strategies of family-integrated neonatal care. The strategies were informed by evidence found in literature, as well as the findings from Cycle I.

- **Act**

The second step of this cycle was for the steering committee to formulate and implement the strategies of family-integrated neonatal care. The strategies were formulated from the results of the thematic data analysis of the first cycle. The strategies addressed the challenges that hindered the provision of quality neonatal care in the identified hospital. Frequent meetings were held with the steering committee to implement and monitor the progress of the implemented family-integrated neonatal care model. The implementation of the strategies was a continuous process and at times, involved other stakeholders of the hospital. The operational manager and the doctor made presentations on the progress of the strategies' implementation. A detailed description of these strategies is presented in Chapter 5.

- **Observe**

The third step was for the researcher to review the records of the reflective meetings held with the steering committee on the development of the strategies which are presented in Chapter 5.

- **Reflect**

In the fourth step, findings of the analysis of this cycle were discussed in a meeting with the steering committee for reflection. The implemented strategies were each monitored, and reflections were discussed in the feedback meetings with the steering committee.

3.6.3 Cycle III: Evaluation of family-integrated neonatal care model

TABLE 3.3: Summary of data processes for Cycle III

OBJECTIVE	POPULATION/ UNIT OF ANALYSIS	SAMPLING/SIZE	DATA COLLECTION	DATA ANALYSIS
1.To obtain measurable data on weight gain, length of stay and neonatal mortality rate	All records of neonates from January 2018 to June 2018	Simple systematic random sampling to select 102 files	Data were recorded on the data collection instrument or tool (Annexure C)	Descriptive and inferential statistics were used to analyse data
2. To explore and describe experiences of the healthcare providers regarding the provision of care to families	Neonatal healthcare providers: registered nurses, enrolled and auxiliary nurses	Purposive sampling was used and the sample size was 7	1 focus group with 1 enrolled nurse and 3 auxiliary nurses. and individual interviews with 3 registered nurses	Qualitative thematic analysis using Tesch's approach
3. To compare data from Cycle I with data from Cycle III	Data from Cycle I and Cycle III	Data from Cycle I and Cycle III	Review of all recorded data	Inferential statistics for quantitative data and qualitative thematic analysis for qualitative data

The primary aim of Cycle III was to evaluate the implementation of family-integrated neonatal care in the district hospital in Limpopo.

3.6.3.1 Objective 1

The first objective was to obtain current measurable data regarding the wellbeing of the neonates. This measurable data included neonatal mortality, length of stay and weight gain.

- **Act**

In the second step, the researcher obtained retrospective data on the wellbeing of the neonates. A data recording tool that was designed by the researcher was used to capture measurable data associated with the wellbeing of neonates after the implementation of family-integrated neonatal care from January 2018 to June 2018 (Annexure C). The measurable data and how it was obtained was described in objective 1 of the first cycle. The number of files to be included was recommended by the statistician. The number of files selected to represent the unit of analysis was determined by the biostatistician based on the number of admissions from January 2018 to June 2018. The sample size was calculated using Yamane's formula (Yamane, 1967):

$$n = \frac{N}{1 + N(e)^2}$$

where, n = the sample size, N = population size (500 neonates per annum), e = the error of 5 percentage points and 95% confidence level and $p = 0.05$ are assumed. Seventeen files were selected each month a sample size was one hundred and two (102) .

- **Observe**

Data analysis

In the third step, the retrospective data obtained were analysed by means of descriptive statistics and inferential statistics as described in Cycle I, objective 1. The results are fully discussed in Chapter 6.

- **Reflect**

In the fourth step, a meeting was held with the steering committee and the results of the outcome of the first objective were presented for them to reflect on.

3.6.3.2 Objective 2

The second objective was to obtain data on the perceptions of the neonatal healthcare providers regarding implementation of family-integrated neonatal care.

- **Plan**

Population

The population was the same as in objective 2 of the first cycle. Purposive sampling was used to select the participants as in Cycle I.

The sample size consisted of seven participants of which three were registered nurses and four were enrolled and enrolled auxiliary nurses. The criteria for selection were that the healthcare providers should have been working in the neonatal unit during the situational analysis.

- **Act**

Data collection

The same method of focus group interviewing was used to collect data from the enrolled nurses and enrolled auxiliary nurses as described in the second objective of the first cycle. The researcher could not use focus groups for the registered nurses as there were only three

registered nurses left from the situational analysis and implementation phase. Some registered nurses had resigned, and others went to further their studies in other hospitals. Therefore, the researcher used semi-structured interviews with a guide to collect data from registered nurses. The questions that were asked was “can you tell me your experience regarding the involvement of the mother in the care their neonate?”. The second question was “how were the fathers and grandmothers involved in the care of the neonate?”. “What challenges are experiencing regarding the involvement of the mother in the care of the neonate?” and “What were the benefits of involving the mother in the care of their own neonate?” (See Annexure J)

- **Observe**

Data analysis

Qualitative data were analysed using Tesch’s approach to data analysis, as described in objective 2 of Cycle I.

- **Reflect**

In the fourth step, the results of this objective were also presented to the steering committee to reflect on.

3.6.3.3 Objective 3

The third objective of Cycle III was to compare the findings prior to and after implementation of family-integrated neonatal care in the particular neonatal unit.

- **Plan**

During this step the findings of Cycle I was compared with that of Cycle III.

- **Act**

The researcher compared the results of the quantitative data of Cycle I with that of Cycle III. However, it was difficult to compare the results of the two cycles as data from Cycle I were collected for a year while Cycle III data covered only six months. The demographic details of the participants were also compared. The themes of Cycle III were not limited to those of Cycle I; thus, there was no comparison made in that regard. The results of the comparison are discussed in Chapter 6.

- **Observe**

In the third step, the researcher reviewed the documents for Cycle I in order to compare them with those of Cycle III.

Reflect

In the fourth step, a meeting was held with the steering committee to highlight the differences and similarities regarding the quantitative data.

3.7 RIGOUR

The study contained both quantitative and qualitative data. Rigour in quantitative data is described as validity and reliability, while it is described as trustworthiness in qualitative data. The tool utilised for collecting quantitative data was considered valid and reliable as it was designed with the assistance of a statistician.

3.7.1 Validity and Reliability

Validity refers to whether a concept really measures what it is supposed to measure, while reliability refers to the consistency of the measure of a concept (de Vos, et al. 2005:160). Validity was ensured by consulting with the statistician before developing the quantitative tool that was used to measure the wellbeing of the neonates. Questions on indicators of the measurement of the wellbeing of the neonates were developed and confirmed to be relevant by two neonatal experts. The two experts are full professors experienced in both research and in the field of neonatal care. The indicators that were used to measure the wellbeing of the neonates were weight gain, length of stay, as well as mortality of the neonates. In order to ensure reliability, the indicators used to measure the wellbeing of the neonates were stable and consistent as they were used in all weight categories of the neonates. Weight gain was determined by monitoring the daily weight of the neonates and comparing it with that of admission and discharge records. The neonates' length of stay was measured as the number of neonates who stayed for less than 1 day, 1-5 days, 6-10 days and more than 10 days.

3.7.2 Trustworthiness

According to Lincoln and Guba (1985:290) cited in de Vos, et al. 2005:346), trustworthiness refers to the truth value, applicability, consistency and neutrality of the study. In this study, trustworthiness was ensured by credibility, transferability, dependability, confirmability and authenticity of the qualitative data (Babbie & Mouton, 2008:276; Grove, et al. 2013:58).

3.7.2.1 Credibility

Credibility refers to the truth value of the study and it was ensured by prolonged engagement (Babbie & Mouton, 2008:276; de Vos, et al. 2005:346). The researcher is a trained and experienced specialist in neonatal care who stayed in the neonatal unit with the participants for on more than five occasions. The study was conducted in cycles over a period of three years. The focus groups and interviews were conducted until data saturation was reached with the participants. Triangulation was done by using different sources to collect data. A data recording tool was used in both Cycles I and III to collect quantitative data on the mortality rate, weight gain and length of stay of neonates in the neonatal unit. Different records, such as the admission book, the discharge book, and neonatal files were used to attain the required quantitative data. Focus group discussions and individual interviews were conducted with the healthcare providers to get their experiences regarding the provision of neonatal care in the neonatal unit. The minutes of the reflective meetings held with the steering committee were also used for data collection in the study.

3.7.2.2 Transferability

Transferability refers to the extent to which the findings can be applied in other contexts or with other participants (Babbie & Mouton, 2008:277; de Vos, et al. 2005:346). In this study, transferability was ensured by a thick description of the methodology used in the study. All activities were described in detail to make interpretation and repetition possible. Audio-recordings and field notes are available, which allow judgement to be made by the reader.

3.7.2.3 Confirmability

Confirmability refers to the degree to which the findings are the product of focus of the inquiry and not of the biases of the researcher (Babbie & Mouton, 2008:279; de Vos, et al. 2005:347). The researcher kept an adequate audit trail in order for interpretations, conclusions and recommendations to be traced to their sources. Raw data, which include audio-recordings, field notes and transcripts are available.

3.7.2.4 Authenticity

Authenticity refers to the extent to which the researcher fairly shows the different realities, feelings and lived experiences of people being studied (Given, 2008:44). Fairness and tactical authenticity were employed in the study; all the participants had equal opportunity to participate in the research.

3.8 ETHICAL CONSIDERATIONS

The researcher obtained approval from the Ethics Committee of the Faculty of Health Science of the University of Pretoria (Annexure A), and the Limpopo Department of Health (Annexure B). Permission was also requested from the Chief Executive Officer, the nurse manager, the assistant manager and operational managers of the district hospital in which the study was conducted. The ethical principles that were adhered to are discussed in the following sections.

3.8.1 Beneficence

The participants had the right to freedom from harm and discomfort and were not to be subjected to unnecessary risks of harm or discomfort (Polit & Beck, 2012:153; de Vos, et al. 2005:58). There were not any harm or discomfort expected during the study. The participants rather appreciated the time they spent together with the researcher and the new concept that they put in practice. The healthcare providers were initially concerned with the safety of the neonates when mothers were providing neonatal care. However, there was no harm or discomfort to the participants. There was evidence that family-integrated neonatal care was safe to use as studies done on this model of care only yielded positive results. Macdonel, et al. (2013:263) found that the mothers gained comfort and hope, bonding was improved, and it provided the mothers with psychological

support. The mothers also gained confidence in caring for their own babies. Outcomes of this model of care for the neonate were expected to be decreased retinopathy of prematurity, decreased necrotising enterocolitis, reduced medication errors, reduced the length of stay in hospital and reduced mortality, as found in other studies (O'Brien, et al. 2013:4; Bracht, et al. 2013:116; Galarza-Winton, et al. 2013:336; Macdonel, et al. 2013:263).

3.8.2 Respect for human dignity

The participants had the right to self-determination, which meant that they voluntarily decided to take part in the study (Polit & Beck, 2012:154). They were free from coercion as they were not penalised for failing to participate or for withdrawing from the study. The researcher fully described the nature, purpose and the person's right to refuse to participate, the risks and benefits of the study, which allowed participants to give informed consent. None of the participants refused to participate in the study (Annexures E and F).

3.8.3 Justice

The principle of justice was also adhered to during the study. The researcher ensured that the participants were fairly treated in all aspects of the study as described by de Vos, et al. (2005: 63) and Polit and Beck (2012:156). All healthcare providers and parents were invited to participate in the study and therefore had a fair chance of being involved and participate in the study. All chose to participate voluntary and none were discriminated against.

The participants' right to privacy and confidentiality was also respected. The information given by participants was not revealed to anyone outside the research study without the knowledge of the participants. All information collected during the study was kept confidential under lock and key. The names of the participants were not used; instead, they were allocated codes and the master list showing the participants' names were only known to the researcher. The researcher also ensured that there was no link between the recorded data and the participants, and the name of the institution where the study was conducted was protected.



3.9 SUMMARY

This chapter described the research design, the PRAR Model, the context, and the methodology followed to implement family-integrated neonatal care in the identified district hospital. The study was conducted in three cycles using the Piggott-Irvine PRAR Model. The different cycles are discussed in detail in the following chapters. Rigour and ethical considerations were also considered. Chapter 4 will discuss Cycle I of the PRAR Model, which was used to obtain data regarding the neonatal care provided at the selected district hospital.

CHAPTER 4

CYCLE I: SITUATIONAL ANALYSIS: OBTAINING BASELINE DATA ON NEONATAL CARE

4.1 INTRODUCTION

The study was conducted in three cycles using the Piggott-Irvine PRAR Model (Piggott-Irvine, 2009:14). This chapter describes the findings of the first cycle. Cycle I's main objective was to obtain baseline data regarding the neonatal care provided at the hospital prior to the implementation of family-integrated neonatal care.

There were two sub-objectives that guided the researcher to achieve the main objective. The first was to obtain retrospective baseline data regarding neonatal mortality, length of stay and weight gain of the neonates at the district hospital in Limpopo. The second sub-objective was to obtain baseline data regarding the experiences of healthcare providers in terms of the care they provide to families in the neonatal unit of the identified district hospital. This cycle had four steps, as shown in Figure 4.1, namely to plan, act, observe and reflect. The methodology was discussed in detail in Chapter 3 and aspects thereof will therefore only be highlighted in this chapter to provide clarity on the findings.

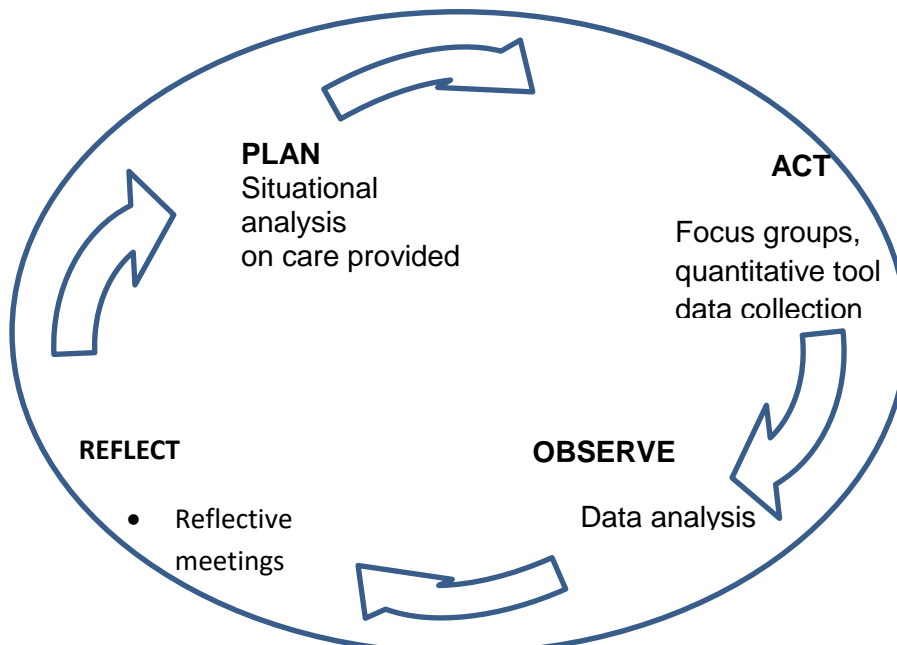


FIGURE 4.1: Cycle I situational analysis



4.2 FINDINGS OF SUB-OBJECTIVE 1 (PLAN, ACT, OBSERVE): SITUATION ANALYSIS OF NEONATAL WELLBEING

In the first step of the cycle, a plan was presented to the steering committee how the researcher was going to obtain retrospective baseline data, and the instrument to be used was presented for approval.

The baseline data were obtained from records in the neonatal unit using an instrument (refer to Annexure C) to capture measurable data associated with the wellbeing of neonates over the previous year. These records (unit of analysis) included admission and discharge books and neonates' files for a period of one year. There were 500 neonates admitted to the neonatal unit during the year 2015. A systematic random sampling method was used to select a sample of records from the total number of annual records. The sample size was selected using Yamane's formula. The sample size was 222 records per annum. The researcher assessed 19 files from each month in order to get an equal distribution of files per month. In the third step, data were analysed using descriptive statistics to describe the outcomes of neonatal care.

4.2.1 Demographic data of mothers

The demographic data of the mothers included their age and parity as obtained from the records.

4.2.1.1 Mother's age

The mothers' age was included because the researcher wanted to assess if the mothers who delivered at the identified hospital were of an acceptable childbearing age. The distribution of the mothers' ages is shown in Figure 4.2.

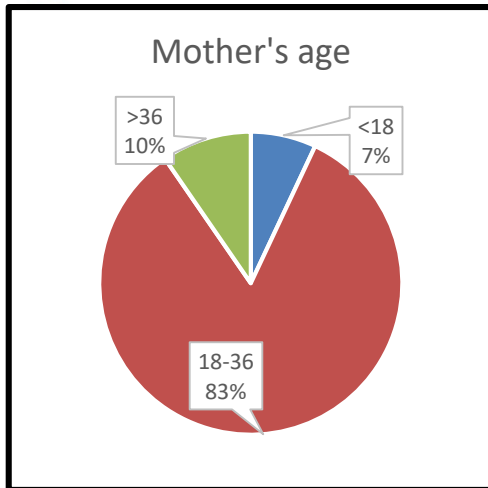


FIGURE 4.2: Mother's age

According to Cronje and Grobler (2005:666), maternal mortality is increased in women who give birth who are younger than 20 years and older than 35 years of age. However, Cronje and Grobler (2005:665) state that the average age of the mother at first birth in sub-Saharan countries is 18 years. In this study, it was found that 18 (7%) of the women were younger than 18 years old, which meant that there were a number of teenage pregnancies in the studied population. According to Cronje and Grobler (2005:666), morbidity and mortality among teenage mothers are often related to gestational proteinuric hypertension, cephalo pelvic disproportion which might lead to prolonged labour, and increased rates of caesarean sections. Other problems related to teenage pregnancy are that most of the pregnancies are unplanned, which might lead to poor attendance of antenatal care clinics, stress, increased abortion rates, baby dumping and increased perinatal mortality rates (Cronje & Grobler, 2005:666).

One hundred and ninety-one (83%) of the women were between the age of 18 and 36 and this indicated the percentage of women who were within the accepted childbearing age in South Africa. However, 22 (10%) of the women who delivered at this institution were older than 36 years of age, which is considered advanced maternal age. These women with advanced maternal age should be advised and offered bilateral tubaligation as increased maternal age is associated with increased risk for postpartum haemorrhage, eclampsia and cephalo pelvic disproportion which might lead to maternal morbidity or mortality as well as complications such as diabetes, hypertension, perinatal mortality and morbidity and an increase in foetal chromosomal abnormalities such as trisomy 21 (Cavazos-Rehg, Krauss, Spiitznagel, Bommarito, Madden & Olsen, 2015:3; Cronje & Grobler, 2005:667).

The implication of this information for the implementation of family-integrated care was that teenage mothers might get a chance to go back to school while other members of the family take care of their neonates. The more matured mothers might help to support the younger mothers during the implementation of family-integrated neonatal care.

4.2.1.2 Mother's parity

Cronje and Grobler (2005:668) define parity as the number of times the mother has delivered a foetus by whatever method (regardless of the outcome) with a birth weight of 500g or more. The researcher collected data on the parity of the mothers in order to describe the trend at the identified institution. The mothers' parity distribution is shown in Figure 4.3.

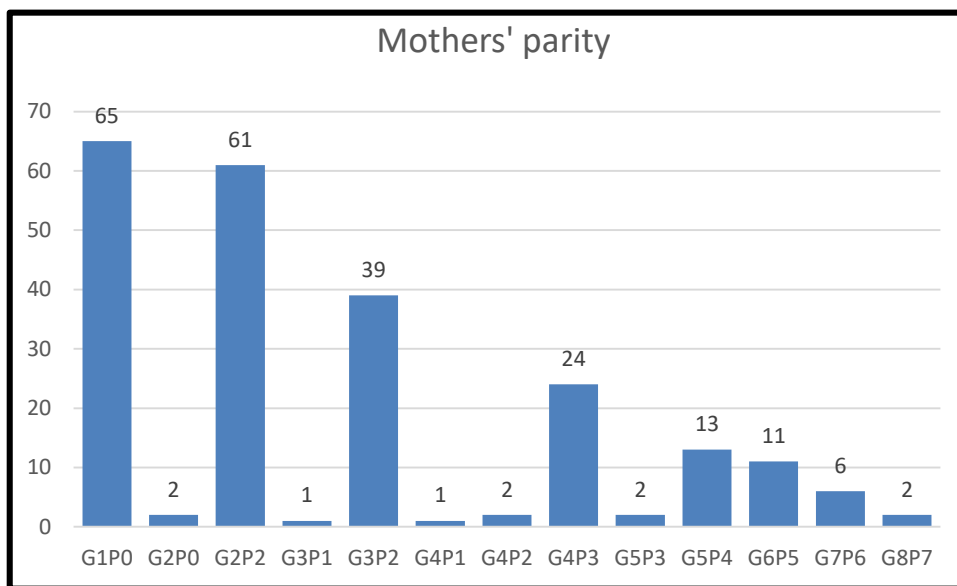


FIGURE 4.3: Gravidity (G) Parity (P) of the mothers

Obstetrically, the gravity is abbreviated as G, meaning the number of previous pregnancies, while parity (P) indicates the number of live or dead foetuses that reached viability (Cronje & Grobler, 2005:58). In this study, it was found that 65 (26.38%) mothers were primigravidae, and 61 (26.64%) were G2P2. Thirty-nine (17.04%) mothers were G3P2, and 24 (17.04%) mothers were within the G4P3 category. In the category G5P4, there were 13 (0.87%) mothers. Nineteen mothers were within the group of grande multiparas with 11 mothers within category G6P5, 6 in the category G7P6 and 2 within the category G8P7.

The risk of mortality is increased for the primigravidae due to maternal complications such as gestational proteinuric hypertension, cephalo pelvic disproportion and post haemorrhage due to prolonged labour. Mothers with parity of 5 and above were associated with complications such as antepartum and postpartum haemorrhage and a ruptured uterus due to prolonged labour and malpresentation. These women were at risk of maternal death (Cronje & Grobler, 2005:669).

It was assumed in this study that when implementing family-integrated neonatal care, the primigravidae might require more education than mothers who have given birth before. Multiparous mothers might have time to care for other siblings when members of the family are taking care of the neonates admitted in the neonatal unit. Multiparous mothers might also assist in supporting the primigravidae during the implementation of family-integrated neonatal care.

4.2.2 Baseline data regarding, weight, length of stay and mortality of neonates

The data collected focused on measurable data associated with neonatal wellbeing. This data included the gender, gestational age, health-related problems, weight gain, length of stay, as well as mortality of the neonates admitted to unit.

4.2.2.1 Gender and gestational age of neonates

The gender of the neonates was included to determine which gender was predominantly admitted to the neonatal unit. The distribution of gender is shown in Figure.4.4, where most (125) of the neonates that were admitted were boys (54.59%), while 104 (45.41%) were girls. According to Shakya, et al. (2014:145), on average more boys are admitted to NICUs than girls.

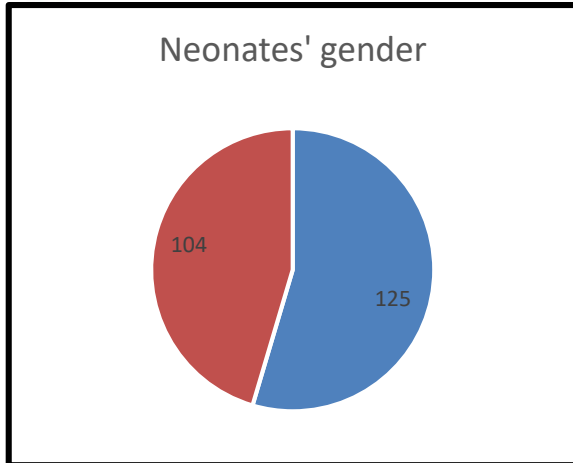


FIGURE 4.4: Gender of neonates

The gestational age was also included in order to describe if most neonates admitted to the neonatal unit were preterm or full-term.

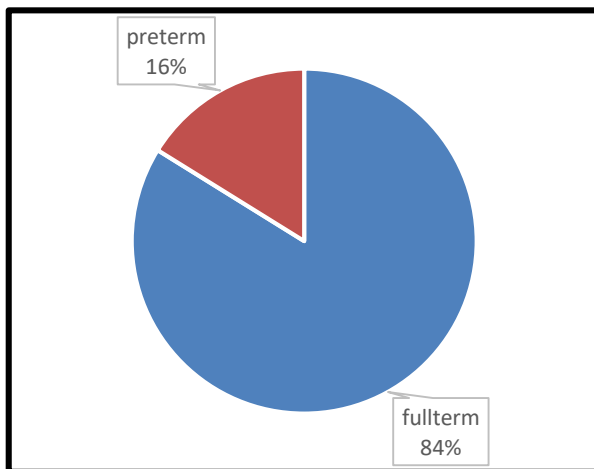


FIGURE 4.5: Gestation of neonates

There were 192 (83.84%) full-term and 37 (16.6%) preterm neonates. According to Shakya (2014:145), the majority of the neonates admitted to the intensive care unit are full-term. Family-integrated neonatal care is expected to promote breastfeeding, improve weight gain and reduce the length of stay for both the preterm and full-term neonates.

4.2.2.2 Health-related problems of the neonates

The researcher also reviewed the reasons for the neonates' admission to the unit. In this study, the reasons why neonates were admitted to the neonatal unit are discussed as health-related problems. These health-related problems could either be symptoms or diagnoses which were retrieved as diagnoses in the admission records. The distribution of the neonates' health-related problems is shown in Table 4.1.

TABLE 4.1: Frequency distribution for health-related problems

Health problem	Frequency	Percentage
Respiratory distress	73	32.02
Meconium aspiration	30	13.16
Low birth weight	27	11.84
Birth asphyxia	22	9.65
Neonatal sepsis	18	7.89
Neonatal jaundice	16	7.17
Macrosomia	13	5.67
Hypoglycaemia	6	2.63
Congenital syphilis	2	0.88
Abdominal distension	1	0.44
Anaemia post-cord bleeding	1	0.44
Failure to thrive	1	0.44
Herbal intoxication	1	0.44
Low birth weight + neonatal jaundice	1	0.44
Low birth weight + respiratory distress	1	0.44
Necrotising enterocolitis	1	0.44
Hyaline membrane disease	1	0.44
Pneumonia	3	1.32
Transient tachypnea of newborn	7	3.07
Nasal obstruction	1	0.44
Poor feeding	1	0.44
Peripheral cyanosis	1	0.44
Total	n=228	100%

Most neonates (71; 30.56%), were admitted for respiratory distress, which included both mild and severe cases. Some neonates were admitted with other respiratory problems such as pneumonia (3; 1.3%), transient tachypnea of newborns (7; 3%), hyaline membrane disease (1; 0.44) and 30 (13%) had meconium aspiration. Twenty-seven (12%) neonates had low birth weight while 22 neonates (10%) had birth asphyxia. There were 16 (7%) neonates with neonatal jaundice, 18 (8%) neonates were admitted with neonatal sepsis. Some neonates (2; 0.9%) were admitted with congenital syphilis, 6 (2.26%) had hypoglycaemia, 1 (0.44%) neonate was admitted with abdominal distention, anaemia post-cord bleeding, failure to thrive, herbal intoxication, nasal obstruction, necrotising enterocolitis, peripheral cyanosis, poor feeding, swollen neck mass and upper limb hematoma. One neonate (0.44%) had low birth weight coupled with jaundice, while another (0.44%) also had low birth weight with respiratory distress.

According to Cheruiyot (2013:1), neonates are admitted to NICUs due to prematurity, respiratory distress syndrome, birth asphyxia, hypoglycaemia, hypothermia and other reasons related to the mother that would make the neonate unable to cope without interventions. Shakya (2014:144) added that the most common cause of neonatal admissions were infections, respiratory problems, neonatal jaundice, perinatal asphyxia, prematurity, poor feeding and vomiting. Implementing family-integrated neonatal care is expected to reduce the infections in the neonatal unit of the identified district hospital.

4.2.2.3 Weight gain

Weight gain was included in order to assess the wellbeing of the neonate in the neonatal unit. Weight gain serves as an important indicator that measures the wellbeing of the neonate during admission and would indirectly measure the quality of care provided by healthcare providers in the unit. Table 4.2a shows the distribution of birth and discharge weight categories of the neonates.

TABLE 4.2a: Birth and discharge weight distribution

Birth weight	Frequency	Percentage	Discharge weight	Frequency	Percentage
<2500g	59	25.76	<2500g	58	25.33
2500g-3500g	91	39.74	2500g-3500g	103	44.98
>3500g	79	34.50	>3500g	68	29.69

There were 59 (25.74%) neonates in the weight category of less than 2500g, most (91; 39.74%) of the neonates were between 2500g and 3500g, and some (79; 34.54%) neonates were above 3500g on admission. However, on discharge, 58 (25.33%) neonates in the weight category under 2500g. Most neonates (103; 44.98%) were discharged with a weight between 2500g and 3500g, while 68 (29.69%) neonates were in the weight category above 3500g. Table 4.2b shows that there were only 16 (6.99%) neonates whose weight did not change, and 100 (43.67%) neonates gained weight during their stay in the neonatal unit. This raised a concern that almost half of the neonates (113; 49.34%) had lost weight during their stay in the neonatal unit of the identified hospital. According to Mulder, Johnson and Baker (2010:16), neonates are expected to lose a 10% of their birth weight in their first week of life, and they are expected to regain their birth weight by the 14th day of life. During the implementation of family-integrated neonatal care, the neonates are expected to gain weight during their stay in the neonatal unit.

TABLE 4.2b: Change in weight groups for the neonates

Change in weight	Frequency	Percentage
No change in weight	16	6.99
Weight gain	100	43.67
Weight loss	113	49.34

4.2.2.4 Length of stay

Length of stay was included in order to assess the quality of care provided in the identified district hospital. Length of stay is an important parameter that could measure the quality of care. Table 4.3 illustrates the distribution of length of stay of neonates during their admission in the neonatal unit.

TABLE 4.3: Length of stay of neonates

Length of stay	<2500g	2500g-3500g	>3500g	Total
0	1 (50%)	0	1 (50%)	2
1-5	29 (16.38%)	78 (44.07%)	70 (39.55%)	177
6-10	10 (38.46%)	11 (42.37%)	5 (19.3%)	26
>10	19 (79.17%)	2 (8.33%)	3 (12.50%)	24
Total	59	91	79	229

Only two (100%) neonates stayed for less than one day in the hospital. Most (177; 77.29%) of the neonates had a length of stay of 1-5 days. Of these 177 neonates, 78 (44.07%) were in the weight category of 2500g-3500g. Twenty-nine (16.38%) neonates weighed less than 2500g while 70 (39.55%) weighed above 3500g. Of the 26 neonates that stayed for 6-10 days, 10 (38.46%) were under 2500g, 11 (42.07%) were between 2500g-3500g, and 5 (19.3%) were above 3500g. Most of the neonates (19; 79.17%) that stayed for more than 10 days in the hospital weighed less than 2500g, 2 (8.33%) were between 2500g-3500g, and 3 (12.50%) were above 3500g. Neonates that stayed for 6-10 days had birth asphyxia, low birth weight, meconium aspiration, neonatal jaundice, hypoglycaemia, and neonatal sepsis. Most of the neonates that stayed for more than 10 days had low birth weight, followed by neonatal sepsis. With regard to gender compared to the length of stay, it was found that there were more boys than girls in all categories of length of stay.

Cheruiyot (2013:34) also found that due to prematurity-related problems, neonates who were younger than 37 weeks (<2500g) of gestation had a longer length of stay in the hospital as compared to those born after 37 weeks (>2500g). Cheruiyot (2013:34) further state that premature babies' length of stay is prolonged as their lungs is immature. The implementation of family-integrated neonatal care might reduce the length of stay of neonates in the neonatal unit.

Table 4.4 shows that only 2(0.88. %) stayed for less than 1 day of which (50%) neonate each had low birth weight and macrosomia. One hundred and seventy-seven (77.29%) stayed for 1-5 days of which 64 (36.15%) had respiratory distress, 27(15.25%) had meconium aspiration, 19(10,7%) had birth asphyxia, 13(7.3%) had neonatal sepsis, 12(6.7%) had macrosomia while 8(4.5%) had low birth weight. Five (2,82%) neonates had hypoglycaemia and transient tachypnea of the newborn, 2(1.12%) each had pneumonia and congenital syphilis while 1(0.5%) neonates each had abdominal distension, anaemia post cord bleeding, aspiration pneumonia, herbal intoxication, nasal obstruction, necrotizing enterocolitis, peripheral cyanosis, poor feeding, swollen neck mass and upper limb haematoma. Of the 26(11.33%) neonates that stayed in the hospital for 6-10 days had 7(29.16%) had respiratory distress, 5(19.3%) had low birth, failure to thrive and birth asphyxia, 4(15.38%) had neonatal jaundice, 3(11.55%) had meconium aspiration while 2(7.6%) neonates each had transient tachypnea of the new-born, birth asphyxia and neonatal sepsis. Table 4.4 further showed that 24(10.4%) neonates stayed for more than 10 days of which 15(62.5%) had low birth weight, 3(12.5%) had neonatal sepsis, 2(8.3%) had jaundice while 1(4,16%) neonate each had respiratory distress, hyaline membrane disease.

Table 4.4 Length of stay by health related problem

Health related problem	Length of stay in days				Total
	0	1- 5	6-10	>10	
Transient tachypnea of new-born	0	5(71.42)	2(28.57%)	0	7
Abdominal distension	0	1(100%)	0	0	1
Anaemia post cord bleeding	0	1(100%)	0	0	1
Aspiration pneumonia	0	1(100%)	0	0	1
Birth asphyxia	0	19(86.36%)	2(9.09%)	1(4.55%)	22
Congenital syphilis	0	2(100%)	0	0	2
Failure to thrive	0	0	0	1(100%)	1
Herbal intoxication	0	1(100%)	0	0	1
Hyaline membrane disease	0	0	0	1(100%)	1
Hypoglycaemia	0	5(83.33%)	1(16.67%)	0	6
Low birth weight	1(3.45%)	8(27.59%)	5(17.24)	15(51.2%)	29
Macrosomia	1(7.69%)	12(92.31%)	0	0	13
Meconium Aspiration	0	27(90.6%)	3(10%)	0	30
Nasal obstruction	0	1(100%)	0	0	1
Necrotizing enterocolitis	0	1(100%)	0	0	1
Jaundice	0	10(62.50%)	4(25%)	2(12.5%)	16
Neonatal sepsis	0	13(72.22%)	2(11.11%)	3(16.67%)	18
Peripheral cyanosis	0	1(100%)	0	0	1
Pneumonia	0	2(100%)	0	0	2
Poor feeding	0	1(100%)	0	0	1
Respiratory distress	0	64(88.89%)	7(9.72)	1(1.39%)	72
Swollen neck mass	0	1(100%)	0	0	1
Upper limb haematoma	0	1(100%)	0	0	1
Total	2	177	26	24	229

4.2.2.5 Neonatal mortality

Neonatal mortality is an important indicator to measure the quality of neonatal care provided by the institution. Rhoda, Velaphi, Gebhardt, Kauchali and Barron (2018:S9) state that an estimated 4 million newborns died worldwide in 2005 and 80% of the deaths occurred in the lower-middle income countries in sub-Saharan Africa and South Asia. At the end of the Millenium Development Goals Project in 2015, it was noted that the annual reduction rate in mortality was slower during the neonatal period than in the postneonatal period. The mortality rate fell from 36 per 1000 live births to 19 per 1000 live births, which translated to a 4.7% reduction in neonatal deaths for the 2005-2015 period (Rhoda, et al. 2018:S9).

Rhoda et al (2018:S9) further state that the national DHIS programme showed that mortality rates remained the same at 11-12 per 1000 live births between 2012 and 2015. In 2016 the mortality rate was 12.6 per 1000 live births and most of the deaths occurred in the first week of life. PPIP data show that the causes of neonatal deaths for the period of 2016 included complications of prematurity, intrapartum-related events, such as ontraparturm hypoxia, and infections. Premature deaths are related to low birth weight and extreme organ immaturity (Rhoda et al. 2018:S10). Figure 4.6 shows the neonatal mortality rate of the identified district hospital. Of the 229 neonates studied, 221 (96.51%) neonates were discharged alive and 8 (3.49%) neonates died in the selected sample.

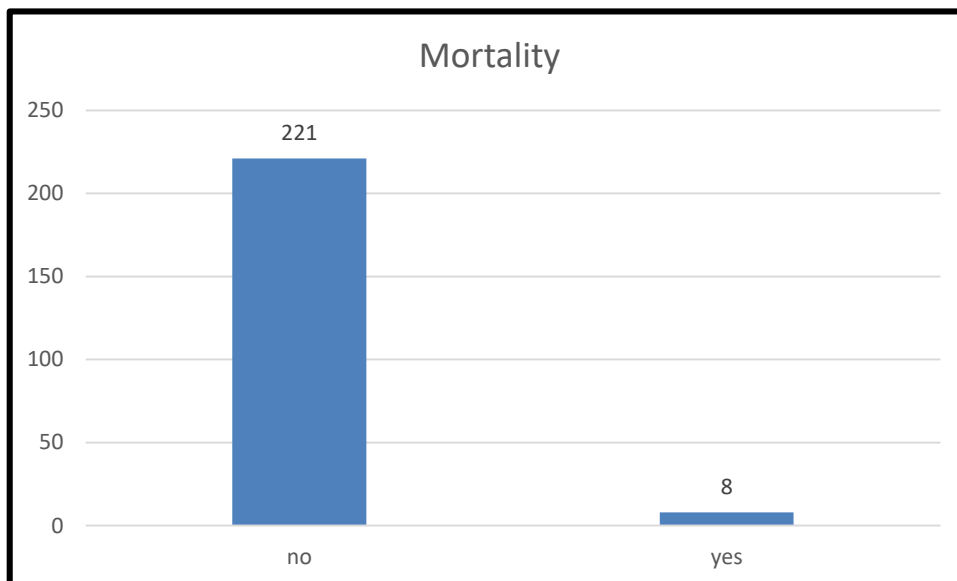


FIGURE 4.6: Neonatal mortality

Figure 4.7 illustrates the mortality by gender of the studied population, which indicate that 96.15% of the girls were discharged alive while 8.85% of the girls died. Figure 4.7 also shows that 96.8% of the boys were discharged alive, while 8.2% of the boys died.

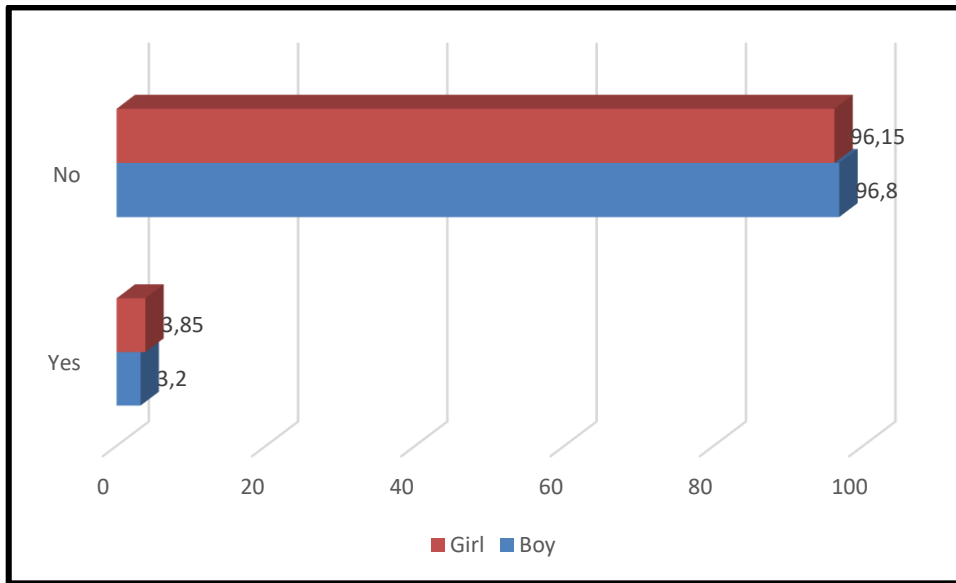


FIGURE 4.7: Neonatal mortality by gender

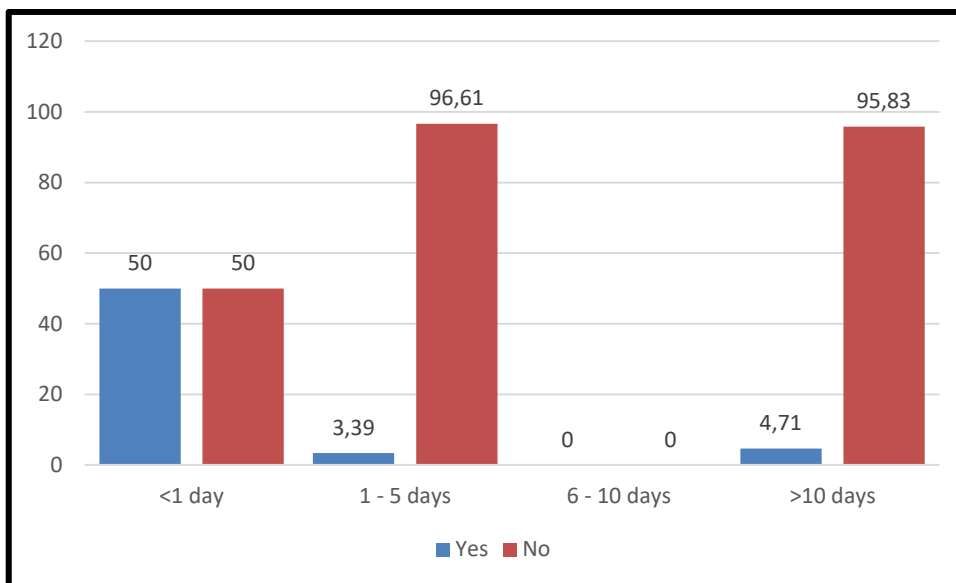


FIGURE 4.8: Mortality by the length of stay

Figure 4.8 reflects the mortality by the length of stay of the neonates studied in the identified hospital. An equal number (50%) of neonates that were discharged alive and that died, was in the hospital for less than 1 day. Of the neonates that stayed for 1-5 days in the hospital, only 3.39% died, and 96.61% were discharged alive. Figure 4.8 further shows that 4.71% of those neonates who died, and 95.83% of neonates who were discharged alive, stayed in the hospital for more than 10 days.

Table 4.4 shows that 8 neonates died in the studied population. Two neonates died of birth asphyxia and respiratory distress syndrome. One neonate each died of herbal intoxication, low birth weight, meconium aspiration and neonatal sepsis, respectively. Batieha, Khader, Berdzuli, Chua-Oon, Bardan, Al-Sheyab and Basha (2016:1064) support that the leading cause of neonatal death was respiratory syndrome (53.3%), sepsis (16.2%), asphyxia (10%) and congenital abnormalities (13.8%). Batieha, et al. (2016:1065) further indicate that the frequent causes of deaths among neonates were prematurity and pulmonary haemorrhage while neonates of teenagers had a greater risk of dying. According to the World Health Organization (2013), the three major causes of neonatal deaths worldwide are related to infections (36%) including sepsis, pneumonia and diarrhoea. Other causes of neonatal death are preterm (28%) births as well as birth asphyxia (23%). This discussion describes the overall trend of the mortality of the neonatal unit and +not the detail of the individual neonatal deaths. However Family-integrated neonatal care is associated with reduced neonatal mortality rates as indicated by O'Brien et al 2013: expected to reduce the neonatal mortality rate in the district hospital.

TABLE 4.4: Mortality by health-related problem

Health-related problem	Frequency
Birth asphyxia	2
Herbal intoxication	1
Low birth weight	1
Meconium aspiration	1
Respiratory distress	2
Neonatal sepsis	1
Total	8

4.3 FINDINGS OF SUB-OBJECTIVE 2: HEALTHCARE PROVIDERS' EXPERIENCES OF THE CARE THEY PROVIDE IN THE NEONATAL UNIT

The second sub-objective in the first cycle was to obtain baseline data regarding the current care that the healthcare providers offer in the neonatal unit. In the first step (plan), the researcher planned how to obtain baseline data regarding the care that health providers provided in the neonatal unit. The healthcare providers were invited to participate through morning meetings. Information was given to healthcare providers who showed interest in the study during a specific meeting that was held to share information regarding family-integrated neonatal care. Participants were given information leaflets which provided more information and clarity about the study and they were invited to attend focus groups. In the second step (act), two focus groups were held, as explained in Chapter 3. The third step of Cycle I (observe) was to analyse data using Tesch's approach, as described in Chapter 3. The fourth step (reflect) was used to reflect on the data with the steering committee. The findings will be presented in the following section regarding the participants' demographic data and the themes, categories and subcategories of the healthcare providers' experiences of the current care they provide in the unit.

4.3.1 Demographic data of participants

The researcher obtained the participants' demographic data before collecting data on their perceptions regarding family-integrated neonatal care. The demographic data includes age, gender, highest level of education as well years of experience in nursing as summarised in Table 4.5.

TABLE 4.5: Demographic data of the participants

DEMOGRAPHIC DATA	NUMBER	PERCENTAGE
AGE		
20-25yrs	3	33%
26-30yrs	1	11%
31-35yrs	1	11%
36-40yrs	2	22%
41-49yrs	0	0%
50-55yrs	1	11%
56-60yrs	1	11%
GENDER		
Female	9	100%



DEMOGRAPHIC DATA	NUMBER	PERCENTAGE
Male	0	0
HIGHEST LEVEL OF EDUCATION		
Auxiliary Nursing	3	33.3%
Enrolled Nursing	2	22.2%
Diploma in general nursing	3	33.3%
Diploma in Midwifery	1	11.1%
YEARS OF EXPERIENCE IN NURSING		
1-5yrs	5	55.6%
6-10yrs	2	22.2%
11-15yrs	1	11%
16-20yrs	1	11%

4.3.1.1 Age

There were 9 participants in this cycle. Three (33%) participants were within the age group of 20-25, 2 (22%) were between 36-40 years, while 1 (11%) participant each was within the age group of 26-30, 31-35, 50-55 and 56-60 years, respectively. It was assumed that more mature healthcare providers might provide better quality family-integrated neonatal care.

4.3.1.2 Gender

It is shown in Table 4.5 that all 9 (100%) participants of Cycle I was female.

4.3.1.3 Highest level of education

The results of Cycle I showed that there were 3 (33.3%) participants with a certificate in auxiliary nursing, 2 (22.2%) had a certificate in enrolled nursing, 3 (33.3%) participants had a diploma in general nursing, and 1 (11.1%) participant had a diploma in general nursing and midwifery. During the implementation of family-integrated neonatal care, all categories of healthcare providers are required to teach and supervise mothers during the provision of neonatal care.

4.3.1.4 Years of experience in nursing

Cycle I results showed that most participants (5; 55.6%) had 1-5 years' experience in nursing. Two (22.2%) participants had 6-10 years' experience while 1 (11%) participant each had 11-15 years and 26-20 years' experience, respectively. It was assumed that healthcare providers with more experience might have more knowledge of neonatal care during the provision of family-integrated neonatal care.

4.3.2 Themes, categories and subcategories of healthcare providers' experiences of the current care they provide in the neonatal unit

As indicated, the second sub-objective was to obtain baseline data on the experiences of healthcare providers regarding the care they provide to families in the neonatal unit. Focus groups were held with the healthcare providers to obtain data, which were analysed and Table 4.6 summarises the themes, categories and subcategories that emerged, with an explanation that follows thereafter. The following questions were asked in the focus groups

- Can you tell me your experience regarding the care that you give to neonates in the ward?
- What do you think about the involvement of the mother in the care of the neonate?

TABLE 4.6: Themes, categories and subcategories of healthcare providers' experiences on current care of neonates

THEME	CATEGORIES	SUBCATEGORIES
4.3.2.1 Challenges encountered with mothers and neonates during neonatal care	a) HIV-positive mothers	Unwillingness of the HIV-positive mother to breastfeed. Failure of HIV-positive mothers to disclose their HIV status
	b) Reactions of mothers towards neonatal care	Emotional reactions of the mother towards neonatal care Failure of the mother to sustain KMC after discharge
	c) Experiences of healthcare providers related to the neonates	Apnoea of premature neonates Incorrect Apgar scoring of neonates Medical errors on prescriptions for neonates



THEME	CATEGORIES	SUBCATEGORIES
4.3.2.2 Equipment and resources	a) Utilisation of equipment	Lack of proper maintenance of equipment Shortage of equipment
	b) Inadequate provision of material and human resources	Shortage of staff Shortage of material resources Unconducive working environment Lack of restrooms in the unit
4.3.2.3 Roles of family in neonatal care	a) Family involvement in neonatal care	Lack of family involvement in neonatal care Benefits of family involvement in neonatal care

4.3.2.1 Theme 1: Challenges encountered with mothers and neonates during neonatal care

The healthcare providers encountered some challenges during the provision of neonatal care in the unit of the identified hospital. The challenges are discussed in relation to HIV-positive mothers, reactions of the mother towards neonatal care as well as experiences of healthcare providers related to the neonates.

a) HIV-positive mothers

The healthcare providers raised some experiences that they encountered with regard to HIV-positive mothers during the provision of neonatal care in the unit of the identified hospital. These experiences were related to the HIV-positive mothers being unwilling to breastfeed or disclose their HIV status to their families.

- **Unwillingness of the HIV-positive mothers to breastfeed**

The World Health Organization (2011) recommends all babies should be breastfed exclusively from birth to 6 months. Solid foods should be introduced at 6 months and breastfeeding should continue until the baby is 2 years old. Provision has been made for mothers who are HIV-positive; they are provided with antiretroviral (ARV) drugs regardless of their CD4 count in order to prevent

mother-to-child transmission (MTCT) of the virus (Marinda, Chibwe, Tambo, Lulanga & Khayeka-Wandabwa 2017:2). It has been proven that exclusive breastfeeding and prescribed antiretroviral drugs (ARVs) for 6 months reduce the risk of postpartum transmission of HIV from the mother to the baby. However, nonexclusive breastfeeding doubled the risk of vertical transmission of the virus from the mother (Hazemba, Ncama & Sithole, 2016:2).

Despite the availability of drugs to prevent MTCT, the healthcare providers mentioned the challenge of mothers who are HIV positive and unwilling to breastfeed their neonates. Participants said:

“We have challenges with the mothers (taking a deep sigh) who are HIV positive with the babies that are exposed they don’t want to breastfeed their babies that is our challenge in this unit. So what we are looking forward to is for the mothers to breast feed so to understand what is to breast feed”. (Participant 5)

The reasons stated by mothers were that they were not going to stay with the neonate on a fulltime basis as they were either going to school or to work. However, healthcare providers thought that those were not the real reasons why they did not want to breastfeed their neonates. The healthcare providers were of the opinion that mothers thought the neonates would die if they were breastfed. This was shown as follows:

“Others I think... yes they do but me with my experience is not because they are going to work because they say they are going to work, the baby is not going to stay with me you see. they will say they don’t want to breast feed because their babies will die”. (Participant 5)

The healthcare providers felt the counselling offered to the mothers were inadequate because if it was done correctly the mothers would breastfeed their neonates. This was demonstrated as follows:

“My experience is that the counselling was not enough but if you give the counselling enough good they will breastfeed their kids and their babies. Is it not that because they will be getting nevarapine and only exclusive breastmilk and not mixing but if not the information was not enough will say they don’t want to breast feed”. (Participant 5)

These views were supported by Hazemba, et al. (2016:4) who also found that mothers who were HIV positive indicated that they were not assisted in making a decision on how to feed their babies after birth. The mothers thus ended up doubting that taking ARVs and exclusive breastfeeding could reduce the possibility of MTCT of the virus. They thought that the baby could still easily get infected.

Breastfeeding is an important component of family-integrated neonatal care. Implementation of family-integrated neonatal care might encourage mothers to provide exclusive breastfeeding even in the presence of maternal HIV.

- **Failure of HIV-positive mothers to disclose their status**

HIV-positive women need to disclose their HIV status to their partners and family. If the mother could disclose her HIV status, there is an increased chance of her being supported in the prevention of mother-to-child transmission (PMTCT) interventions. Disclosure increases the chances of the uptake of ARVs for both the mother and the baby (Nyadat & van Rensburg, 2017:2).

In this study, it was found that there were some HIV-positive mothers who did not disclose their HIV status to their family members whom they are living with or who were helping them with the neonate. This was indicated as follows:

“I don’t know how to say it but it is a challenge, the mothers do not tell their parents or partners.” [meaning their HIV status] (Participant 5)

Nyadat and Van Rensburg (2017:6) found that HIV-positive mothers did not disclose their HIV status due to fear of abandonment, the accusation of infidelity, discrimination, violence and loss of spousal financial support. Madiba (2017:110) also found that women did not disclose their status to family members and partners due to fear of social rejection and discrimination.

Failure of the mothers to disclose their HIV status posed a problem in terms of HIV-exposed neonates defaulting treatment after completing the initial dose that was given at the hospital. Neonates default treatment if the mother is assisted by family members in taking care of the neonate while she is away for school or work; the mothers fail to inform the family that the neonate

is taking nevarapine and about the need for the neonate to continue with the treatment. The family thus stop giving the treatment when it is finished as they do not know what the medication is for nor the importance thereof. This might result in the neonates becoming HIV-positive due to a lack of compliance with treatment. This was indicated as follows:

“They discharge her with the NVP then she going to school or she is going to work, when that nevarapine is finished they don’t tell to go to the hospital or to clinic to collect another nevarapine for the baby.” (Participant 5)

“They just give and they don’t know what it is that and after it is finished the baby is no more getting it and it is a challenge and the babies end up being HIV.” [meaning testing positive for HIV] (Participant 5)

According to Nyadat and Van Rensburg (2017:6), infants born from HIV-positive mothers were likely to become HIV positive if their mothers failed to disclose their HIV status. Sibanda, Weller, Hakim and Cowan (2013:2794) report that factors that affect the uptake of PMTCT services in terms of loss of follow up of infants are fear of voluntary disclosure of the HIV status, fear of stigma, and disbelief of the mothers’ HIV-positive results. Family-integrated neonatal care might encourage HIV-positive mothers to disclose their HIV status to their partners and family members. Disclosure of the HIV status will prevent transmission of HIV to neonates and therefore health-related problems that might lead to the readmission of the neonates will be prevented. Family-integrated neonatal care might also prevent stigmatisation of HIV-positive mothers. However, confidentiality will be maintained with mothers who still do not want to disclose their HIV status to their partners and family members.

b) Reactions of mothers towards neonatal care

• Emotional reactions of the mother towards neonatal care

Mothers of neonates admitted to the neonatal unit experience some emotional problems when their neonates are admitted to the unit. Parents experience a rollercoaster of emotions and cannot remember the aspects of the birth of the baby. Some are nervous and fearful while others are excited about seeing the baby for the first time. The NICU is overpowering for them and they cannot trust themselves around the equipment of the NICU (Russell, et al. 2014:3).

The findings of this study indicate that some mothers of premature neonates were afraid of touching them and were unable to put the neonate to their breast. These fears were related to the size of the neonates as they were very small, and they were afraid that the neonate would fall. This was observed as follows:

“They are afraid of the baby, sometimes they don’t want to touch the baby. they don’t know how to put the baby on the breast. The baby is too small she is afraid that the baby will fall.” (Participant 3)

Participant 3 also added that:

“Sometimes they don’t know how to latch the baby on the breast. The baby is too small to handle. sometimes you find that they don’t even know how to change the nappy. they are also afraid of the baby. They don’t want to touch the baby like you see...”

“They don’t know how to change the nappy even to feel or to touch the baby.” (Participant 4)

“Most of them [meaning mothers] are primigravidas they don’t anything about the care of umbilical cord, feeding of baby and we giving them support.” (Participant 2)

Hutchinson, et al. (2012:9), Obeidat, et al. (2009: 24) and Carter, Mulder, Bartram and Darlow (2005:f109) supported that premature birth interfered with normal parenthood as parents were not psychologically, physically and emotionally prepared for the premature neonate. This resulted in shock, fear, hysteria, emptiness, and spiritual change that the neonate would not survive. Furthermore, parents of neonates admitted to the neonatal unit experienced high levels of stress, depression, anxiety and had psychological reactions like crying, restlessness, physical discomfort and mental instability (Hutchinson, et al. 2012:9; Obeidat, et al. 2009: 24; Carter, et al. 2005:f109).

Steyn, Poggenpoel and Myburgh (2017:4) found that parents experienced and expressed strong emotions while their neonates were admitted to the NICU. Parents of preterm babies are not ready, and they are traumatised as the neonate is vulnerable, fragile and attached to technology in the NICU. Mothers had feelings of guilt, fear, envy, anger, frustration and sadness.

Furthermore, the healthcare providers added that mothers who did not get support from home in the form of visits from family members were distressed and were easily identifiable in the ward. These mothers were said to show emotions like crying, being quiet, moody and sad most of the time. The mothers also did not socialise with other mothers in the ward. Participants explained:

“Where sometimes the mother does not get support from home...in the form of home...she become very difficult. You can identify her that she has got a problem. You find that she is so quiet, she cries, she does not socialize with others or she is so moody or the mother was crying.” (Participant 3)

“The family does not come, social problem... [due to the husband’s poor...socioeconomic status] eeeh is just like that.” [Interrupted] (Participant 4)

Steyn et al. (2017:4) highlighted the importance of having a spouse to support the mother during the neonate’s admission to the NICU. Parents of babies in the NICU expressed the need for care, help and support from other family members. Implementation of family-integrated neonatal care is expected to provide mothers with the required support to be able to deal with the stressors of the neonatal unit.

- **Failure of the mother to sustain KMC after discharge**

KMC is a method of care for premature neonates. The neonate is placed in an upright position against the mother’s chest with early skin-to-skin contact between the mother and the infant. In this method of neonatal care, warmth, the prevention of infection, stimulation, safety and easy access to breastfeeding is provided to the neonate (Solomons & Rosant, 2012:33; Subedi, et al. 2009:6; Shrivastava, et al. 2013:341).

The mothers are taught how to provide KMC and are expected to continue with the care at home after discharge. It is important to involve the other members of the family in the care of the neonate as they would assist the mother in the care after discharge. It was found in this study that on arrival at home after discharge some mothers of premature neonates do not continue with KMC as they are taught at the hospital. The mothers also did not follow the advice given to them on discharge and the neonates deteriorate. This was said as follows:



“It helps a lot because when mothers are going home. Even though is difficult for the mothers, we told them everything but she does not want to... She does not care she does not want to do whatever she is told. At least if there is someone from home comes and we explain everything to her so that he can do everything at home even if the mother does not want to because we see them they don’t some of them they don’t care. so is a problem when they go home because sometimes the baby end up demising.” (Participant 3)

Another participant said:

“Sometimes you find that she has got maybe 3 babies neh. This three was not a premature so they told themselves that they once had a baby mos so why are they told telling me to do this. I was doing this for this two why can I, can’t have a problem with this one because I have done this before. So that is just ignorance so there we have a problem.” (Participant 3)

“It becomes a problem when the mother goes home, she does not have anyone to help and she ends up putting the baby on the bed and continuing with work at home.” (Participant 3)

According to Nabiwemba, Atuyambe, Criel, Kolsteren and Orach (2014:546), mothers who delivered at the hospital had knowledge about caring for the preterm neonates at home, although at times they failed to continue with care at home either because the instructions were not clear or they faced other challenges at home. Inappropriate home care practices, which included giving pre-lacteal feeds, bathing, exposure to cold and poor hygiene still existed in some mothers. Nabiwemba, et al. (2014:547) further stated that the challenges faced by the mothers at home were related to feeding and keeping the preterm baby warm. The mothers wanted to comply with the health education given to them on discharge, but they just could not. Family-integrated neonatal care might equip the mothers with the necessary skills of providing KMC and thereby assist them with continuing KMC at home.

c) Experiences of healthcare providers related to the neonates

The healthcare providers indicated that they were providing neonatal care to a lot of preterm neonates in the ward who often have respiratory syndrome, which is related to the fact that they

are premature. Challenges were encountered with labour ward staff in relation to Apgar scoring of neonates and medication prescription errors.

- **Apnoea of premature neonates**

Premature neonates experience respiratory problems like apnoea because their respiratory system is immature. According to Zhao and Gonzalez (2011:1097), preterm neonates experience problems of respiratory control like apnoea caused by immaturity of the pulmonary reflexes and breathing responses to hypoxia and hypercapnia. The lower category of healthcare providers raised a feeling of fear with their first counter in the neonatal unit. Their fear was due to the fact that the premature neonates forget to breathe. This was indicated as follows:

“At the beginning, [I had] fear to touch the premature but now I was happy to work with because now I know they usually [have apneic episodes] and forget to breathe. I am happy to work with [the neonates] nowadays but at the beginning I feared to work with. You must check the continuously how the baby is breathing, the colour of the baby, you must know to check that the baby is breathing well or the colour is still... anything abnormal or normal you must check.” (Participant 1)

Another healthcare provider indicated that they were providing care to a lot of premature babies who experienced problems related to prematurity which included apnoeic attacks and failure to survive due to lung immaturity problems.

“My experience in this unit we are having a lot of babies who are preterms who are less than 20 weeks, 30weeks, some if the weight is more than 850g some they survive, some they don’t survive, from the experience these babies have apneic attacks, and sometimes the mothers do not know what to do but we tell them that the preterms because their lungs are not matured they will have these apneic attacks. We encourage and educate them to tell us the...anything the abnormalities they see on the baby.” (Participant 5)

Nabiwemba, et al. (2014:546) stated that preterm neonates are at high risk of death during the neonatal period as they are prone to hypothermia, birth asphyxia, hypoglycaemia, and respiratory difficulties. Family-integrated neonatal care is expected to provide mothers with knowledge of caring for their preterm neonates.

- **Incorrect Apgar scoring of neonates**

Apgar scoring was devised by Dr Virginia Apgar in 1952 as a scoring system that was used to assess the clinical status of the newborn infant in the 1st minute after birth. The Apgar scoring system gives a standardised assessment of neonates at birth. Apgar scoring constitutes five components, namely colour, heart rate, reflexes, muscle tone and respiration, each of which is given a score of 2 under normal circumstances. The Apgar score quantitated clinical signs of neonatal depression such as pallor, cyanosis, bradycardia, response to stimuli, hypotonia, apnoea or gasping respirations. It is recorded at 1 minute and 5 minutes after the birth of a neonate (Committee Opinion, 2015:2).

The healthcare providers in this study raised the challenge with midwives who brought neonates to the unit who seemed to have been scored incorrectly on the Apgar scale. It was said that most of the time the condition of the neonate did not correlate with their Apgar score. The neonate would have a normal Apgar but when the neonate was assessed, the infant looked very ill. It was noted that the neonate would at times be brought to the neonatal unit with complications of birth asphyxia like seizures. However, the midwives would deny that the neonate was having seizures but describe the jerky movements as jittery movements. The healthcare providers preferred that the neonates would rather be stabilised in the labour ward before being brought to the neonatal unit for admission. This was indicated as follows:

“The babies come here they say the baby the Apgar is 8/10 or 9/10 to 10/10 what what, but when you look at the baby the baby does not seem like 10/10. The baby is not crying well the baby is not active the baby you see cannot even suck, no sucking reflexes the baby is weak you see, and then and they say the Apgar is 10/10.” (Participant 5)

Another healthcare provider added that:

“My experience sometimes they brought a baby here and the baby changes condition and immediately have some signs of seizures and if you tell the labour nurse that this changed has some seizures she says no it is not some seizures maybe is jitters whereas you could see the baby clenching his fists and the arms are so tight or they brought the baby here being cyanosed central cyanosed saying hah immediately when we get inside here the baby changed condition.” (Participant 6)

Glass (2018:58) confirmed that the signs of encephalopathy caused by intrapartum events leading to perinatal hypoxia-ischaemia are irritability, decreased responsiveness, seizures, hypotonia, apnoea and abnormal crying.

Meconium aspiration syndrome is defined as respiratory distress that occurs as a result of antepartum or postpartum aspiration of meconium-stained amniotic fluid in a preterm or post-term neonate resulting in respiratory morbidity. The problem with meconium aspiration is that meconium obstructs the airway of the neonate causing atelectasis; it is an inactivate surfactant and also causes activation recognition of innate immunity, toll-like receptors and complement system leading to lung dysfunction, systemic inflammatory response, pulmonary hypertension of the newborn and infection (Goel & Nangia, 2017:7).

The labour midwives were also accused of being afraid of telling the healthcare team what happened in the birthing process of the neonate. This was observed when they would bring a neonate who had signs of meconium staining with “respiratory distress” as the diagnosis; mentioning nothing about the meconium staining. A healthcare provider said:

“Sometimes the baby [had] meconium aspiration, we have experience in here, the skin neh the topical you find that is green with stain and even the umbilical is green but they are telling you is only respiratory distress, the baby vomits only green stuff I am asking myself as I am not a midwife but what I see from my experience this umbilical this color of this baby haai. no this is a meconium aspiration, so it is giving us a challenge” (Participant 6)

According to Goel and Nangia (2017:21), the clinical signs of a neonate with meconium aspiration include peeling of the skin, long fingernails, weight loss, and decreased vernix. They further stated that the vernix, nails and skin become meconium-stained and neonates would also present with neurologic and or respiratory depression at birth due to hypoxia. Neonates might be scored properly during family-integrated neonatal care.

- **Medical errors on prescriptions for neonates**

Medication error is defined as a failure in the treatment process that could lead to or has the potential to harm the patient (Aronson, 2009:102). Antonucci and Porcella (2014:38) stated that medical errors can be made by all members of the healthcare team during the care process.

Medical errors could lead to temporary or permanent patient disability and the neonate could die. The institution could gain a bad image as a result. Medical errors can occur during prescribing, transcribing, dispensing, administering or monitoring.

The results of this study showed that doctors in labour wards prescribe the wrong doses of medication to neonates. They use doses for paediatric babies, and if the dosing is not checked properly it would result in serious medical errors were neonates receive high doses of medication. Medical errors could have serious effects for the neonates, thus leading to litigation due to complications that could arise from the administration of incorrect doses of medication. Healthcare providers had to intervene to ensure that neonates got the correct dose of medication. This was indicated as follows:

“Even the treatment that the doctors prescribe if you can’t check it properly you can give the wrong dose because you have to check some of them do not know how to calculate”
(Participant 6)

(Another HCP interrupted) *“They are not sure they just check from their phone they don’t know that the neonates are not getting the same as the babies and the paedics ones. They give according to the pink or purple book, so we as nurses we know how much the babies get so if the doctor has written you verify.”* (Participant 5)

According to Antonucci and Porcella (2014:39), calculation errors were most frequently occurring in prescription errors. These errors included miscalculation, incorrect expression of a measurement unit and wrong rates. Nurses intervene at the end of the pharmaco-therapy process, preparing and administering drugs, and have an opportunity to detect errors made by doctors before the medication reach the patient. Truter, Schellack and Meyer (2017:8) added that the most prevalent type of medical errors that occur are related to incorrect dosing, not recording the time medication is administered, and medication given at the wrong time. Implementation of family-integrated care is expected to reduce medical errors in the neonatal unit of the district hospital.

4.3.2.2 Theme 2: Equipment and resources

The theme on equipment and resources discusses the utilisation of equipment and the provision of resources in the unit of the identified district hospital.

a) Utilisation of equipment

Utilisation of equipment is discussed in relation to poor maintenance and shortage of equipment in the unit of the identified district hospital.

- **Lack of proper maintenance of equipment**

Medical equipment needs to be functioning properly in order to provide quality neonatal care. A good maintenance plan should be in place to ensure that the equipment is functioning properly (Department of Health,2017:34). The study revealed that there was poor maintenance of equipment in this district hospital as participants experienced a challenge with equipment which was not functioning properly. This poor maintenance of equipment made it difficult for healthcare providers to check the neonates' observations during the provision of neonatal care in the ward. The pulse oximeters were a problem as they were not showing readings unless one pressed the screen to show readings. The consumables of the pulse oximeters were another problem. This was indicated as follows:

"We don't have the sats [saturation] monitors. The probes now we have to monitor this baby the vital observations three hourly,' Now this machines are old I think they have to buy us new machines because they don't even light we have to go there and press so that you can see the reading there." (Participant 5)

The intravenous fluid infusion pumps also had a problem because they only alerted the healthcare workers of the occlusion of air. They did not alarm when the drip had stopped running or when the neonate's site of drip insertion was swollen, as they were too old. This was indicated as follows:

"Even the infusion pumps are no longer working properly, I found this infusion pumps since I started working here in 2006 they never bought the new infusion pumps are this infusion pumps. Now it can tell you if there is air or occlusion only, it will alarm but if it has stopped or infiltrated there the baby's hand is swollen it won't tell you anything because they are not working properly, they are not functioning well." (Participant 5)

According to the healthcare providers, the incubators were also malfunctioning as they were giving wrong incubator temperatures; also because they were too old. This led to the incubators causing problems of hyperthermia and hypothermia which may lead to serious medico-legal hazards and litigation to the institution because neonates might burn in the incubator. This was indicated by a participant who said that:

“Even the incubators this ones (pointing at the incubators) they brought them from ward 20 because we left ward 20 there then they brought the incubators and they are no more working now the other one last time I remember last year it alarmed and the baby was inside and if the baby is here neh...after that side we admit the baby in the incubator the temperature chart for a new born baby for a fullterm is supposed to be maybe around 30.5 degrees celcius for a fullterm but now is 36 and if you don't know you will write 30....more than that. and the baby is a newborn and the baby dies they will take the vitals observations and check. The baby was a fullterm the temperature was supposed to be 32.5 and it was on 36 that time is long time ago you no longer know what was happening which incubator you were using do you see that you will get arrested but if you know the temperature for newborn to 5 days you know the temperature this is what you are going to write because you know the right one for this baby for the age and the weight.”
(Participant 5)

Matlakala, Bezuidenhout and Botha (2014:4) acknowledged that poor quality equipment was a serious challenge. It was either that the equipment was too old or not functioning which negatively affected the quality of care provided in the units. Functional and well-maintained equipment is required to monitor the wellbeing of the neonate during the implementation of family-integrated neonatal care. However, family-integrated neonatal care might still be successfully implemented even though the equipment is not functioning properly.

- **Shortage of equipment**

Shortage of equipment due to unavailability or non-functioning is a problem as it interferes with the provision of quality health services in institutions and this puts the life of patients at risk (Moyimane, Matlala & Kekana, 2017). The results of this study indicated that the unit did not have an open servo incubator where they could resuscitate the neonates when they changed condition. When asked what they used during resuscitation one participant indicated that they used a

resuscitation area, one pointed at the over bed table that was in front of the closed incubators, and another indicated that they were using the closed incubators. This showed that there were disagreements on the use of resuscitation practices in the neonatal unit of the district hospital. This made resuscitation difficult in all cases. Resuscitation on the over bed table might have led to serious problems; the neonate could fall from the table or might have hypothermia due to the mechanisms of heat loss. This was indicated as follows:

“If the baby changes condition right now we don’t have a servo where we can resuscitate this baby. We had one and is no longer working.” (Participant 6)

“We use this” (banging at an over bed table that they were resting their arms during the interview) (Participant 7)

(Responding at the same time) *“NO we resuscitate inside the incubator [closed incubator] and is impossible”. (Participant 5 & 6)*

The healthcare providers also indicated a shortage of pulse oximeters. There were only two pulse oximeters which were used for all the neonates in the neonatal unit. Available pulse oximeters were not well maintained thus they were not functioning well. This was said as follows:

“We don’t have the sats monitor. The probes now we have to monitor this baby the vital observations three hourly but the machines is only two and we have three part that side high care, ICU and KMC it gives us a challenge.” (Participant 5)

According to Matlakala, et al. (2014:4) the unavailability and shortage of equipment were a problem in the neonatal units. Moyimane, et al. (2017:1) indicated that nurses were dissatisfied about shortages of basic equipment for diagnosis, resuscitation and monitoring in their wards. Equipment needs to be available during implementation of family-integrated neonatal care to monitor the neonates. According to Aloysius, Platonos, Dejerland and Banerjee (2018:67) infants admitted to NICU are often sick or fragile and require medical support interventions. The neonates may be in incubators or attached breathing equipment and monitors. O'Brien et al (2013:3) indicate that infants that are included in family integrated care are infants on low level respiratory support which includes oxygen by nasal cannula, non-invasive ventilation such as CPAP as well as nasal intermittent positive pressure ventilation. Aloysius (2018:50) indicate that some infants

would still be having intravenous infusion and apnoeic monitors. Thus equipment such as pulse oximeters, apnoeic monitors, fluid administration machines, incubators and CPAP machines are required to provide neonatal care and monitor sick neonates in the neonatal unit. However, family-integrated neonatal care might still be a success despite the shortage of equipment.

b) Inadequate provision of structural, material and human resources

The inadequate provision of material and human resources in the unit is discussed in relation to the shortage of staff and material resources.

• Shortage of staff

South African public hospitals are faced with multiple problems such as drug shortage and lack of human resources. There is a severe shortage of all the categories of nurses in South Africa (Lala, Lala & Dangor, 2017:64).

Shortage of staff was raised as one of the challenges that the healthcare providers encounter during the provision of neonatal care in the neonatal unit. At times there would only be three healthcare providers to manage all the sub-units of the neonatal unit. This was shown as follows:

“Shortage of staff is a problem because I will never see all this babies with my eyes you see in front here maybe we are three and the hand of the baby is like or the foot is like this” [meaning swollen] (Participant 5)

However, the healthcare providers acknowledged that the presence of the mother in the unit might assist in the provision of quality neonatal care. When they are educated on neonatal care, the mothers can assist by observing the neonate and report any abnormalities that they see on the neonate. This was shown as follows:

“They [mothers] should tell us the...anything, the abnormalities they see on the baby they should tell us. The mothers they do because we educate them most of the time because there is no staff. So if we tell them we teach them we educate them at least they can help us what to do if we are busy and they don't know what to do or we are not around then the mothers they tell us something is happening come and we come and help them.” (Participant 5)

According to Islam, Rahman Halim, Eriksson, Rahman and Dalal (2015:240), shortage of staff was a barrier to quality neonatal care in the hospital and the staff were unhappy about it, to the extent that they exceeded their capabilities to provide care to the neonates. Staff are expected to teach and monitor mothers during the implementation of family-integrated neonatal care, but thereafter fewer healthcare providers will be needed to teach and supervise mothers during the provision of care.

- **Shortage of material resources**

Material resources should be supplied continuously to ensure the smooth running of the ward. It is a norm that the district hospital supplied the mothers with nappies and other material resources during admission of their neonates in the neonatal unit. When the supply is finished, the mothers blame the healthcare providers when they are asked to bring their own supplies.

The healthcare providers raised the issue of a shortage of material resources which negatively affected the relationship between the healthcare providers and the families of the neonates. A participant explained:

“As we used to have nappies, tissues here sometimes you find that we don’t. It becomes a problem to the mothers because they ask where the nappies are. If you tell the mothers that you must buy your own nappies neh...some mothers tell their families at home that here at the hospital they tell us to buy the nappies what, what...some families are angry why. They come to ask for the sister who said they must buy and they say I want the nurse told my child this and that.” (Participant 6)

Laundry services at this district hospital have been outsourced; linen is taken elsewhere to be washed and is then brought back to the institution. The outsourcing of laundry services is causing a shortage of linen in the neonatal unit of the district hospital. The healthcare providers indicated that they were running short of baby carriers and baby blankets, which negatively affected the care of neonates in the neonatal unit. The baby blankets are used to cover the neonates when they are taken out of the incubators for procedures like breastfeeding. Baby carriers were used by mothers who provide KMC. They were used to put the neonates inside for support so that they do not fall off the mothers’ abdomen during skin-to-skin contact. Shortage of baby carriers in the ward would pose a problem in the safety of the neonates, in the event that they fall from the

mother's abdomen. This would be a serious medico-legal hazard resulting in litigation to the institution. This was raised as follows:

"The baby blankets and the baby carriers we are running short of them". (Participant 4)

Shortage of such essentials posed a problem for the neonates in terms of being at risk of hypothermia which might lead to other complications.

The neonatal unit where the healthcare providers worked was also seen as uncondusive and lacked space where the healthcare providers could have their tea and lunch breaks.

- **Uncondusive working environment**

The neonatal unit of the identified district hospital was described by the healthcare providers as being uncondusive to work in as it became too congested at times. The congestion made movement difficult in the unit. One healthcare provider indicated that:

"The environment I not condusive to these babies it is very small, if they are many it will be congested and there will be no movement here" (showing with her hands). (Participant 6)

The working environment is of great importance in any institution. Employees were still faced with problems in their working environment. Environment means surroundings and those that impact human beings during their lifetime. It means systems processes, structures and tools that the employee interacts with while working (Awan & Tahir 2015:329). A condusive working environment plays a big role in productivity in any given organisation. The neonatal unit needs to offer enough space to accommodate the mother and the family during the implementation of family-integrated neonatal care. Material resources are also required so that they can be used during the implementation of family-integrated neonatal care.

- **Lack of restrooms in the unit**

There were no restrooms where staff could take their tea or lunch, and where they could freshen up during their break times. However, their supervisors complained when they sat in the unit; they needed to rest but they did not have a place to do so in the unit. A healthcare provider mentioned:



“We are looking for a rest room so we can rest because now always you are calling us to come and do the overtimes we are tired like myself I am just working three seven then I break because I want to rest, there is no rest room here where I can say let me go and rest for one hour sleep or do something then you are tired about seven days. Then after that you come from the office you come this side you find us sitting like this, they are sited most of the time because we are tired and we do not have rest rooms so we must have rest rooms where we can rest during lunch where we can have our tea relaxed then come back to work fresh because now it is stressing us.” (Participant 5)

The hospital should ensure healthcare providers have facilities where they can take their tea and lunch breaks.

4.3.2.3 Theme 3: Roles of the family in neonatal care

The theme on the role of the family in neonatal care discusses the importance of including the family of the mother and neonate in neonatal care.

a) Family involvement in neonatal care

According to Gooding, et al. (2011:20), it is important for nurses to provide care to the neonate and the family as a whole. Family support activities are presented in order to assist the family in coping with the stress of admission of their neonate in the unit. These family members include mothers, fathers, siblings, grandparents and friends. Parental involvement can start with the father, siblings or any other member of the family while the mother is still recovering from the birthing process. Other members of the family are important as they contribute to the wellbeing of the mother and the sick neonate.

According to Feeley, Genest, Niela-Vilen, Charbonneau and Axelin (2016:2), when a neonate is admitted to the neonatal unit, parents require physical contact, holding and touching. Visitation, talking to and providing skin-to-skin contact leads to better outcomes for both the parents and the neonates. Implementation of family-integrated neonatal care is expected to provide parents with primary care skills to assist them in taking care for their neonate.

- **Lack of family involvement in neonatal care**

Parents and family members are important partners in the care of neonates. They should be included during admission in the neonatal unit. Many neonatal units still continue to have policies that prevent parents from having access to their neonates, which means that they fail to recognise parents as partners in the caregiving practice (Griffin, 2013:160).

The unit of the identified hospital lacked a policy on the roles of the family members of the neonate during visiting hours. This lack of policy resulted in confusion among the healthcare providers whether to include them or not. This was seen when the healthcare providers indicated that initially, the fathers were allowed to come and bond with the neonate and it was suddenly stopped. On the other hand, another healthcare provider was told by the professional nurse in the ward that she should not allow the father to touch the infant; he should just look at the neonate. She was informed when she was trying to assist a father of the neonate to do skin-to-skin contact with the neonate. This, according to one healthcare provider, posed a problem because the family members were the ones to assist the mother at home with KMC. If the family members were not allowed to practice in the hospital, the mothers would get tired at home and would just put the neonate on the bed. This was indicated as follows:

“The fathers were coming and kangarooing the babies and seeing them even the mother and the grandmother. Sometimes you find that the mother is in Polokwane and we have the baby here brought the grandmother so that she can come and kanga the baby but suddenly they stopped.” (Participant 1)

“Some are refusing, [I remember an incident with] the father of another baby. I told the father of the baby to kanga the baby neh. Some found me taking out the baby trying to show the father how to kanga the baby and they said no no the father is not supposed to touch the baby the father is supposed to look at the baby not touch.” (Participant 1)

Another healthcare provider added:

“Mothers were inviting the fathers to come and bond with the baby for an hour so but now...some fathers want but others do not want it all. Some they want some they fear to touch the little one, but it was just cancelled. We don’t know what went wrong with the practice. We don’t know.” (Participant 2)

Martinez and Hernandez (2014:168) supported that contradictions still exist among healthcare providers regarding the role of the father during hospitalisation of the neonate in the NICU. The mother was still considered to be the one present while the father was only to receive information despite the fact that he had the right to be included in the care of his infant.

Noergaard, Ammentorp, Fenger-Gron, Kofoed and Johannessen (2017:E16) found that some fathers were afraid to hurt their neonates as some were small and fragile, however the fathers wished that the healthcare providers would push them to take part in the neonatal care. Fathers who were given a chance to take care of their baby were proud and felt great pleasure about being involved in neonatal care.

Healthcare providers are frustrated because the practice of denying the fathers' involvement in care is in conflict with what they read from the available literature. This was shown as follows:

"It sad because when you read the KMC notes it involves the families." (Participant 1)

According to Opara and Okorie (2017:18), mothers can share the role of KMC with others, especially the baby's father and grandmother. These members of the family should therefore be encouraged to get involved as kangaroo care has been reported to strengthen bonding between parents and their neonates.

The lack of involvement of family members in neonatal care while still at the unit resulted in mothers abandoning the practice of kangaroo care because they are tired with no one to assist. This was shown as follows:

"It becomes a problem when the mother goes home she does not have anyone to help and she ends up putting the baby on the bed and continuing with work at home."
(Participant 1)

Opara and Okorie (2017:18) highlighted a lack of support from the family on kangaroo care and domestic chores as reasons for the mother terminating the practice at home. Family-integrated neonatal care is expected to include the other family members so that they are able to assist the mother with the care of the neonate in the neonatal unit and after discharge.

- **Benefits of family involvement in neonatal care**

When families are involved in the care of the neonate, they feel rewarded, have low stress levels and the relationship between the health care team and family is improved. Recognition of the family as being important in the recovery of the neonate is important; to the extent that their presence in the neonatal unit during admission benefit both the family and the neonate. This minimised stress factors and balanced the health-sickness process (Correa, Andrade, Manzo, Couto & Duarte, 2015:631).

Healthcare providers acknowledged that involving the family in the care of the neonate would assist in reducing their workload. The mothers would be assessing the neonate while they would be doing other work in the unit. According to the healthcare providers, the involvement would work best when the family is included in the care of the neonate on the first day that he/she is admitted to the neonatal unit. This was indicated as follows:

“The family of of the premature babies must be involved from day 1 maybe they will understand what this is The grandmothers when they come to visit them, indicate that they[have never had a low birth weight baby] the kangaroo babies are not everywhere. sometimes I never had a low birth weight baby since I was born so it is a surprise to me when you say my daughter has got a...so I have to learn this I am to help here when she goes home so I had to learn it here at the hospital.” (Participant 1)

Another healthcare provider added that:

“It will minimize the workload to me. It also helps saving time because I will just be recording the observations I will not going to check the baby i will ask the mother if the baby has past urine or stools. what is the temperature and the mother will ask which one sister the skin or incubator or air they can tell us they can read. It will save us time.” (Participant 5)

According to O'Brien, et al. (2013:5), the outcomes for healthcare providers in the family-integrated model were that the role of nurses had changed as they were doing less hands-on and more teaching. The relationship between parents and healthcare providers improved as nurses felt closer to parents.

It is therefore of great importance to include the family, especially the mother, in the care of the neonate. Inclusion of the family in neonatal care reduces the workload of the healthcare providers and provides the mothers with psychological support. Implementation of family-integrated care at the district hospital is expected to improve the relationship between the healthcare providers and the family of the neonate. Family-integrated neonatal care might also reduce the workload of healthcare providers.

4.4 RELATIONSHIP BETWEEN THE RESULTS

This section discusses the relationship that was observed during obtaining of baseline data of both the quantitative and qualitative data. Findings of the quantitative data during situational analysis showed that there was a need for implementation of family-integrated neonatal care. The reasons for admissions are reflected as obtained from the admission book of the unit. These reasons for admission of neonates to the neonatal unit included neonatal sepsis, herbal intoxication, failure to thrive, necrotising enterocolitis and poor feeding. Causes of death of neonates were herbal intoxication, low birth weight and neonatal sepsis. It was also observed from the quantitative data (Table 4.2b) that most neonates (49.34%) lost weight during their admission to the neonatal unit. The length of stay of some neonates in the unit was prolonged for 6 to 10 days; mostly among neonates who weighed less than 2500g (79.17%).

According to O'Brien, et al. (2013:4) and Galarza-Winton, et al. (2013:336), the outcomes of the family-integrated neonatal care model for the neonate are decrease retinopathy of prematurity, decrease necrotising enterocolitis and other nosocomial infections, reduced medication errors, reduced length of stay in hospital, increased weight gain, and reduced mortality and morbidity rates. There was also a reduction in the number of critical incident reports. Breastfeeding was also found to have improved on discharge with family-integrated care (O'Brien, et al. 2013:4; Galarza-Winton, et al. 2013:336).

Furthermore, qualitative data revealed that fathers of neonates are not included in the care of their own neonates. Mothers who practised KMC failed to sustain the practice at home due to lack of support from family members. The healthcare providers acknowledged that involvement in terms of the presence and education of the mother in the unit could assist them with assessing and providing care to the neonate. The hospital did not have policies on the role that the family

members play during visitation. However, the healthcare providers acknowledge that lack of support from family members pose a problem for mothers during admission of their sick and small neonates. The researcher therefore aimed to implement family-integrated neonatal care in the identified district hospital in order to involve mothers as primary caregivers and to include other members of the family for support. The implementation of family-integrated neonatal care in the unit of the identified district hospital will improve quality care.

4.5 SUMMARY

This chapter discussed Cycle I which was used to obtain baseline data regarding neonatal care provided in the district hospital. Quantitative data regarding the wellbeing of the neonates were described. Data on the experiences of healthcare providers was obtained and discussed in detail. The relationship between quantitative and qualitative data was also discussed. Chapter 5 will focus on Cycle II, which is about the development of strategies for the implementation of family-integrated neonatal care in the identified district hospital.

CHAPTER 5

CYCLE II: IMPLEMENTATION OF FAMILY-INTEGRATED NEONATAL CARE STRATEGIES

5.1 INTRODUCTION

The previous chapter discussed Cycle I which was used to obtain baseline data regarding neonatal care provided in the district hospital prior to the implementation of family-integrated care, related to the wellbeing of the neonates and the experiences of healthcare providers. This chapter focuses on Cycle II, which was about the development of strategies to implement family-integrated care in the identified district hospital. The objective of the cycle was to develop and implement the strategies of family-integrated neonatal care. The strategies were developed based on the data found in Cycle I, literature and reflective meetings held with the steering committee. The strategies addressed the problems that were encountered by healthcare providers during the provision of neonatal care in the ward. The plan, act, observe and reflect steps were followed as summarised in Figure 5.1.



FIGURE 5.1: Cycle II implementation of the strategies of family-integrated neonatal care

In the first step (plan), the steering committee met to discuss the development and implementation of the strategies of family-integrated neonatal care. In the meeting, the researcher gave feedback on the findings of data obtained from the focus group discussions held with the healthcare providers in Cycle I. The researcher drew an agenda for how the meeting was going to be run.

In the second step (act), the steering committee developed and implemented the strategies of family-integrated neonatal care. These strategies were developed based on the findings of the focus group discussions held with the healthcare providers, as discussed in Chapter 4. The main question that guided the development of the strategies was “How can we address the challenges encountered by the healthcare providers during provision of neonatal care?” The steering committee tackled the challenges one by one and came up with solutions to deal with the challenges. The solutions to the problems encountered were then turned into strategies to implement family-integrated neonatal care.

In the third step (observe), the researcher reviewed the minutes of the steering committee and the notes on the findings to check if all the challenges of the healthcare providers were addressed. In the fourth step (reflect), the researcher held another meeting to reflect whether the developed strategies needed to be modified or not.

5.2 DEVELOPMENT OF STRATEGIES FOR THE IMPLEMENTATION OF FAMILY-INTEGRATED NEONATAL CARE

The principle of family-integrated neonatal care is for parents to form part of the neonatal healthcare team. Healthcare providers should teach parents to take care of their own infant in the neonatal unit. The family is required to support the mother and the neonate during their admission in the neonatal unit (Bracht, et al. 2013:117; Galarza-Winton, et al. 2013:336).

Strategy development is the process by which an organisation chooses the most appropriate course of action to achieve its defined goals. This process is essential for the organisation as it provides a framework for the actions that will lead to anticipated results (Mitchell, 2009:1). Jooste (2009:359) defines strategic planning as a formal process by which healthcare organisations interpret their vision and establish their purpose and objectives. Strategic planning involves a set of concepts which are coined as strategies that help leaders to make important decisions and to take action.

For this study, the strategies were developed from the findings of the focus group discussions and reflections of the steering committee. The developed strategies had to address the following situations encountered by healthcare providers:

1. Challenges encountered during the provision of neonatal care
2. Equipment and resources
3. The role of the family in neonatal care

A steering committee is a committee that decides on the priorities of an organisation and manages the general course of its operations. The role of the steering committee is to monitor the quality of a project, provide support, guidance and oversight of a project. The steering committee was formed from the managers of the maternity ward. It was composed of the doctor, and an acting operational manager in charge of the neonatal unit, as well as the assistant manager in charge of the maternity ward. The idea was also to include the operational manager of the labour ward; the researcher was the acting operational manager at the time of the study and therefore also formed part of the steering committee.

TABLE 5.1: Demographic details of the steering committee

Demographic detail	Number	Percentage
Age		
30-40yrs	1	25%
41-50yrs	2	50%
51-60yrs	1	25%
Gender		
Female	4	100%
Male	0	0
Highest level of education		
Bachelor of Medicine and Bachelor of surgery	1	25%
Diploma in paediatric nursing	1	25%
Bachelor of nursing science and administration	1	25%

Demographic detail	Number	Percentage
Master of nursing science	1	25%
Years of experience in nursing/medicine		
5-10yrs	1	25%
15-20yrs	1	25%
21- 25yrs	1	25%
30 -35yrs	1	25%

The members of the steering committee were invited to a meeting where the researcher informed them of her intentions to implement family-integrated neonatal care in the district hospital. The researcher explained what family-integrated neonatal care was as well as its outcomes for the neonates, healthcare providers and the family itself. An information leaflet was also issued to the steering committee. Table 5.1 presents the demographic details of the steering committee. The results show the members' different age categories which indicate that 1 (25%) member was within the age group of 30-40yrs, 2 (50%) members were within the age category of 41-50yrs, and 1 (25%) in the category of 51-60yrs. All 4 (100%) members of the steering committee were female. In terms of their highest level of education, 1 (25%) member had a Bachelor of Medicine and Bachelor of Surgery, 1 member (25%) had Bachelor of Nursing and Administration, 1 (25%) had a Diploma in Paediatric Nursing while the last member had a Master's in Nursing and a Diploma in Midwifery and Neonatal Nursing Science. One member had 5-10yrs experience in medicine, 1 (25%) member had 20-25yrs experience in nursing, another member had had 30-35yrs experience in nursing while the last member had experience of 15-20yrs in nursing. The role of the steering committee was to plan, drive and monitor the implementation of family-integrated neonatal care in the neonatal unit of the district hospital. Active participation, respect, listening to each other, and giving each other a chance to speak were set as the ground rules for the meeting. Members of the steering committee were also encouraged to attend the meetings as scheduled. The researcher acted as a facilitator, reminded the steering committee of the meetings and was also delegated to take minutes during the meetings. According to Koshy, et al. (2011:81), the researcher may be part of the group of action researchers to increase feelings of ownership and willingness to change the practice. The researcher collaborated and cooperated with the steering committee and valued their contributions in order for the project to be a success.



5.2.2 Process of development of strategies of implementation of family-integrated neonatal care

The strategies were developed by the steering committee based on the findings of the focus group discussion themes from Cycle I. The themes are well described in Chapter 4. Figure 5.2 depicts the process of the development of the strategies of family-integrated neonatal care. Strategic planning was used by the steering committee during the development of the strategies

The steering committee used the McKinsey 7S Model (Ravanfar, 2015:9) to develop the strategies for the implementation of family-integrated neonatal care. The model will be described in the following section, with the application in this study being indicated. The most important aspect of the McKinsey 7S Model is that all seven components of the model are interconnected, and each is required for organisations to function effectively. The very shape of the model emphasises the interconnectedness of the elements. This model can be used to facilitate organisational change or to implement a new strategy. It can also be used to identify how each area may change in the future. The seven areas of the model are divided into soft and hard areas. The hard areas include strategy, structure and systems, while the soft areas include style, staff and skills (Ravanfar 2015:8). The McKinsey 7S Model consists of seven components however the strategy, skills, staff and systems components were used to develop the strategies to implement family-integrated neonatal care. The other components such as the structure, shared values and the style were used in the day-to-day management of the unit.

According to Ravanfar (2015:9), there are steps that need to be applied to this model during the implementation of change. The first step is to identify the areas that are not effectively aligned. In this study, the steering committee identified that three components of the model were not aligned. Gaps and weaknesses were identified in the staff, skills and the systems of the neonatal unit of the identified district hospital. The gap that was identified among the staff was the lack of adequate staff to provide neonatal care in the neonatal unit. Adequate staff is required to supervise and provide family-integrated neonatal care.

The gap identified with the skills was that midwives were scoring neonates incorrectly on the Apgar score, which affected the selection of neonates to be included in family-integrated neonatal care. Therefore, there was a need for the midwives in the labour ward to score neonates correctly in order for the healthcare providers to know the accurate condition of the neonate that they were

admitting. The implementation of family-integrated neonatal care is expected to improve the skill of the midwives in terms of Apgar scoring. The second gap identified was medication errors by doctors admitting neonates from the labour ward to the neonatal unit. Family-integrated neonatal care is expected to reduce medical errors in the neonatal unit. With regard to the systems, it was identified that there was a problem in preventing MTCT of HIV in the neonatal unit. Family-integrated neonatal care is expected to prevent the transmission of HIV from mothers to neonates. It was also noted by the steering committee that the family of the neonates are not involved in the care of their infants during admission in the neonatal unit. Family-integrated neonatal care is expected to include the family during admission of the neonates in the neonatal unit.

The second step is for the steering committee to determine the optimal organisational design. This is where one has to know what they want to achieve, set goals and take actions. In this study, the steering committee came up with a plan to deal with the identified gaps.

The third step is for deciding what and where the changes are going to be made. In this study, the steering committee decided that it was necessary to change all three components where gaps were identified. Action plans were drawn, and tasks were allocated to all members of the steering committee to implement. The fourth step is implementing the intended change while the fifth step evaluates the implemented change. The fourth and fifth steps, and the action plans are described fully in the following sections. The process of packaging the strategies into the McKinsey 7S Model is summarised in Figure 5.2.

PACKAGING OF DEVELOPED STRATEGIES FOR IMPLEMENTATION OF FIGARE

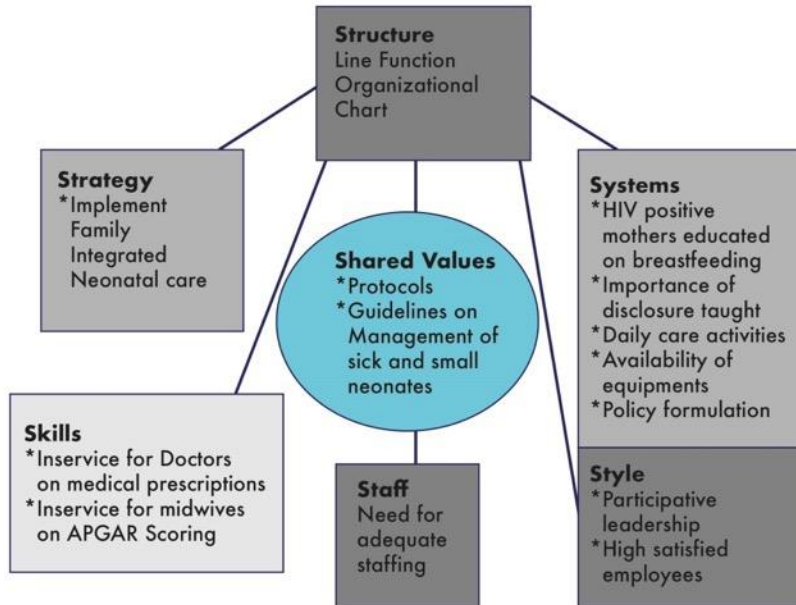


FIGURE 5.2: Packaging of strategies in the McKinsey 7S Model

5.2.1.1 Strategy

According to Ravanfar (2015:8), a strategy in this model is a plan developed by an organisation to achieve sustained competitive advantage and to successfully compete in the market. A sound strategy is one that is well articulated, long term, and helps to achieve a competitive advantage. The vision in this study was to replace routinised neonatal care with quality family-integrated neonatal care to the advantage of the families, the neonates and the healthcare providers.

5.2.1.2 Structure

The structure represents the organisational chart of the unit. It is the most visible element of the model and easy to change. It represents the way the unit is organised and includes information about who is accountable to whom (Ravanfar, 2015:8). The neonatal ward has an organisational structure displayed in the unit which shows the hierarchy of the unit. The enrolled auxiliary nurses report to the enrolled nurse, while the enrolled nurse reports to the professional nurse. The

professional nurse reports to the unit manager while the unit manager reports to the assistant nursing manager of the unit. The assistant nursing manager is accountable to the nursing service manager who is in charge of the district hospital. The organisational structure is required during implementation of family-integrated neonatal care as it provides information on the power structure of the unit. There was no strategy developed under this component, but it was necessary to show the levels of authority in the daily management of the neonatal unit.

5.2.1.3 Systems

The systems are the processes, procedures, daily activities and how decisions are made. Systems are areas of the unit that determine how business is done and should be the main focus for managers during organisational change (Ravanfar, 2015:8). In this study, there was a shortage of functional equipment. Equipment is required to monitor the neonates during the provision of family-integrated neonatal care. This was addressed by strategy number 6, which states that the managers are to ensure availability of durable and functional medical equipment.

It was also found that HIV-positive mothers failed to disclose their status and refused to breastfeed their neonates. The health care providers voiced their perception that mothers failed to sustain the KMC practice at home. Provision of family-integrated neonatal care will prevent readmissions of these neonates as mothers will be capacitated with proper education and support regarding breastfeeding and KMC. The following strategies address these challenges:

Strategy 3: The healthcare providers are to prevent the transmission of the human immune deficiency virus from the mother to the neonate, while implementing family-integrated care.

Strategy 5: The healthcare providers are to encourage KMC after discharge during the implementation of family-integrated neonatal care.

Furthermore, the lack of a policy on the involvement of other members of the family also affected processes in the neonatal unit. This study found that mothers coped better with family support. This was addressed by strategy 8 which indicates that the managers are to develop a policy on the involvement of other family members in the neonatal unit.

5.2.1.4 Skills

The skills relate to the abilities (capabilities and competencies) of the employees of the unit which they perform very well. During organisational change, the question that arises is what skills need to change and what needs to be reinforced (Ravanfar 2015:9). In this study, it was found that the midwives were scoring the neonates incorrectly on the Apgar score. The condition of the neonate during admission did not correlate to the Apgar score reflected in the admission record. Correct Apgar scoring would present healthcare providers with the accurate condition of the neonate on admission. This will assist the healthcare providers in the neonatal unit to decide if the neonate meets the criteria for family-integrated neonatal care. Therefore, the midwives' skills in Apgar scoring should be revived through in-service training on Apgar scoring. The skills of the midwives were addressed by strategy number 1 which states that the managers are to ensure that midwives assess the neonates properly by using the Apgar score during the implementation of family-integrated neonatal care.

Moreover, it was noted that the doctors were prescribing incorrect doses of medication for neonates during admission to the neonatal unit. The administration of high doses of medication to the neonates might lead to medico-legal hazards and litigations to the district hospital. In-service education for the doctors would prevent medico-legal hazards related to medication during the provision of family-integrated neonatal care. The doctors' skills in prescribing were addressed by strategy number 2, which indicates that the managers are to prevent the occurrence of medico-legal hazards related to medication prescriptions during the implementation of family-integrated neonatal care.

5.2.1.5 Staff

The staff parameter is about the number and the type of employees the organisation will need and how they will be recruited, trained and motivated (Ravanfar, 2015:9). Shortage of staff was mentioned as one of the problems in the neonatal unit of the identified district hospital. Adequate staff is required to provide and supervise quality family-integrated neonatal care. The steering committee thus needed to come up with ways of recruiting staff for the neonatal unit which could then address the staff component of the McKinsey 7S Model. This component was addressed by strategy number 7, which states that managers are to provide adequate human and material resources in the neonatal unit during the implementation of family-integrated neonatal care.

5.2.1.6 Style

The style represents the way the organisation is managed by top-level managers and how they interact, what actions they take and their symbolic value (Ravanfar 2015:9). According to participative leadership, in which delegation is used, employees become self-directed. Employees are encouraged to participate in decision making. Feedback about work is provided in an objective way. Managers in this type of leadership should be approachable and ready to listen to all employees at all times. The participative leadership style leads to a high degree of freedom and satisfaction (Booyens, 1996:169; Muller, Bezuidenhout & Jooste, 2012:415).

5.2.1.7 Shared values

Shared values are the norms and standards that guide the employee's behaviour and the organisation (Ravanfar, 2015:9). The neonatal unit of the identified district hospital has protocols and guidelines on the management of sick and preterm neonates. The protocols and guidelines should guide healthcare providers with information while carrying out their daily activities, thus providing quality family-integrated neonatal care.

5.3 STRATEGIES FOR THE IMPLEMENTATION OF FAMILY-INTEGRATED NEONATAL CARE

The following strategies for the implementation of family-integrated neonatal care were formulated. The strategies were formulated by the steering committee based on the findings of the focus group discussions from Cycle I.

Strategy 1: The managers are to ensure that midwives assess the neonates properly by using the Apgar score during the implementation of family-integrated neonatal care

The Apgar score is a score that is used to assess the condition of the neonate at birth. Five parameters are assessed which include heart rate, respiratory efforts, muscle tone in limbs, response to stimuli and colour of the extremities. The Apgar score is assessed within the first minutes of birth and repeated 5 minutes after birth. It is a reliable method of assessing the condition of the neonate at birth. It is done by giving a score of between 0 and 2 in all the

parameters at birth and again 5 minutes after birth (Nolte, 1999:202). According to the Committee's opinion (664:2), a 5-minute Apgar score of 0-3 correlates with neonatal mortality. A low 5-minute Apgar score increases the risk of the neonate to develop cerebral palsy. A low total Apgar score of 3 or less at 10 minutes puts the neonate at risk of poor neurological outcomes. According to Lie, Groholt and Eskild, (2010) defines Apgar score as a measure of the vitality of the new-born infant on the basis of heart rate, respiration, colour, muscle tone and reflex irritability. A strong association is found between low Apgar score and cerebral palsy in children born to term with normal birth weight or preterm. Lie et al (2010) further report that it was observed that 11% of the children with an Apgar score of less than 3 were diagnosed with cerebral palsy as compared with 0.1% of children with Apgar score of 10. According to Lie et al (2010) low Apgar scores predict infant death and other than asphyxia may be associated with cerebral palsy. Low Apgar score have similar risks of cerebral palsy independent of birthweight. According to Lie et al (2010) low Apgar score might therefore be considered a marker of underlying causes of cerebral palsy. Kent, (2011:33) added that a persistently low Apgar score beyond the first minute of life is an indicator of nervous system depression and can be used to identify infants at risk for follow up. A low Apgar score does not mean that asphyxia has occurred at birth or in labour neither does it correlate well with later neurologic nor cognitive outcomes however a low Apgar score at 5 minutes indicates an increased risk of disability. Kent. (2011:34) further reported that in a study conducted in Norway over 5000 000 children, low Apgar scores were strongly associated with cerebral palsy in children of both normal birthweight and low birth weight. According to Kent, (2011:34) the results showed that at term 0.1% of babies born with an Apgar score of 10 had cerebral palsy but 10% of those who had an Apgar score of 3 or less were later diagnosed with cerebral palsy.

Some neonates seemed to have been rated incorrectly on the Apgar score. They looked very ill but had good Apgar scores at birth. Wrong Apgar scores would delay proper treatment of the neonate during admission. Moreover, critically ill neonates with severe birth asphyxia cannot be included in family-integrated neonatal care as they might not survive (O'Brien et al. 2015:3). Apgar scoring will assist the healthcare providers in selecting neonates that are eligible for family-integrated neonatal care. Neonates that scored lower than 7 on the Apgar score at 5 minutes cannot be included in family-integrated neonatal care as they are very ill. The Apgar scoring procedure is summarised in Table 5.2



TABLE 5.2: Apgar score

Parameter	Apgar Score 0	1	2
Heart rate	Absent	<100b/m	>100b/m
Respiration	Absent	Slow or irregular	Good cry
Muscle tone	Limp	slight flexion	Active moves
Response to stimuli	Absent	Grimace	cough cry or active withdrawal
Colour	Blue or Pale	Acrocyanotic	Completely pink

TABLE 5.3: Strategies for improving the Apgar scoring skills of the midwives

Actions	Suggested improvements from the steering committee
<p>The manager of the labour ward needs to ensure that in-service education is provided to the midwives with regard to the correct Apgar scoring.</p> <p>Fire-drills on Apgar scoring should be conducted to ensure that the midwives are well acquainted with Apgar scoring.</p>	<p>Improved Apgar scoring skills among the midwives to enable the healthcare providers to select neonates that are eligible for inclusion in family-integrated neonatal care.</p>

Strategy 2: The managers are to prevent the occurrence of medico-legal hazards related to medication prescriptions during the implementation of family-integrated neonatal care

According to Welters, Gibson, Mogk and Wenstone (2011:2) identified medication errors as one of the pharmaceutical incidents that occur in the intensive care unit. Welters et al (2011:2) reported that administration of an incorrect dose as the commonest incident which accounted for 25.6% incident reports while prescription errors were found in 8.8% reports. The consequences of drug related errors are increased mortality, morbidity and length of stay in the hospital.

Aronson (2009:102) defined medication errors as a failure in the treatment process that could inflict harm to a patient. Medication errors that occurred regarding prescribed medication included

miscalculations of doses and wrong rates, omission of time and medication given at wrong times (Antonucci & Porcella, 2014:39, Truter, et al. 2017:8). Krzyzaniak and Barojek (2016:104) stated that medication errors in the neonatal ward occurred due to a lack of physician experience, physician workloads, low birth weight, similar names and twins. According to Krzyzaniak and Barojek (2016:104) the most reported error within the prescribing phase involved incorrect dosing with 42% of errors relating to overdosing or under doses. Dosing errors occurred because of miscalculation of doses. Krzyzaniak and Barojek (2016:104) and Simpson, Lynch, Grant and Alroomi (2004: f481) reported that most medication errors were due poor prescribing and the most common example of which is poor incorrect dosing. According to Simpson et al (2004: f481) in some cases medication errors, administration was delayed by two hours, generally reflecting the intensity of work in the unit. Lynch et al (2004: f481) further indicated that the changeover of junior medical staff was associated with an increase in medication errors. Interventions to improve staff education and awareness of errors are effective in reducing medication errors. Simpson et al (2004: f481) further state that lack of experience is a risk factor for medication errors and that new staff are most likely to make errors. This is due to the fact that prescriptions are made by junior doctors who are unfamiliar with the medicine. It is therefore important to prevent medication errors to prevent potentially harmful errors that might occur (Simpson et al 2004: f481). According to O'Brien (2013:7) stated that during implementation of family integrated neonatal care the number of critical incidents report were reduced although the type of critical incidents was not described.

In this district hospital, it was found that doctors were making errors with regard to the doses of medications. These prescription errors occurred mainly because some of the doctors were medical interns who were not experienced in neonatal care. The medical interns were the ones who were first on call in the neonatal ward of the identified hospital. It is anticipated that this strategy will prevent the occurrence of medication errors that might lead to complications during the implementation of family-integrated neonatal care.

TABLE 5.4: Strategies for prevention of medico-legal hazards

Actions	Suggested improvements from the steering committee
<p>All doctors should be given in-service education with regard to medication prescriptions for neonates.</p> <p>Medical interns should be allocated to the neonatal unit to be orientated in the management of sick and small neonates in general before they do calls in the neonatal unit.</p>	<p>Absence of medication and prescription errors that might lead to complications during the implementation of family-integrated neonatal care.</p>

Strategy 3: The healthcare providers should support safe breastfeeding practices during the implementation of family-integrated neonatal care

According to Nyadat and Van Rensburg (2017:6), infants born from HIV-positive mothers are likely to become HIV positive if their mothers fail to disclose their HIV status. Mothers often do not disclose their status due to fear of abandonment, the accusation of infidelity, discrimination, violence and loss of spousal financial support. Couple counselling will prevent blaming, and disowning by the male partner during disclosure (Walcott, Hatcher, Kwena & Turan, 2013:5). The benefits of couple counselling were identified as the improved ability to accept HIV-positive results and increased knowledge about the illness. The couple would also gain knowledge about the medications, adherence and reduced fears regarding HIV.

HIV-positive mothers should be educated and encouraged to exclusively breastfeed their infants for at least 6 months. Mothers who are HIV-positive and breastfeeding should continue taking their ARVs. The neonate should also be put on prophylactic ARVs to prevent MTCT of HIV. Ndubuka, Ndubuka, Li, Marshall and Ehiri (2013:6) further stated that HIV-positive mothers of both high-income and low-income status should be encouraged to breastfeed as it benefits both the mother and the neonate. The healthcare providers should educate the mothers about the benefits of exclusive breastfeeding. These benefits include mothers feeling a sense of satisfaction, and a next pregnancy is prevented during exclusive breastfeeding as menstruation is delayed. The benefits of exclusive breastfeeding to the neonate are that minerals and vitamins

in breastmilk, including prescribed ARVs, reduce the risk of postpartum MTCT of HIV. The neonate would also be comforted, protected from minor ailments such as flu, diarrhoea or allergic reactions (Shongwe & Mkhatha, 2015:9596). This strategy will assist HIV-positive mothers to maintain the healthy wellbeing of their neonates. Bonding will also be promoted through exclusive breastfeeding without mothers worrying about transmitting HIV to their babies during the provision of family-integrated neonatal care. Breastfeeding neonates with HIV-positive mothers will also prevent readmission of the infants related to ailments caused by HIV transmission in neonates.

TABLE 5.5: Strategies for safe breastfeeding practices

Actions	Suggested improvements from the steering committee
The healthcare providers should encourage the mothers to disclose their HIV status to the immediate members of their family.	More HIV-positive mothers willing to disclose and breastfeed their neonates during the provision of family-integrated neonatal care
Provide couple counselling and testing for HIV.	Reduced number of neonates testing positive for HIV at 6 weeks
Encourage the family to attend the counselling sessions with the mothers to promote adherence to treatment.	
Encourage the mothers to breastfeed their neonates exclusively.	

Strategy 4: The healthcare providers are to provide support to mothers during the provision of family-integrated neonatal care

Mothers of sick and preterm neonates admitted to the neonatal unit experience a lot of stress. This stress is due to the mothers' inability to adapt to the fact that their neonate is sick or preterm. The mothers also see their infants as fragile and thus they feel unable to protect them from pain. Mothers usually want to be included in the care of their sick, fragile neonate as participation

enhances parenteral knowledge and decreases stress which promotes effective bonding (Obeidat, et al. 2009:27). Mothers of neonates born prematurely became mothers without being prepared as the infant was born early and was so tiny and fragile. The mothers are in a situation filled with anxiety because they fear that the baby may be ill or might not survive (Lindberg & Ohrling, 2008:462; van Rooyen, 2006:8). Mothers whose neonates are admitted to the neonatal unit experience a sense of alienation towards their neonate because of the size of the infant (Malakouti, et al. 2013:175).

The experience of having a preterm neonate can have long-term effects on the maternal and neonatal relationship. When the neonate is born prematurely, the normal progression of parenthood is interrupted as parents they are not yet prepared physically, psychology and emotionally for this event. This can bring shock, feelings of sorrow and loss. Mothers experience fear, hysteria, awe, emptiness, spiritual change and are concerned that the neonate will die. In some cases, mothers are discharged home without their neonates which makes them feel like they are not parents. Mothers feel that nurses hover over them and warn them of over-handling their babies. This results in feelings of anger and frustration for the mothers. The visitation policy that the institution has makes the mothers angry, frustrated and they lack control, which results in fatigue and insomnia due to their deficiency in the parenting role (Hutchinson, et al. 2012:9). Parents of sick neonates often feel left out because they do not know how to care for their neonates (Obeidat, et al. 2009:24; Carter, et al. 2005:f109).

Lack of control of the situation is observed when the mothers have fear and insecurity about feeding the neonate. Mothers fear that the neonate could die or they could add problems to the hospitalised neonate. The mothers also feel guilty for the suffering of their own neonate and become anxious when a new problem arises. According to Sikorova and Kucova (2012:332), mothers of neonates admitted to the neonatal ward experience a great level of stress related to their parental role and the relationship with their neonate. Providing education and empowerment to the mothers during their stay in the neonatal unit will benefit the mothers as they will be able to provide care to their own neonates in a relaxed and competent way.



TABLE 5.6: Strategies for supporting the mother in the neonatal unit

Actions	Suggested improvements from the steering committee
<p>The healthcare providers should allay the anxiety and stress of the mother by explaining the condition of the neonate to the mother during admission.</p> <p>Inform the mother about the progress of the neonate's condition during their stay in the neonatal unit.</p> <p>Orientate the mother in the neonatal unit; inform and show her the different machines and alarms that might be attached to the neonate.</p> <p>Teach the mother daily care activities. These include how to wash hands, 'top-and-tailing', nappy changing, cord care, checking vital signs, giving oral medication, breast, tube or cup feeding, and intermittent skin-to-skin contact.</p> <p>Allow the mother to attend the doctors' rounds and give a report about the condition of her own neonate to the doctor.</p> <p>Facilitate the establishment of mother-to-mother support groups.</p> <p>Social workers to provide social support to the mothers and the family as a whole.</p> <p>Psychologist to provide emotional and psychological support to mothers.</p>	<p>Mothers portraying a positive attitude and confidence when providing family-integrated neonatal care.</p>

Strategy 5: The healthcare providers are to encourage KMC after discharge while providing family-integrated neonatal care

KMC was introduced as an intervention to provide further care to low birth weight neonates who are stable but not ready for discharge. KMC was started in Bogota, Colombia as an alternative to traditional incubator care for low birth weight neonates because of overcrowding and scarcity of resources in the country. The World Health Organization (2003:6) describes KMC as a method of care for preterm infants, whereby the infants are carried skin-to-skin by the mother. It is a powerful method to promote the health and wellbeing of infants born as preterm as well as those born full-term. It is done by placing the neonate in an upright position between the mother's breasts chest-to-chest. The neonate is then secured with a binder; the head is turned to one side in a slightly extended position. The binder is placed under the ear of the neonate. The slightly extended head ensures that the airway is open. Eye contact between the neonate and the mother is also maintained (WHO, 2003:21). In this method of neonatal care, warmth, prevention of infection, stimulation, safety and easy access to breastfeeding is provided (Solomons & Rosant, 2012:33; Subedi, et al. 2009:6, Shrivastava, et al. 2013:341).

Mothers need to be supported on how to handle their neonates in order to encourage them to gain confidence in using KMC (Solomons & Rosant 2013:34). Continuing KMC after discharge will assist the neonate to thrive at home. KMC would facilitate growth, weight gain and promote the early discharge of the neonates during the provision of family-integrated neonatal care in the identified district hospital.

TABLE 5.7: Strategies for sustaining the use of Kangaroo Mother Care after discharge

Actions	Suggested improvements from the steering committee
<p>The healthcare providers should ensure that the mothers continue doing KMC at home by:</p> <p>Educating the mothers about the advantages of KMC</p>	<p>Mothers complying with continuity of KMC after discharge</p>

Actions	Suggested improvements from the steering committee
<p>Teaching the mother and other members of the family how to do KMC while still at the hospital</p> <p>Assessing whether the mother is eligible for discharge by using the KMC score chart before she is discharged.</p> <p>Encouraging the mother to join support groups of mothers with preterm infants at home.</p> <p>Encouraging the mother to attend the neonatal clinic for assessing the wellbeing of the neonate</p>	

Strategy 6: The managers are to ensure the availability of durable and functional medical equipment during the implementation of family-integrated neonatal care

Booyens, Jooste and Sibiyi (2015:129) indicated quality care could only be provided if the equipment is sufficient. All obstacles that hinder the provision of care should be eliminated. Equipment must be maintained properly to ensure they function well at all times. According to Moyimane, et al. (2017:3), medical equipment is an important component of the health system and are used by nurses to diagnose, monitor and treat diseases. The medical equipment can be in the form of machines or appliances. The medical equipment requires maintenance, repair, user training, and it should be discarded once it no longer functions properly. Unavailability and non-functioning equipment results in the health system's failure to provide quality care. Shortage of equipment may also lead to prolonging the stay of the patients in hospital, negligence and malpractices, which might result in legal action being taken against the hospital (Moyimane, et al. 2017:3). According to Aloysius, Platonos, Dejerland and Banerjee (2018:67) infants admitted to NICU are often sick or fragile and require medical support interventions. The neonates may be in incubators or attached breathing equipment and monitors. O'Brien et al (2013:3) indicate that

infants that are included in family integrated care are infants on low level respiratory support which includes oxygen by nasal cannula, non-invasive ventilation such as CPAP as well as nasal intermittent positive pressure ventilation. Aloysius (2018:50) indicate that some infants would still be having intravenous infusion and apnoeic monitors. Thus equipment such as pulse oximeters, apnoeic monitors, fluid administration machines, incubators and CPAP machines are required to provide neonatal care and monitor sick neonates in the neonatal unit. The required equipment is critical in monitoring the wellbeing of the neonates during the implementation of family-integrated neonatal care.

TABLE 5.8: Strategies for ensuring availability of equipment

Actions	Suggested improvements from the steering committee
<p>The managers should perform a needs assessment and purchase the required equipment.</p> <p>The essential equipment used in the neonatal ward include incubators, pulse oximeters, apnoeic monitors, phototherapy lights and intravenous fluid monitors.</p> <p>All personnel should be trained in the use of new equipment.</p> <p>A maintenance plan should be available for the equipment and they should be maintained according to the plan.</p> <p>Malfunctioning and old equipment should be condemned, and broken ones should be repaired.</p>	<p>Availability of functional equipment during the provision of family-integrated neonatal care</p>

<p>Sharing equipment should be controlled through inventory and recording in loan-books to ensure the availability of equipment during the provision of family-integrated neonatal care.</p>	
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Strategy 7: The managers are to ensure the provision of adequate human and material resources during the implementation of family-integrated neonatal care in the neonatal ward

Inadequate supply of essential personnel becomes a stressor to the hospital. The causes of staff shortage are mainly due to the rising demands of patients, stressful working conditions and low salaries for personnel. An inadequate supply of staff results in a high risk of adverse patient outcomes, including mortality. Prolonged shortages of personnel might also reduce the quality of patient care, and increase operating and labour costs. It might also cause a decrease in the efficiency and effectiveness of patient care (Buerhaus, Donelan, Ulrich, Norman, DesRoches & Dittus, 2007:853). Implementation of family-integrated neonatal care requires human resources – healthcare providers in this context – to teach, monitor and supervise the mothers while they provide care to their neonates. Furthermore, the material resources are critical to ensure the neonatal unit runs effectively.

TABLE 5.9: Strategies to ensure the provision of human resources in the neonatal unit

Actions	Suggested improvements from the steering committee
<p>The managers should do a needs assessment to check the category of health professionals required in the neonatal ward.</p> <p>Motivations should be presented to the Provincial Department of Health to fill up the vacant posts.</p>	<p>Adequate staff available to cover all the shifts during the provision of family-integrated neonatal care.</p>

Actions	Suggested improvements from the steering committee
<p>Conduct exit interviews with healthcare providers leaving the institution and improve on issues highlighted in exit interviews.</p> <p>Draw an overtime budget and review the policy for the remuneration of healthcare providers capping shortage in the form of overtime.</p> <p>Develop a retention strategy to prevent healthcare providers from resigning.</p>	

Strategy 8: The managers are to develop a policy on the involvement of other family members during the implementation of family-integrated neonatal care in the neonatal unit

Family support activities are conducted in order to assist the family in coping with the stress of their neonate being admitted to the neonatal ward. It is important to include the entire family as caregivers and decision makers in the care of the neonate. These family members include mothers, fathers, siblings, grandparents and friends. Parental involvement can start with the father, siblings or any other member of the family while the mother is still recovering from the birthing process. Other members of the family are important as they contribute to the wellbeing of the mother and the sick neonate (Gooding, et al. 2011:20).

When healthcare providers collaborate with parents, families become more involved in decision making, are empowered to influence the process of their neonate's recovery and may discuss the care plan of the neonate with the doctors. The families need a designated nurse to support them as nurses provide them with the best information about the condition of their neonate. This designated nurse helps the parents to deal with their stress as they become more confident, informed and attached to their neonate. (Gooding, et al. 2011:20). According to Cockcroft

(2011:108), the family is important in the baby’s life and they need to be considered as equal partners in hospital care. The whole family and each member are recognised as having a role to play in the baby’s care. Mothers need support in the form of visitation from family members as the family support helps the mothers cope better while providing care to their neonates in the neonatal unit.

TABLE 5.10: Strategy for ensuring the development of a policy on the roles of family members in the neonatal unit

Actions	Suggested improvements from the steering committee
Managers should create standard operating procedures that describe the role of the father and grandmother during the implementation of family-integrated neonatal care in the neonatal unit	Available policies regarding the involvement of other family members during the implementation of family-integrated neonatal care

5.4 IMPLEMENTATION INTENTIONS OF STRATEGIES FOR FAMILY-INTEGRATED NEONATAL CARE

Gollwitzer (1999:1) defines implementation intentions as the if-then plans that spell out in advance how one wants to strive for a set goal. Implementation intentions enhance the rate of goal attainment. According to Gollwitzer (2008:1), implementation intentions are the ‘if’ plans that link situational cues with responses that are effective in attaining goals or desired outcomes. Implementation is the fourth step that the steering committee took to implement family-integrated neonatal care according to the McKinsey 7S Model.

Initially, the steering committee developed eight strategies for the implementation of family-integrated neonatal care. In order to ensure successful outcomes, only five strategies were chosen for implementation. The strategies were chosen because they did not require major changes and were easier to implement. Two strategies that involved human resource and equipment were not fully implemented as they required financing from the Provincial Department of Health. However, the needs assessment on equipment and staff has been submitted to the Chief Executive Officer with the hope of reaching the relevant stakeholders. The following strategies were implemented for a period of six months due to time constraints.

Strategy 1: The managers are to ensure that midwives assess the neonates properly by using the Apgar score during the implementation of family-integrated neonatal care

This strategy was developed to address the skills component of the McKinsey 7S Model. It was discussed earlier that the midwives rated the neonates incorrectly on the Apgar score. The neonates seemed to be critically ill and had seizures at times, but normal Apgar scores were noted on their neonatal admission record. It was therefore important to provide in-service education to the midwives so that they can score the neonates properly on the Apgar score. The researcher was the acting operational manager of the labour ward at the time of study. As a specialist in midwifery and neonatal nursing science, the researcher was therefore delegated to provide in-service education on Apgar scoring to midwives in the labour ward. According to O'Brien, et al. (2015:3), neonates that are critically ill are not included in family-integrated care due to the fact that they might not survive. The following action was taken to implement the strategy: in-service education and fire-drills were conducted with the midwives on Apgar scoring.

Strategy 2: The managers are to prevent the occurrence of medico-legal hazards related to medication prescriptions during the implementation of family-integrated neonatal care

This strategy was also developed to address the skills component of the McKinsey 7S Model. Findings in this study indicated that doctors were prescribing high doses of medication to the neonates during admission, which might harm them thus resulting in an increased risk of critical incidents in the neonatal unit. It is therefore necessary to train doctors in managing sick and small neonates, especially in terms of prescriptions, in order to prevent such critical incidents in the neonatal unit. According to O'Brien, et al. (2013:4), the implementation of family-integrated care in the neonatal intensive care unit reduced the number of critical incidents reports. The doctor on the steering committee was delegated to provide in-service training to the doctors. The following actions were taken to implement the strategy:

- In-service education was provided to the doctors
- Medical internship doctors were rotating within the neonatal unit every four months to learn how to manage sick and small neonates.

Strategy 3: The healthcare providers are to prevent transmission of human immunodeficiency virus from mother to the neonate during the provision of family-integrated neonatal care

This strategy was developed to address the system component of the McKinsey 7S Model. According to Ravanfar (2015:4), this component includes the processes and daily activities of the unit. The study found that HIV-positive mothers were not disclosing their HIV status to their partners and family members, thus causing discontinuation of antiretroviral drugs for neonates from the lack of disclosure. It was also found that HIV-positive mothers were not willing to breastfeed their neonates. Lack of disclosure of HIV to the family and unwillingness of the mothers to breastfeed their neonates put the neonates at risk of contracting the HIV virus (Nyadat & Van Rensburg, 2017:6).

According to Richardson, Nduati, Mbori-Ngacha Overbaugh and John-Stewart (2012:4), symptoms of HIV infection in infants include coughing, fever, failure to thrive, difficulty in feeding, diarrhoea and pneumonia, which might lead to problems of readmissions. The importance of exclusive breastfeeding in HIV-positive mothers to prevent the transmission of HIV has been discussed in the previous chapter. Exclusive breastfeeding, regardless of the HIV status of the mother, promotes bonding. Breastfeeding is thus an important component of family-integrated neonatal care (O'Brien, et al. 2013:4). It was therefore critical to develop this strategy to assist mothers in disclosing their HIV status to their partners and family. It is also significant to assist the mothers to exclusively breastfeed and continue to give the neonates antiretroviral drugs, thus preventing the transmission of HIV to the neonates. The following actions were taken to implement the strategy:

- Mothers received health education regarding the importance of exclusive breastfeeding and they were discouraged from formula feeding their neonates.
- Mothers were encouraged during counselling to disclose their HIV status to relatives and partners.
- Couple counselling was provided to willing couples.
- Adherence counselling was done with all pregnant patients, and relatives were encouraged to attend the counselling session, if they were available.

- Neonates born to HIV-positive mothers were provided with antiretroviral drugs according to the viral load of the mothers to prevent the transmission of HIV that might occur during the implementation of family-integrated neonatal care.

Strategy 4: The healthcare providers are to provide support to mothers during the provision of family-integrated neonatal care

The main focus of the study was to include mothers in the care of the neonates while they are admitted to the neonatal unit. This strategy was developed to address the systems component of the McKinsey 7S Model. As indicated before, the systems include the daily activities of a unit. The strategy was developed to attain the primary aim of the study and assist mothers to cope better in the neonatal unit. Family, mostly fathers in the context of this study, were required to provide support to mothers during admission to the neonatal unit. According to Bracht, et al. (2013:117) and Galarza-Winton, et al. (2013:336), parents need daily education to become primary caregivers for their neonate and attain specific skills while still hospitalised in the NICU. The skills included feeding, bathing, hand cupping and skin-to-skin care, swaddling, cord care, giving reports during rounds, participating in developing care plans, monitoring, charting, assessing the neonate and providing appropriate developmental care, which enhances the speedy discharge of the neonate. O'Brien et al. (2015:5) stated that during the family-integrated neonatal model parents were provided with education about the medical care of preterm infants, preterm newborn development, coping within the neonatal intensive care unit, preparation for discharge, as well as how to effectively interact with their infant. According to Gooding, et al. (2011:20), it is important for the nurses to provide care to the neonate and the family as a whole. Family support activities were conducted in order to assist the family in coping with the stress of their neonate being admitted in the neonatal unit. The acting operational manager of the neonatal unit was tasked with monitoring the implementation of this strategy. This strategy was implemented by the following actions:

- Mothers were informed about the reasons their neonates were admitted to the neonatal unit.
- Healthcare providers were informed about the condition of the neonates at all times.
- Mothers were allowed to attend ward rounds of their own neonates.
- The mothers were taught caregiving skills that included hand washing, 'top-and-tailing', cord care, feeding, skin-to-skin contact, nappy changing and giving oral medication.
- Fathers of the neonates were allowed to visit the mothers for psychological support.

Strategy 5: The healthcare providers are to encourage KMC after discharge while providing family-integrated neonatal care

This strategy was developed to address the systems component of the McKinsey 7S Model. The study found that the mothers did not continue with KMC after being discharged from the neonatal unit. It was also discussed in this study that mothers might discontinue KMC at home if they lack support from their family. KMC has been discussed in detail in the previous chapters with regard to the procedure, and outcomes on both the mothers and the neonates. According to O'Brien, et al. (2013:3), during the implementation of family-integrated neonatal care, among other activities discussed before, mothers were expected to practice skin-to-skin contact with their baby. This is a component of KMC that can help to establish thermal stability, breastfeeding, and reduce crying in newborns as separation and hunger are resolved with this method (Rodgers, 2013:249). It was therefore necessary to develop this strategy in order to equip mothers with the skill of doing KMC and to encourage them to sustain the practice after discharge from the neonatal unit. The acting operational manager of the neonatal unit was delegated to monitor the implementation of this strategy. The following actions were put in place:

- Mothers with preterm neonates were taught how to do KMC while still in the neonatal unit.
- Fathers of the neonates were encouraged to assist the mother with providing skin-to-skin contact while visiting the mother in the neonatal unit.
- Health education was given to the mother with regard to the importance of continuing KMC at home.
- Mothers were assessed to determine whether they were eligible for discharge using the KMC score chart before they were discharged home.
- Mothers were encouraged to attend the neonatal clinic for assessment of the wellbeing of the neonates during the discharge period.

5.5 MONITORING OF STRATEGIES OF IMPLEMENTATION OF FAMILY-INTEGRATED NEONATAL CARE

Monitoring and reviewing the components of the McKinsey 7S Model is the fifth and final step of this model. Continuous reviewing is done to check if the components are aligned after implementing the planned strategies. The steering committee had two meetings to give feedback

on the progress of the implementation of family-integrated neonatal care. Each member of the steering committee gave feedback on the task allocated to them. Monitoring the strategies of family-integrated neonatal care is summarised in the following table:

TABLE 5.11: Summary of strategies for implementation of family-integrated neonatal care

Strategy	Implementation	Monitoring	Evaluation
1. The managers are to ensure that midwives assess the neonates properly by using the Apgar score during the implementation of family-integrated neonatal care	Conduct in-service and fire drill on Apgar score	One in-service education session and practice drill was provided to midwives in the labour ward	Attendance register available. Conditions of the neonates correlate with the Apgar scores on admission record as observed during implementation of family-integrated care
2. The managers are to prevent the occurrence of medico-legal hazards related to medication prescriptions during the implementation of family-integrated neonatal care	Provide doctors in-service training on the management of sick and small neonates Allocate medical intern doctors to the neonatal unit	One in-service education session was provided to doctors related to medication for neonates and management of sick neonates Medical internship doctors rotating quarterly in the neonatal ward	Attendance register available Absence of medication errors on the admission of neonates during provision of family-integrated neonatal care
3. The healthcare providers are to prevent the transmission of the human immune deficiency virus from the mother to the neonate during the implementation of family-integrated neonatal care	Educate mothers about feeding options during antenatal care and promote exclusive breastfeeding. Educate them about the benefits of breastfeeding in HIV-positive mothers. Educate mothers about the importance of disclosure of the HIV status to family	Health education regarding breastfeeding provided during antenatal care at the high risk clinic Couple counselling sessions provided at high risk and wellness clinic. Health education with regard to disclosure of the HIV status	Health education attendance registers available on breastfeeding, the importance of HIV and disclosure All HIV-positive mothers opting for exclusive breastfeeding during family-integrated neonatal care Fewer babies testing positive for HIV



Strategy	Implementation	Monitoring	Evaluation
	<p>Provide couple counselling and testing to willing partners.</p> <p>Partners and family to attend adherence counselling.</p>		
<p>4. The healthcare providers are to provide support to mothers during the provision of family-integrated neonatal care</p>	<p>Inform mothers about the condition and reason for admission of the neonate to the neonatal unit on admission.</p> <p>Orientate mothers to the neonatal unit, show them the different machines and alarms attached to their neonates.</p> <p>Teach mothers daily care activities which include washing hands, 'top-and-tailing', nappy changing, cord care, checking vital signs, giving of oral medication, breast, tube or cup feeding and intermittent skin-to-skin contact.</p> <p>Mothers to attend the doctors' round and give reports about the condition of their own neonate to the doctor.</p> <p>Involve the father or other members of the family in the care of the neonate to support the mother.</p>	<p>Mothers are informed about the reason for admitting their neonates during admission.</p> <p>Mothers are orientated to the neonatal ward during admission.</p> <p>Mothers are taught daily care activities and attend doctors rounds.</p> <p>Fathers of neonates allowed to assist with skin-to-skin contact.</p>	<p>Mothers able to provide care to their own neonates.</p> <p>Mothers comfortable, relaxed and portraying positive attitude during provision of family-integrated neonatal care.</p> <p>Mothers who had been in the neonatal unit for some days supported other mothers in the neonatal unit</p>



Strategy	Implementation	Monitoring	Evaluation
	Encourage the mother to attend support groups		
<p>5. The healthcare providers are to encourage KMC after discharge while providing family-integrated neonatal care</p>	<p>Teach the mothers the procedure on how to do KMC.</p> <p>Allow fathers to provide KMC during visiting hours.</p> <p>Assess the mother and the neonate using the KMC score prior to discharge.</p> <p>Monitor the growth of the neonate at the neonatal clinic at least twice a month</p>	<p>Mothers taught skin-to-skin care in high care area then full kangaroo mother on transfer to KMC unit.</p> <p>Fathers taught KMC and encouraged to support the mother Mothers encouraged to attend the neonatal clinic</p>	<p>Mothers able to provide KMC during family-integrated neonatal care.</p> <p>Fathers observed providing KMC to neonates during provision of family-integrated neonatal care.</p> <p>KMC score charts available and done daily.</p> <p>Neonatal clinic book available monitoring weight of neonates attending clinic</p> <p>No neonates were readmitted with failure to thrive.</p>
<p>6: The managers are to ensure the availability of durable and functional medical equipment during the implementation of family-integrated neonatal care</p>	<p>Needs assessment and procurement</p> <p>Have a proper maintenance plan for the equipment</p> <p>Repair broken equipment and condemn irreparable equipment</p>	<p>List of required equipment</p> <p>Equipment serviced according to plan</p> <p>Broken equipment is sent for repairs</p>	<p>No new equipment was procured during the implementation of family-integrated neonatal care.</p> <p>Master service plan of equipment is available</p> <p>Inventory list and borrowing and condemning books available to control the movement of available equipment.</p>



Strategy	Implementation	Monitoring	Evaluation
			List of equipment send for repairs is available
7: The managers are to ensure the provision of adequate human and material resources during the implementation of family-integrated neonatal care in the neonatal ward	<p>Make a needs assessment to identify which category to recruit.</p> <p>Develop a retention strategy for the recruited healthcare providers.</p> <p>Develop a standard operating procedure on handling linen.</p> <p>Order an adequate amount of stock to prevent shortages that hinder quality care</p>	<p>List of required staff drawn up</p> <p>Adequate stock ordered</p>	<p>No staff hired Neonatal unit utilising overtime budget which is limited to 34 hours per personnel a month to cap the shortage</p> <p>Standard operating procedure not developed. Shortage of linen is still a problem</p> <p>Ordering book available. No shortages of stock were reported during the implementation of family-integrated neonatal care</p>
8. The managers are to develop a policy on the involvement of other family members during the implementation of family-integrated neonatal care in the neonatal unit	Include the father and other members of the family in the care of the neonate during family-integrated neonatal care.	Fathers allowed to provide skin-to-skin/ KMC during visiting hours	<p>Policy not available yet.</p> <p>Fathers are involved in family-integrated neonatal in the neonatal unit.</p> <p>Grandmothers are engaged only on discharge and only when the mothers are not able to take care of the neonates.</p>



5.6 CHALLENGES OF IMPLEMENTATION OF FAMILY-INTEGRATED NEONATAL CARE

During reflections among the steering committee, it was determined that most of the strategies of implementing family-integrated neonatal care that were within the control of the steering committee were achieved. However, some challenges were encountered. The challenge was observed on the staff component of the McKinsey 7S Model as there was no new staff hired. Staff is required to teach and supervise mothers during the implementation of family-integrated neonatal care. Nonetheless, the unit is currently utilising its overtime budget, which is limited to 34 hours per staff member per month, to supplement the shortage of staff.

The additional equipment, which formed part of the systems on the McKinsey 7S Model, were also not procured. It was indicated that the equipment was necessary for monitoring neonates during the implementation of family-integrated neonatal care. The neonatal unit is still functioning with the same equipment it used before. Monitoring mothers providing KMC at home was a problem as it was unclear if they were continuing the practice or not. However, only one neonate was admitted with failure to thrive during a followed up at the neonatal clinic. This indicated that mothers might be sustaining the practice although the steering committee cannot see them at home.

The strategy for formulating a policy that clarifies the roles of the family during visiting hours was also not developed. This addressed the systems component of the McKinsey 7S Model. The importance of the presence of the family during family-integrated neonatal care cannot be overemphasised. Fathers who are willing to be involved in the care of their neonates are allowed to do so. Furthermore, grandmothers of the neonates are involved when mothers are unable to take care of their neonates on discharge. Although the family is involved, a policy is required to protect the neonate and the healthcare providers from any complications that may occur during handling by family.

5.7 SUMMARY

Eight strategies of family-integrated neonatal care were developed and five were fully implemented. This chapter discussed how these strategies were developed, implemented and monitored in the neonatal unit of the identified hospital. The strategies were developed by the



steering committee based on the findings of focus group discussions from Cycle I. Challenges experienced with the strategies were also highlighted. The next chapter will evaluate the implementation of family-integrated care in the identified district hospital.

CHAPTER 6

EVALUATION OF FAMILY-INTEGRATED NEONATAL CARE

6.1 INTRODUCTION

The previous chapter discussed the process of developing strategies and packaging of the strategies of family-integrated neonatal care, into the McKinsey 7S Model. The developed strategies and implementation intentions were also described.

The current study followed an action research design using the Piggott-Irvine PRAR Model (Piggott-Irvine, 2009:14). This model was utilised in order to achieve the aim of developing and implementing family-integrated neonatal care in the identified district hospital. This chapter focuses on Cycle III of the model to evaluate the implementation of family-integrated neonatal care. The cycle had four steps, namely to plan, act, observe and reflect. The same steps that were used in Cycle I to obtain baseline data were followed in Cycle III for evaluation.

There were three main objectives in this cycle. The first was to obtain retrospective data regarding neonatal mortality, length of stay and weight gain of the neonates since the implementation of family-integrated neonatal care. The second objective was to obtain data on the perceptions of neonatal healthcare providers regarding the implementation of family-integrated neonatal care. The last objective was to compare the findings prior to and after implementation of family-integrated neonatal care in the particular neonatal unit. The activities of Cycle III are summarised in Figure 6.1.

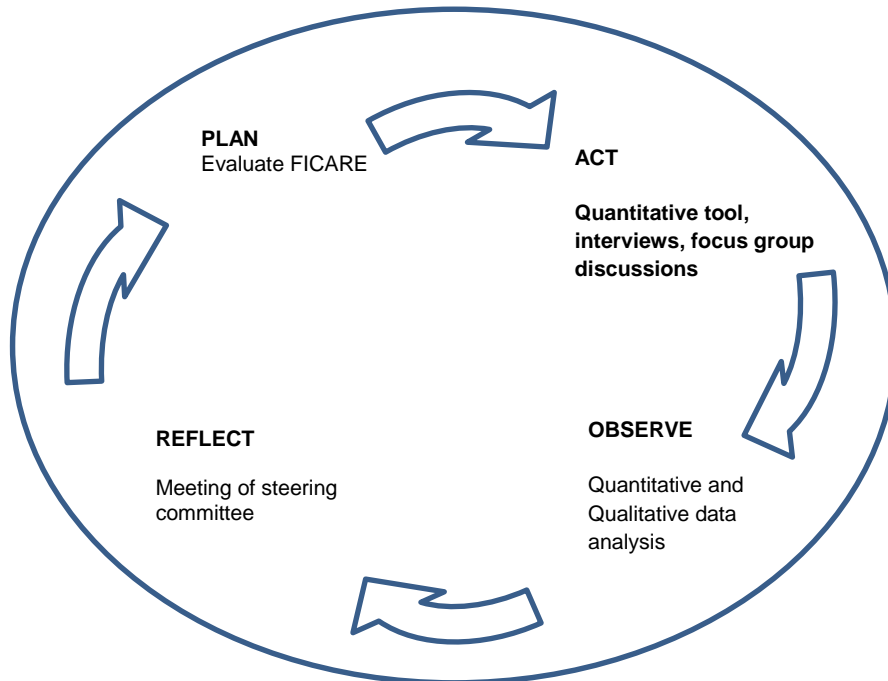


FIGURE 6.1: Cycle III evaluation of family-integrated neonatal care

Family-integrated care was implemented for six months in the identified district hospital. Thereafter, the model was evaluated. In the first step of the cycle, a plan was presented to the steering committee that the researcher was first going to obtain retrospective baseline data on the recent care provided in the district hospital. They were informed that the same instrument used in the first cycle would also be used in this cycle. The data collected focused on measurable data associated with neonatal wellbeing. This data included neonatal mortality, length of stay and weight gain of neonates in the neonatal ward.

The steering committee developed the strategies of implementing family-integrated neonatal care based on the focus group discussions held with the healthcare providers in Cycle I. Eight strategies of family-integrated neonatal care were initially developed, of which five were fully implemented. The other two strategies involved major changes which affected the budget and were beyond the control of the steering committee. The process of developing and implementing family-integrated neonatal care was described in Chapter 5.



6.2 RETROSPECTIVE AND CURRENT DATA REGARDING WEIGHT, LENGTH OF STAY AND MORTALITY OF NEONATES

The researcher obtained retrospective and current data regarding the weight gain, length of stay and mortality of the neonates since the implementation of family-integrated care. This was done in order to compare the baseline data with data obtained before and after the implementation of family-integrated neonatal care. The researcher first perused demographical data of the mother before describing the mentioned parameters. The demographical data included the age and parity of the mother. Data on gestation and gender of the neonates, which described the characteristics of the neonates, were also collected. The sample size for Cycle I was 222 and 102 for Cycle III, and the data will be discussed in the following sections.

It was not possible to use the same population as with the first cycle, as all of the neonates and families who were part of the first cycle had been discharged. The assumption was that even if it were different neonates and families, the results should indicate if there is a difference since the implementation of family-integrated care.

6.2.1 Mother's age

The significance of including the mothers' age was discussed in Chapter 4. Cycle 1 showed that 83% of the mothers who delivered at the identified district hospital were between the ages of 18 and 36 years. Seven per cent were younger than 18 years old, while 10% were older 36 years of age. The results of Cycle III showed that 7.84% of the mothers were in the age category younger than 18 years, while 72.55% mothers were between the ages of 18 to 36 years, and 20% of mothers were above the age of 36 years, as illustrated in Figures 6.2 and 6.3. Mature mothers were seen to be supporting the younger mothers during the implementation of family-integrated neonatal care.

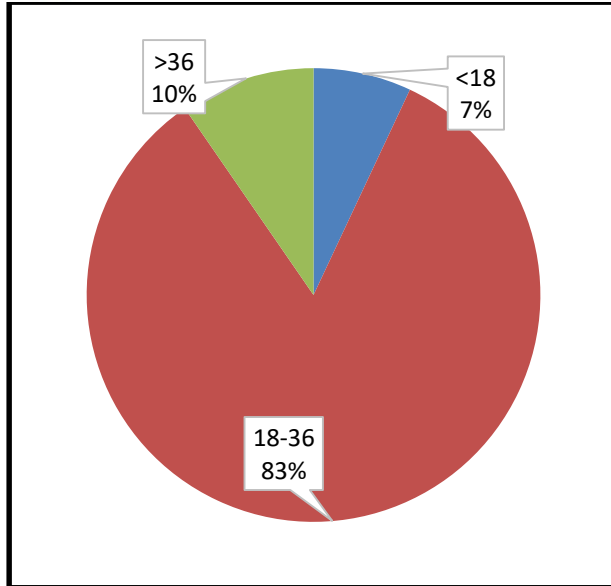


FIGURE 6.2: Mother's age Cycle I

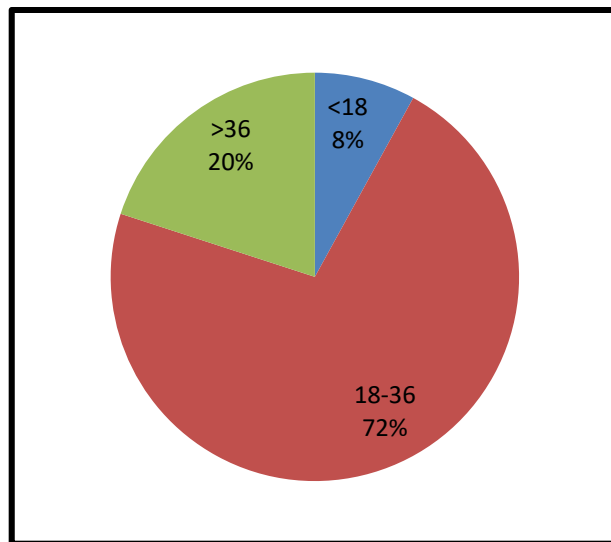


FIGURE 6.3: Mother's age Cycle III

When comparing Cycle I with Cycle III, it was observed that most of the mothers who delivered at the identified hospital were low-risk mothers between the ages of 18 to 36 years. However, the percentage of women who were older than 36 years doubled in Cycle III, but the reason for the increase was not known. These mothers are at risk of morbidity and mortality due to their advanced maternal age. Advanced maternal age is associated with increased risk for postpartum haemorrhage, eclampsia and cephalo pelvic disproportion, which might lead to maternal mortality (Cavazos-Rehg, et al. 2016:3). Cronje and Grobler (2005:667) further stated that morbidity and

mortality in women older than 35 years is related to the severity of medical complications such as diabetes and hypertension. Mothers with advanced maternal age had high incidences of preterm delivery, hypertension, severe preeclampsia and superimposed preeclampsia. There is also the possibility of increased perinatal mortality and morbidity and an increase in foetal chromosomal abnormalities, such as trisomy 21. These women should be counselled and offered bilateral tubal ligation services.

Furthermore, a decline of 1% was observed with regard to the number of teenage mothers compared to Cycle I. Cavazos-Rehg, et al. (2015:5) indicated that mothers who were between the ages of 15-19 years had high chances for developing severe pre-eclampsia, eclampsia, postpartum haemorrhage, foetal distress and poor foetal growth. During the implementation of family-integrated neonatal care, these teenage mothers had a chance to attend school to write their tests and examinations.

6.2.2 Mother's parity

The results of Cycle I on the mothers' parity indicated that 65 (26.38%) mothers were primigravidae, 61 (26.64%) of the mothers were gravida 2 para 2, 39 (17.04%) mothers were gravida 3 para 2, and 24 (17.04%) mothers were within the gravida 4 para 3 category. In the category of gravida 5 para 4 there were 13 (0.87%) mothers. Nineteen (53.18%) mothers were within the group of grande multiparas, with 11 (20.84%) mothers within the category of gravida 6 para 5, 6 (23.25%) in the category of gravida 7 para 6 and 2(9.09) within the category of gravida 8 para 7. Results of Cycle III showed that 27 (26.47%) mothers were gravida 3 para 2, 15 (14.7%) were primigravidae, while 16 (16.68%) were gravida 2 para 1. There was an equal distribution of only 1 mother each in the categories of gravida 3 para1, gravida 4 para 2 and gravida 6 para 4, respectively. Fourteen (13.72%) mothers each were gravida 4 para 3 and gravida 5 para 4, while 5 (4.90%) were gravida 6 para 5 and gravida 7 para 6, and 3 (2.94%) mothers were in the category of gravida 8 para 7. Most women who delivered in Cycle I were primigravidae, followed by gravida 2 para 2 and gravida 4 para 3. In Cycle III most women who delivered were gravida 3 para 2 followed by gravida 2 para 1, gravida 1 para 0, gravida 4 para 2 and gravida 7 para 6. These results are illustrated if Figures 6.4 and 6.5.

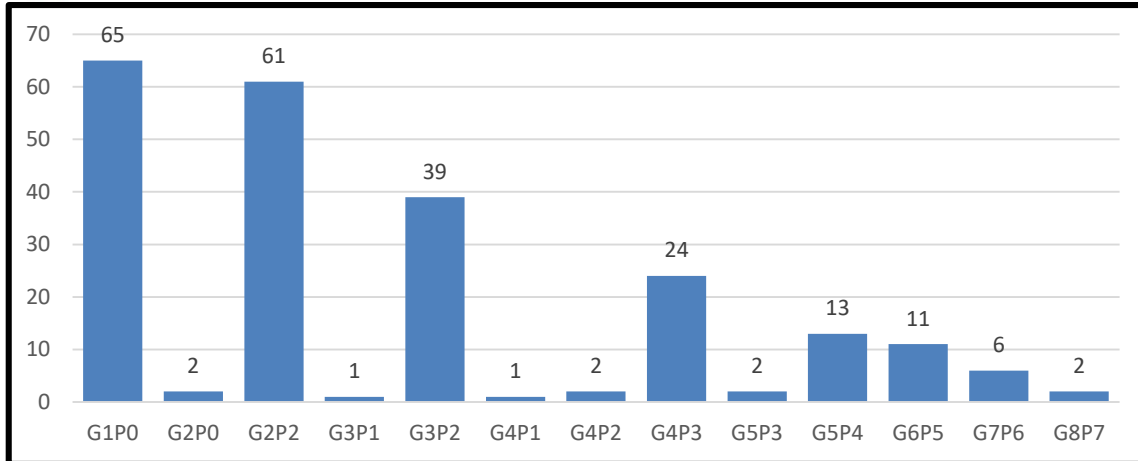


FIGURE 6.4: Mother's parity Cycle I

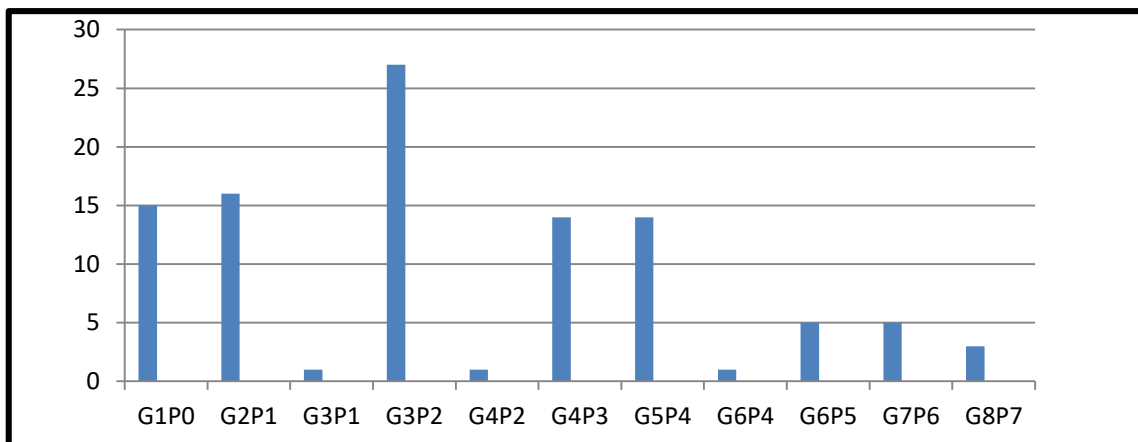


FIGURE 6.5: Mother's parity Cycle III

However, it is of great concern to note that mothers who were at risk of maternal deaths due to high parity (grande multipara) were found in the evaluation phase. Aragaw, Mahtemsilllasie and Jarso (2017:2) state that grand multipara mothers had antepartum complications like anaemia, antepartum haemorrhage, hypertensive disorders, malpresentations, and intrauterine deaths. Postpartum complications in grand multipara mothers included postpartum haemorrhage, puerperal sepsis and increased the length of stay in hospital. The neonatal complications found in grand multipara mothers were low at the 5th minute Apgar scores, with increased perinatal mortality, macrosomia and preterm delivery (Aragaw, et al. 2017:3; Hoque, Hoque & Kader, 2008:27). Mothers who were multiparous supported the primigravidae mothers during the implementation of family-integrated neonatal care.



6.2.3 Gender and gestational age of neonates

The researcher included the gender and the gestational age of the neonates in the analysis. Figures 6.6 and 6.7 show the gender of the neonates for Cycle I and Cycle III, respectively. It is evident that there were 125 (54.59%) boys and 104 (45.41%) girls admitted to the neonatal unit during obtaining of baseline data (Cycle I). Cycle III results showed that there were 52 (51%) boys and 50 (49%) girls in the sample. This indicates that there were more boys than girls admitted to the neonatal ward during both cycles. These results were confirmed by a study conducted by Shakya (2014:145), who found that more boys than girls are admitted to the neonatal intensive care unit on average. Neonates benefited from the implementation of family-integrated neonatal care as they gained weight, and had a reduced length of stay in the neonatal unit, regardless of their gender and gestation.

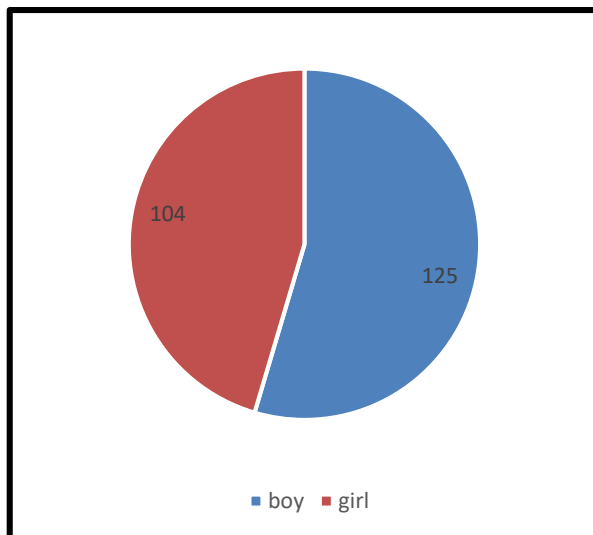


FIGURE 6.6: Gender Cycle I

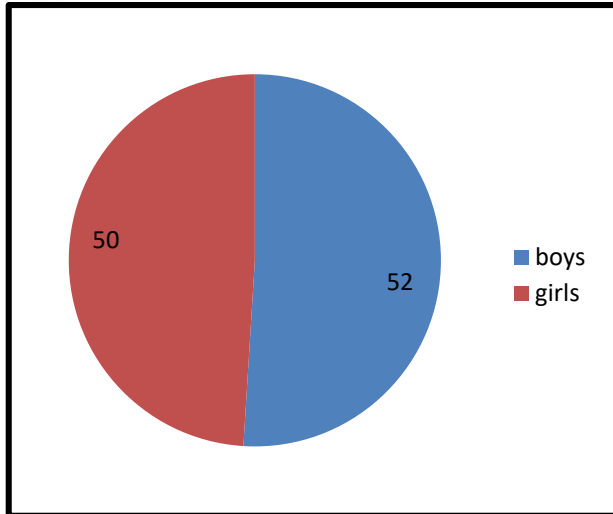


FIGURE 6.7: Gender Cycle III

Figure 6.8 shows that of the 222 neonates admitted to the neonatal unit during the situational analysis in Cycle I, 192 (83.84%) were full-term, while 37 (16.6%) were preterm. Cycle III results in Figure 6.9 illustrate that 73 (73%) neonates were full-term while 29 (28.43%) neonates were preterm. The results therefore show that there were more full-term neonates admitted to the identified hospital in both cycles. Similar results were also reported by Shakya (2014:145), who found that the majority of neonates admitted to neonatal wards were full-term.

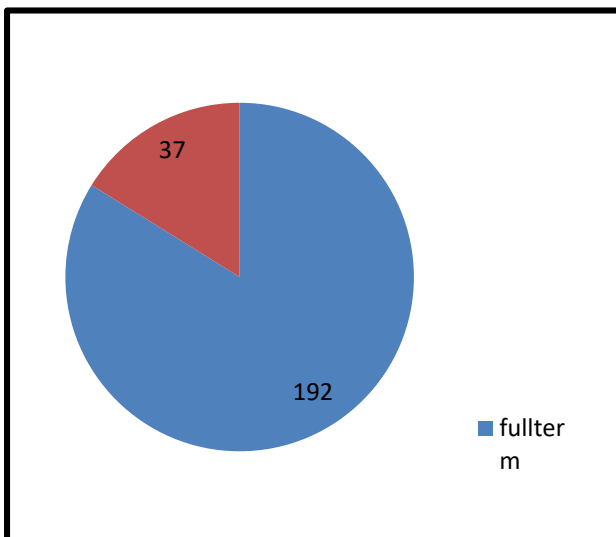


FIGURE 6.8: Gestational age Cycle I

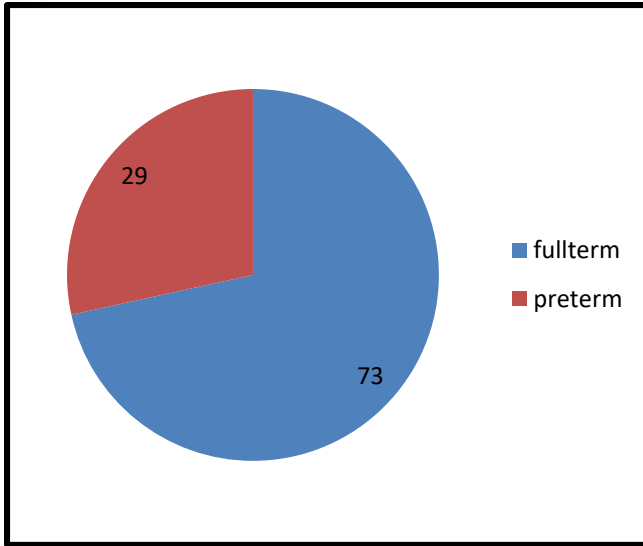


FIGURE 6.9: Gestational age Cycle III

6.2.4 Health-related problems of the neonates

Table 6.1 shows the reasons why the neonates were admitted to the neonatal unit during the obtaining of baseline data (Cycle I) and evaluation phase (Cycle III). In Cycle I most neonates (n= 71; 30.56%) were admitted for respiratory distress which included both mild and severe cases. During the evaluation phase, it was found that neonates were also admitted with other respiratory problems such as pneumonia (3; 1.3%), transient tachypnoea of newborn (7; 3%) hyaline membrane disease (1; 0.44) and 30 (13%) had meconium aspiration. Twenty-seven (12%) neonates had low birth weight while 22 (10%) neonates had birth asphyxia. There were 16 (7%) neonates with neonatal jaundice, and 18 (8%) neonates were admitted with neonatal sepsis. Two neonates (0.9%) were admitted with congenital syphilis, 6 (2.26%) had hypoglycaemia. One (0.44%) neonate each was admitted with abdominal distention, anaemia post-cord bleeding, failure to thrive, herbal intoxication, nasal obstruction, necrotising enterocolitis, peripheral cyanosis, poor feeding, swollen neck mass and upper limb hematoma. One neonate (0.44%) had low birth weight coupled with jaundice, while another one (0.44%) also had low birth weight with respiratory distress.

Cycle III results showed that most of the neonates (27; 26.47%) were admitted with low birth weight, followed by respiratory distress (23.5%). Fourteen (13.72%) neonates had meconium aspiration while 10 (8%) neonates were admitted with jaundice. Only 2 (1.96%) neonates were admitted for lower respiratory tract infections. One (0.98%) neonate each were admitted with

tuberculosis exposure, transient tachypnoea of the newborn, bowel obstruction, congenital pneumonia, constipation, fractured humerus and macrosomia.

When comparing baseline data obtained in Cycle I with that of Cycle III it was observed that, neonates were admitted for similar reasons in Cycle III. However, the leading cause of admission in Cycle III was low birth weight, followed by respiratory distress, meconium aspiration, birth asphyxia and neonatal jaundice. It was noted that there was a decline in neonates admitted with neonatal sepsis from 18 (7.6%) to 3 (2.94%) in just 6 months of implementing family-integrated care in the identified district hospital.

According to Cheruiyot (2013:1), Shakya (2014:144) and Oliveira, et al. (2013:4452), neonates are admitted to neonatal units due to prematurity, respiratory distress syndrome, birth asphyxia and jaundice. Cheruiyot (2013:1) further states that neonates are also admitted to the neonatal unit due to hypoglycaemia, hypothermia and other reasons related to the mother that would make the neonate unable to cope without interventions in the neonatal unit. Shakya (2014:144) further adds that the most common causes of neonatal admissions are infections, poor feeding and vomiting. Oliveira, et al. (2013:4452) indicated that neonates were also admitted for being small for gestational age and birth injury.

TABLE 6.1: Frequency distribution for health-related problems Cycle I and III

Health-related problem	Cycle I	Cycle III
Respiratory distress	73 (30.5%)	24 (23.5%)
Meconium aspiration	30 (13.16%)	14(13.72%)
Low birth weight	27 (11.84%)	27 (26.47%)
Birth asphyxia	22 (9.65%)	10 (9.8%)
Neonatal sepsis	18 (7.89%)	3 (2.9%)
Neonatal jaundice	16 (7.17%)	10 (0.98%)
Macrosomia	13 (5.7%)	1 (0.98%)
Hypoglycaemia	6 (2.63%)	3 (2.94%)
Congenital syphilis	2 (0.88%)	0
Abdominal distension	1 (0.44%)	1 (0.98%)
Anaemia post-cord bleeding	1 (0.44%)	0
Failure to thrive	1 (0.44%)	0

Health-related problem	Cycle I	Cycle III
Herbal intoxication	1 (0.44%)	0
Low birth weight + neonatal jaundice	1 (0.44%)	0
Low birth weight + respiratory distress	1(0.44%)	0
Necrotising enterocolitis	1 (0.44%)	0
Hyaline membrane disease	(0.44%)	0
Pneumonia	3 (1.32%)	1 (0.98%)
Transient tachypnea of newborn	7 (3.07%)	1 (0.98%)
Nasal obstruction	1(0.44%)	0
Poor feeding	1(0.44%)	0
Peripheral cyanosis	1 (0.44%)	0
Constipation	0	1(0.98%)
Lower respiratory Tract infection	0	2 (1.96%)
TB exposure	0	1 (0.98%)
Bowel obstruction	0	1 (.98%)
Chorioamnionitis	0	1 (0.98%)
Fractured Humerus	0	1 (0.98%)

Outcomes of family-integrated neonatal care for the neonate include decreases in necrotising enterocolitis and other nosocomial infections (O'Brien, et al. 2013:4; Galarza-Winton, et al 2013:336). Findings in Table 6.1 show a decline in cases of neonatal sepsis from n=18 (7.86%) to n=3 (2.9%). Necrotising enterocolitis was also reduced from 1 (0.44%) to 0.

6.2.5 Weight gain of neonates

The reasons why weight gain was included was discussed in Chapter 4. When neonates gain weight, it shows that there is good quality neonatal care. Table 6.3 indicates the distribution of birth and discharge weight categories of the neonates, while Table 6.4 shows the change in weight. The results of Cycle I showed that there were 59 (25.74%) neonates in the weight category

under 2500g, 91 (39.74%) of the neonates were between 2500g and 3500g, while 79 (34.54) neonates were above 3500g on admission. However, on discharge, 58 (25.33%) neonates weighed less than 2500g. Most neonates (n=103;44.98%) were discharged with a weight between 2500g and 3500g, while fewer (n=68;29.69%) neonates were in the weight category above 3500g. Table 6.3 shows that there were only 16 (6.99%) neonates whose weight did not change during admission in the neonatal ward. Only 100 (43.67%) neonates showed weight gained during their stay in the neonatal ward. It is concerning that almost half of the neonates (n=113; 49.34%) had lost weight during their stay in the neonatal ward of the identified hospital.

Cycle III's results showed that there were 36 (35.29%) neonates in the weight category under 2500g, 45 (44.11%) of the neonates were between 2500g and 3500g, and 21 (20.58%) neonates were above 3500g on admission. Thirty-seven (36.27%) neonates were discharged weighing less than 2500g. Most of the neonates (n=46 ;45.09%) were discharged within the weight category of 2500g and 3500g, while 19 (18.63%) neonates were in the weight category above 3500g. In terms of weight gain in this study, 6 (5.88%) neonates did not lose nor gain weight, most neonates (n=55; 53.92%) gained weight, while 41 (40.19%) lost weight during their stay in the neonatal ward of the identified district hospital. The loss of weight that occurred was likely physiological.

When compared with the baseline data, some similarities were observed. In both cycles, most of the neonates were in the weight category of 2500-3500g at birth and on discharge. However, findings in Cycle III showed that there were more neonates in the weight category under 2500g than in the weight category above 3500g. In Cycle I, it was observed that there were more neonates in the weight category of 3500g and above than in the weight category of less than 2500g. A difference has also been noticed in terms of weight gain where the results showed that most neonates gained weight during the evaluation phase compared to the situational analysis where most of the neonates had lost weight.

According to Mulder, et al. (2010:16) it is suggested that physiologically neonates would lose up to 10% of their birth weight within 5 days of life, and would return to normal weight within 14 days of life. However, conflicting ideas have been noted about what constitutes normal weight loss and when interventions for the weight loss should be considered (Noel-Weis, Courant & Woodend, 2008:e11).

TABLE 6.2: Birth and discharge weight distribution for Cycle I and Cycle III

Birth weight	Cycle I	Cycle III	Discharge weight	Cycle I	Cycle III
<2500g	59 (25.7%)	36 (35.29%)	<2500g	58 (25.3%)	37 (36.27%)
2500g-3500g	91 (39.7%)	45 (44.11%)	2500g-3500g	103 (44.98%)	46 (45.09%)
>3500g	79 (34.50%)	21 (20.58%)	>3500g	68 (29.69%)	19 (18.63%)

TABLE 6.3: Change in weight gain for Cycle I and Cycle III

Change in weight	Cycle I	Cycle III
No change in weight	16 (6.99%)	6 (5.88%)
Weight gain	100 (43.67%)	55 (53.92%)
Weight loss	113 (49.34%)	41 (40.19%)

The difference in weight gain observed is that more neonates (n=55; 53.92%) gained weight in Cycle III. It was also noted that fewer neonates (n=41; 40.19%) lost weight in Cycle III. These findings are confirmed by O'Brien, et al. (2013:4) and Galarza-Winton, et al. (2013:336), who highlighted an increase in weight gain among neonates as one of the outcomes of the family-integrated care model. In this study, it is evident that the implementation of family-integrated neonatal care improved the weight gain of neonates during their admission in the neonatal unit.

6.2.6 Length of stay of neonates

Length of stay is an important indicator that measures the quality of care in the neonatal ward. Thus, reduced length of stay would indicate that the care provided in that particular unit was of high quality. Table 6.4 shows the distribution of length of stay of neonates during their admission in the neonatal ward during situational analysis (Cycle I). Only two neonates were in the hospital for less than one day. Most (n=177; 77.29%) of the neonates had a length of stay of 1-5 days. Of the 177 neonates, 78 (44.07%) were in the weight category of 2500g-3500g. Twenty-nine (16.38%) neonates weighed less than 2500g, while 70 (39.55%) were above 3500g. Of the 26 neonates that stayed for 6-10 days, 10 weighed less than 2500g, 11 were between 2500g-3500g and 5 weighed more than 3500g. Most of the neonates (n=19; 79.17%) that stayed for more than 10 days in the hospital weighed less than 2500g, 2 (8.33%) were between 2500g-3500g and 3 (12.50%) were above 3500g.

Table 6.4 also shows the findings of the evaluation phase (Cycle III) which indicate that only 2 (100%) neonates within the weight category of 2500g were admitted for less than a day. Most neonates (n=78; 44.07%) were admitted for 1-5 days, 40 (51.28%) were in the weight category of 2500-3500g, 18 (23.08%) were in the weight category under 2500g, while 20 (25.64%) weighed above 3500g. A total number of 13 neonates were admitted for 6-10 days, 10 (76.92%) of those neonates weighed less than 2500g and 3 (23.08%) weighed between 2500 and 3500g. Nine (8.82%) neonates stayed for more than 10 days in the hospital; 8 (88.89%) of these neonates weighed less than 2500g. Only 1 (11.11%) neonate above 3500g stayed in the hospital for more than 10 days.

A difference in the length of stay is evident when comparing Cycle I and Cycle III. It is noted that fewer neonates (n=18; 23.08%) in the weight category under 2500g stayed in the hospital for 1-5 days in Cycle III as compared to 29 (16.38%) in Cycle I. In the weight category of 2500g-3500g it was noted that only 40 (51.28%) neonates stayed for 1-5 days as compared to 78 (44.07%) neonates in Cycle I. Length of stay was also reduced for neonates above 3500g; 20 (25.64%) in Cycle III as compared to 70 (39.55%) in Cycle I. However, an equal number of neonates (n=10;38.46%) in Cycle I and in Cycle III stayed for 6-10 days in the weight category under 2500g. However, length of stay was reduced for neonates in the weight category 2500g-3500g, from 11 (42.37%) in Cycle I to 3 (23.08%) in Cycle III.

A decrease in length of stay of above 10 days is noted in all weight categories. In Cycle I, 19 (79.17%) neonates stayed for more than 10 days as compared to 8 (88.88%) in Cycle III. Two (8.33%) neonates in the category of 2500-3500g stayed for more than 10 days and no neonates in the category above 3500g stayed in the hospital for more than 10 days. Only 3 (12.50%) neonates stayed in the hospital for more than 10 days in the category of more than 3500g in Cycle I as compared to 1 (11.11%) in Cycle III. These findings are in accordance with those of O'Brien, et al. (2013:4) and Galarza-Winton, et al. (2013:336), who stated that implementation of family-integrated neonatal care reduces the length of stay of neonates in the neonatal unit.

TABLE 6.4: Length of stay for neonates Cycle I and Cycle III

Length of stay (in days)	<2500g		2500-3500g		>3500g	
	Cycle I	Cycle III	Cycle I	Cycle III	Cycle I	Cycle III
0	1 (50)	0	0	2(100%)	1 (50)	0
1-5	29 (16.38)	18(23.08%)	78(44.07%)	40(51.28%)	70 (39.55)	20(25.64%)
6-10	10 (38.46)	10(76.92%)	11(42.37%)	3(23.08%)	5 (19.3)	0
>10	19 (79.17)	8(88.89%)	2(8.33%)	0	3 (12.50)	1(11.11%)
Total	59	36	91	45	79	21

Table 6.5 summarises the length of stay of neonates by health related problem. The results showed that 2(1,96%) stayed in the hospital for less than 1 day and 1(50%) each had meconium aspiration while the other neonate had respiratory distress. Most (n=72;70.58%) of neonates stayed in the hospital for 1-5 days. Twenty-two (30,55%) of these neonates had respiratory distress, 13(18.05%) had meconium aspiration, 10(13.88%) had low birthweight, 9(12.5%) had birth asphyxia, 8(11.11%) had jaundice, 3(4,16%) had hypoglycaemia while 1(1,38%) neonate each had tuberculosis exposure, transient tacypnea of the new-born, abdominal distention, bowel obstruction, chorioamnionitis, congenital pneumonia constipation and macrosomia. Thirteen (12.74%) neonates stayed in the hospital for 6-10 days, 9(69.23%) of which were low birth weight, 2(15,34%) had jaundice while 1(7.69%) neonate had birth asphyxia. Nine (8,8%) neonates stayed for more than 10 days, 8(88.88) of which were low birth weight while 1(11.11%) had a fractured humerus.



Table 6.5 Length of stay by health related problem

Health related problem	Length of stay in days 0	1-5	6-10	>10	Total
Jaundice	0	8(80%)	2(20%)	0	10
Low respiratory tract infection	0	2(100%)	0	0	2
TB exposure	0	1(100%)	0	0	1
Transient tachypnea of new-born	0	1(100%)	0	0	1
Abdominal distension	0	1(100%)	0	0	1
Birth asphyxia	0	9(90%)	1(10%)	0	10
Bowel obstruction	0	1(100%)	0	0	1
Chorioamnionitis	0	1(100%)	0	0	1
Congenital pneumonia	0	1(100%)	0	0	1
Constipation	0	1(100%)	0	0	1
Fractured humerus	0	0	0	1(100%)	1
Hypoglycaemia	0	3(100%)	0	0	3
Low birthweight	0	10(37.04%)	9(33.33%)	8(29.63%)	27
Meconium aspiration	1(7.14%)	13(92.26%)	0	0	14
Neonatal sepsis	0	3(100)	0	0	3
Macrosomia	0	1(100%)	0	0	1
Respiratory distress	1(4.17%)	22(1.67%)	1(4.17)%	0	24
Total	2	72	13	9	102

6.2.7 Neonatal mortality

Neonatal mortality remains an important indicator to measure the quality of neonatal care provided by the institution. A high mortality rate indicates poor intrapartum and neonatal care. The results of Cycle I showed that from the 229 neonates studied, 221 (96.51%) neonates were discharged alive and 8 (3.49%) neonates died in the selected sample. Two (0.87%) neonates died of birth asphyxia, 1 (0.43%) neonate each died of herbal intoxication, low birth weight, meconium aspiration and neonatal sepsis, respectively, while 2 (0.9%) neonates died of

respiratory distress. The relationship that was shown between gender and mortality in this study group was that an equal number of boys and girls died.

The results of Cycle III showed that there were 102 neonates; 98 neonates were discharged alive, 50 of which were boys and 48 were girls. Four (3.9%) neonates died; 2 were boys while the other 2 were girls. Two (1.96%) neonates died of low birth weight, 1 (0.98%) died of meconium aspiration, while the fourth (0.98%) died of respiratory distress.

Comparing data from Cycle I with that of Cycle III, it is observed that out of 229 neonates in Cycle I, 8 (3.49%) neonates died while in Cycle III 4 (3.9%) died. Looking at the percentage of neonates who died it might seem as if more neonates died in Cycle III. No change was observed in terms of mortality at this stage. However, according to O'Brien, et al. (2013:4) and Galarza-Winton, et al. (2013:336), family-integrated neonatal care is expected to reduce the neonatal mortality rate. In this study, there was no change observed in terms of mortality rate during the implementation of family-integrated neonatal care.

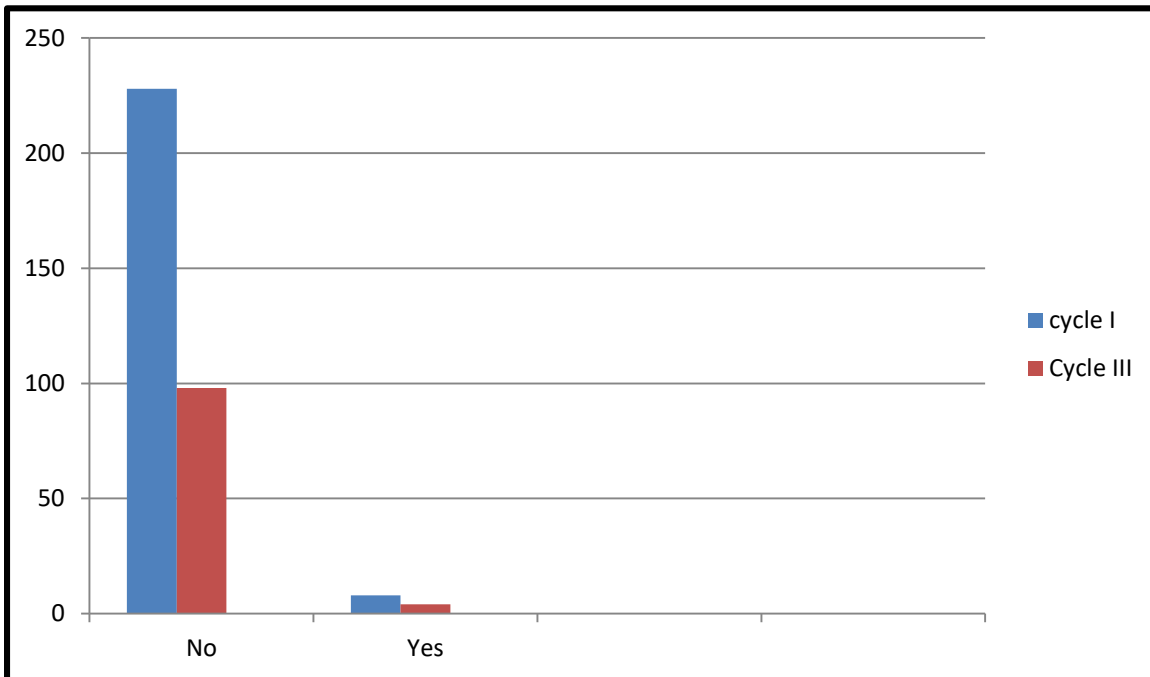


FIGURE 6.10: Neonatal mortality Cycle I and Cycle III



6.3 DATA ON THE PERCEPTIONS OF HEALTHCARE PROVIDERS REGARDING FAMILY-INTEGRATED NEONATAL CARE

The second sub-objective in this cycle was to obtain data regarding the perceptions of the healthcare providers on the implementation of family-integrated neonatal care. The same steps (plan, act, observe and reflect) were followed to attain this objective. In the first step (plan), the researcher planned to collect data using focus groups with the auxiliary, enrolled and professional nurses. In-depth interviews were also used to collect data in this cycle. In the second step (act), the researcher made appointments with the healthcare providers and informed them of the purpose of the interviews and the focus group. Information leaflets were provided to the healthcare providers which had more information about the study. The researcher first collected the demographical data of the participants before collecting data on their perceptions of the care they provided. One focus group was conducted in English, with 3 enrolled auxiliary nurses and 1 enrolled nurse. Three individual interviews were conducted with professional nurses. The individual interviews were conducted because 3 of the professional nurses who were part of Cycle I had left the institution. Two professional nurses had gone for midwifery training while the other one resigned from the hospital. According to de Vos, et al. (2005: 305), a focus group consists of six to ten people. It was therefore difficult to conduct a focus group as there were only 3 professional nurses remaining during Cycle III. There were 2 other professional nurses who just came back from midwifery training and could not be included in the study as they were not part of Cycle I. In the third step (observe), data were analysed using thematic analysis as in Cycle I. In the fourth step (reflect), a reflective meeting was held with the steering committee.

The researcher conducted focus groups in Cycle I in order to obtain baseline data on the experiences of healthcare providers regarding the care they were providing to the neonates at that particular time. It was found that traditional routine neonatal care was provided by healthcare providers. This method of neonatal care had its own challenges which were identified during data collection. Strategies of family-integrated neonatal care were drawn in order to deal with the challenges identified in the situational analysis. Family-integrated care was then introduced in the identified district hospital, where the mothers became primary caregivers in the neonatal ward. Mothers were taught neonatal care activities that would assist them in taking care of their own neonates during their stay in the neonatal ward. The healthcare providers were the ones educating and supervising the mothers during the provision of neonatal care. The interviews and focus groups conducted in Cycle III evaluated the implementation of family-integrated neonatal

care. Data analysis in Cycle III was done through thematic analysis with the aim of describing the experiences of the healthcare providers on the provision of family-integrated neonatal care. The experiences of the healthcare providers were not limited to the themes identified in Cycle I.

6.3.1 Demographical data of participants

The researcher obtained demographical data from the participants before collecting data on their perceptions regarding family-integrated neonatal care. The demographical data included age, gender, the highest level of education, and years of nursing experience.

6.3.1.1 Age

In Cycle I there was 9 participants of which 3 (33%) were within the age group of 20-25, 2 (22%) were between 36-40 years, while 1 (11%) participant each was within the age group of 26-30, 31-35, 50-55 and 56-60 years, respectively. There were 7 participants in Cycle III. Four (57%) were within the age group of 20-25 years, while 1 (14%) participant each was within the age group of 41-45, 50-55 and 56-60 years, respectively. When comparing data from Cycle I to that of Cycle III it was observed that most participants were between the ages of 20-25 and fewer participants were in the other age groups.

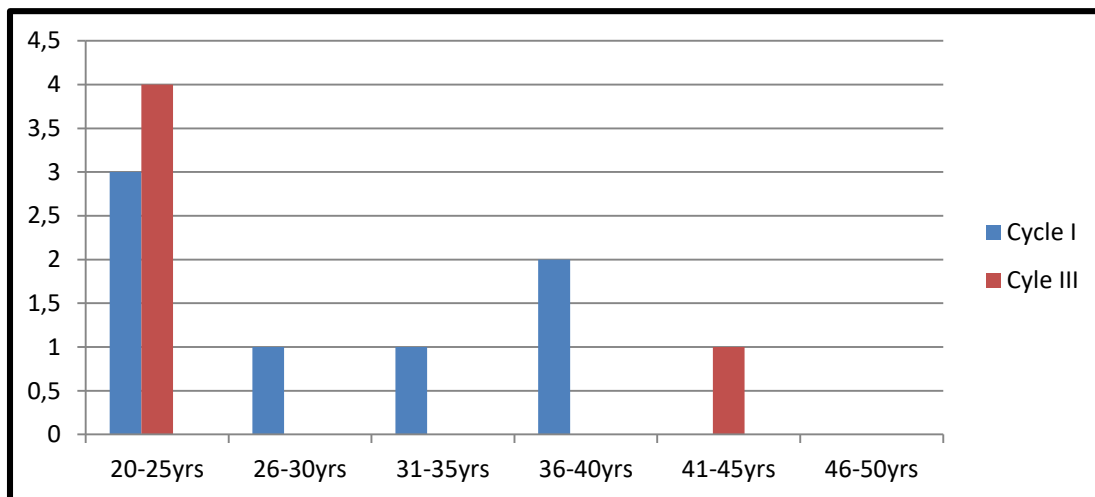


FIGURE 6.11: Age of participants

6.3.1.2 Gender

There were 9 participants in Cycle I and all 9 (100%) participants were females. Data were collected from 7 participants in Cycle III and all 7 (100%) participants were females. There was thus similarities observed in both cycles were that all the participants were female.

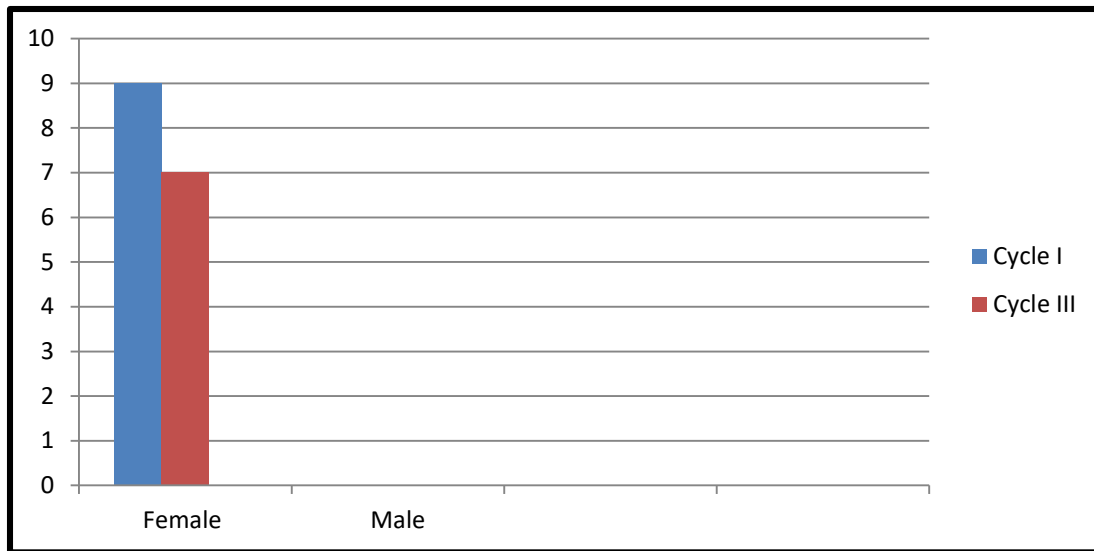


FIGURE 6.12: Gender of participants

6.3.1.3 Highest level of education

The results of Cycle I showed that there were 3 (33.3%) participants with certificates in auxiliary nursing, 2 (22.2%) had certificates in enrolled nursing, 3 (33.3%) participants had diplomas in general nursing, 1 (11.1%) participant had a diploma in both general nursing and midwifery. In Cycle III, there were 3 (42.9%) participants with certificates in auxiliary nursing, and 1 (14.2%) with a certificate in enrolled nursing. There was 1 (14.2%) participant in each category of having a diploma in general nursing, in general nursing and midwifery, and a 4-year comprehensive diploma in nursing. This study showed that most participants had certificates in auxiliary nursing and diplomas in general nursing in Cycle I, and in Cycle III most participants were in the category of auxiliary nursing. All three categories of nurses were required to monitor the implementation of family-integrated neonatal care.

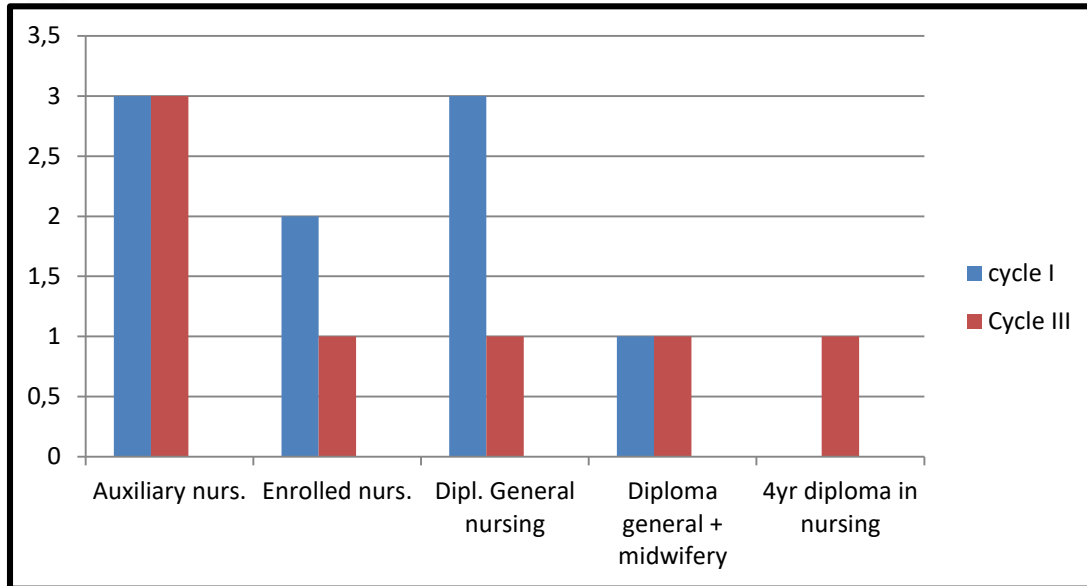


FIGURE 6.13: Level of education of participants

6.3.1.4 Years of experience in nursing

Cycle I results showed that there were 5 (55.6%) participants who had 1-5 years of experience in nursing, 2 (22.2%) had 6-10 years' experience while 1 (11%) participant each had 11-15 years and 26-20 years' experience, respectively. In Cycle III, 4 (57.1%) participants had experience of 1-5 years, 1 (14.3%) had experience of 6-10 years, while 2 (28.86%) participants had experience of 11-15 years. The study showed that most of the participants had experience of 1-5 years in both cycles, followed by 11-15 years in Cycle III, and 6-10 years in Cycle I. There were few participants with 6-10 years' experience in Cycle III and no participants at all for 16-20 years' experience.

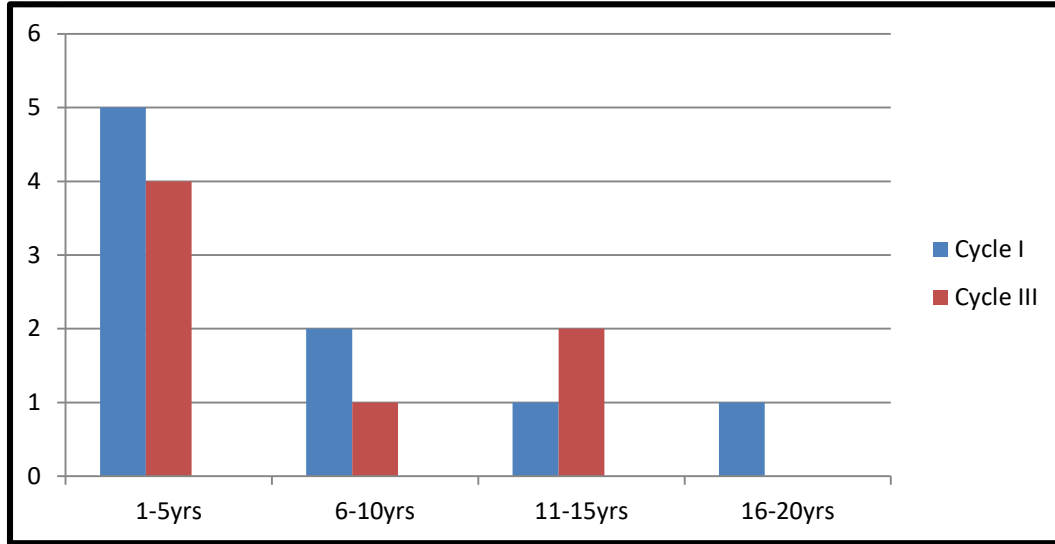


FIGURE 6.14: Years of experience of participants

6.3.2 Themes, categories and subcategories of perceptions of healthcare providers on family-integrated neonatal care

Table 6.5 summarises the themes that emerged during thematic analysis of the experiences of the healthcare providers on the provision of family-integrated neonatal care in the identified hospital.

TABLE 6.5: Themes, categories and subcategories of perceptions of healthcare providers of family-integrated neonatal care

Theme	Categories	Subcategories
6.3.2.1 Experiences of healthcare providers on the involvement of the family in neonatal care	a) Inclusion of the mother in neonatal care	Empowerment of the mother to enhance involvement Attitude of the mother towards involvement in neonatal the care Timing of involving mothers in neonatal care Mothers' fear of the appearance and the condition of the neonate during involvement in care



Theme	Categories	Subcategories
	<p>b) Role of the father in neonatal care</p> <p>c) Role of grandmothers in neonatal care</p> <p>d) Benefits of family-integrated neonatal care.</p>	<p>Mother-to-mother support to enhance involvement in care</p> <p>Supportive role of the father</p> <p>Fathers' fear of the premature neonate during neonatal care</p> <p>Limited involvement of grandmothers in neonatal care</p> <p>Use of traditional practices by grandmothers in neonatal care</p> <p>Grandmothers' beliefs on myths regarding treatment of health-related problems</p> <p>Benefits of family-integrated care for the mother</p> <p>Benefits of family-integrated care for the healthcare provider</p> <p>Benefits of family-integrated care for the neonate</p>
6.3.2.2 Infrastructure of the neonatal ward.	a) Inadequate ward facilities for visitation	Lack of space for visitation

6.3.2.1 THEME 1: Perceptions of healthcare providers on the involvement of the family in neonatal care

a) Inclusion of the mother in neonatal care

Supporting the mother in the neonatal ward is important so that they are able to cope with the admission of their neonate.

In the literature review, it was observed that mothers experience a lot of stress related to the admission of their neonate. It was therefore important for the healthcare providers to support the mothers during the admission of the neonate so that they were able to deal with the situation better. Mothers wanted to be included in the care of their sick or preterm neonate, and including them enhanced knowledge and decreased stress which promoted effective bonding (Obeidat, et al. 2009:27; Malakouti, et al. 2013:175; Araujo & Rodrigues, 2010:865; Cleveland, 2008:680). Therefore, including mothers in the care of their own neonates will assist them in coping with the admission of their sick or small neonate in the neonatal ward.

- **Empowerment of the mother to enhance involvement in neonatal care**

The findings of this study showed that the healthcare providers supported the mothers by empowering them with knowledge of caring for their own neonates. The mothers learnt skills of neonatal care, included cuddling, touching, nappy changing, feeding, cleaning of the umbilical cord, doing observations and skin-to-skin care. Healthcare providers supported mothers during their stay in the neonatal unit, as mentioned by participants:

“The mothers benefit because of the manual work they do of 3hourly feeding, nappy changing, observations and cord care. When they start touching, cuddling and feeding it gives them a sense of motherhood” (Participant 1)

“We taught them how to cup feed” (Participant 2)

“We teach them nappy changing and how to use aseptic techniques when cleaning the cord [of the] baby” (Participant 3)

Another participant indicated that: *“We show them to change the nappies, clean the cord, the umbilical cord and to wash hands”* (Participant 5)

“We teach them that before you touch the baby you must wash your hands, change the nappy, and then clean the cord after that wash hands again then breastfeed the baby”. (Participant 6) added.

According to Herbst and Maree (2006:4), empowering parents in the neonatal ward was crucial. They suggested that parents should be encouraged to participate in the care of their neonates.

Parents must be taught how to change nappies and feed their infants while preventing potential risks such as disconnecting intravenous lines and respiratory tubes.

According to Bracht, et al. (2013:117) and Galarza-Winton, et al. (2013:336), parents needed daily education to become primary caregivers for their neonate and attain specific skills while still hospitalised in the NICU. The skills included feeding, bathing, giving reports during rounds, participating in developing care plans, monitoring, charting, assessing the neonate and providing appropriate developmental care which will enhance the speedy discharge of the neonate.

Breastfeeding is recommended for both preterm and sick neonates. In order for breastfeeding to be successful, mothers have to be educated. According to the World Health Organization (WHO, /), breastfeeding should be initiated in the first hour of life. Breastmilk is the natural first food for neonates. Breastfeeding provides the neonate with energy and nutrients that the neonate which is crucial in the neonatal phase. Breastmilk promotes sensory and cognitive development and protects the neonate from infectious and chronic diseases. The WHO (2011) further indicated that breastfeeding reduces infant mortality due to common childhood illnesses such as diarrhoea and pneumonia. Advantages for the mother is that it helps to space children and reduces the risk of ovarian and breast cancers (WHO, 2011). The results of this study also indicated that mothers were capacitated with health education with regard to breastfeeding and its advantages. This was shown as follows:

“Information number 1 that I can tell you about is breastfeeding. We support because you remember policy number one is making it known that exclusive breastfeeding is the key and even support them doing that, because with babies that are coming to us being fullterm we start it like right away...With preterms at times they must gain a certain weight before because they are less than a kilogram. We don't talk breastfeeding but they express and then a lot of information is on the importance of breastfeeding” (Participant 1)

Another participant indicated that

“I teach the mothers the advantages of breastfeeding...I take the baby and show the mother how to breastfeed)” [meaning that she demonstrate breastfeeding to the mother) (Participant 8).

These findings were in accordance with those of Chraskova and Boledovicova (2015:39) who stated that healthcare providers should educate mothers about the benefits, contraindications and correct techniques of breastfeeding.

Mothers were empowered through health education on breastfeeding during the implementation of family-integrated neonatal care.

- **Attitude of the mother towards involvement in neonatal care**

Araujo and Rodrigues (2010:867) stated that parents need support to be able to recognise the needs of their premature and sick neonate. Parents should go through stages in gaining affective bonding and security in caring for their neonates. These stages of behaviour include interest in information about the neonate, observation of the neonate's movement, and stimulation through touch. The mother should also show confidence and acceptance of manipulation through holding, rocking and feeding the neonate. The mother must have confidence that she can comfort and treat her baby (Araujo & Rodrigues, 2010:867).

The study revealed that some of the mothers portrayed a negative attitude in terms of their involvement in caring for their neonates. The negative attitude was due to the fact that the mothers expected the healthcare providers to take care of the neonates for them. This was shown as follows:

“But some of them the attitude hey... (Taking a deep sigh). When you start approaching them and explaining they think you are in for them enslaved to take care of their babies whilst you just introducing it for their own benefit. Then you find somebody just wanting to sleep saying I am tired this and that.” (Participant 1)

Another participant added that:

“Others are reluctant to take care of their babies and mothers think that it is the responsibility of nurses to feed, changing nappies and cord care. The mothers end up not complying with the rules of the unit e.g. hand washing before contact with the neonate” (Participant 2)

However, other mothers cooperated and accepted being involved in caring for their neonates. The mothers who accepted their involvement helped to convince those who were struggling initially. This was indicated as follows:

“Other mothers are complying and are very cooperative” (Participant 2)

“They accept it because they are doing it for the benefit of their children and themselves”
(Participant 3)

Another participant added:

“when they see others enjoying it and when they see it happening they start realizing that it is not that the nurses are lazy not to be changing nappies because they want them hands on and then they turn around.” (Participant 1)

During family-integrated neonatal care mothers who were used to taking care of their neonates helped in supporting other mothers who were reluctant to take care of their own neonates.

- **Timing of involvement of the mother in neonatal care**

Lee and O'Brien (2014:845) stated that involving the mother in caring for their neonates should begin immediately on admission. This is done in order to reduce the anxiety and stress that the mothers experience during admission of their sick neonates.

In this study, mothers with infectious diseases were not allowed to care for their neonates. Mothers who delivered by caesarean section were also a challenge as they were not able to be involved since admission. This resulted in a delay when such mothers got involved in caring for their neonates. A participant explained:

“The challenge is with the caesarian sections they cannot start immediately so they start like at day 2 and it will just be introduction to what is happening because they still a drip on as on the first day they are hardly out of bed so we are doing fulltime to give them breaks” (Participant 1)

The participant further indicated that:



“The challenge of the model is when the mothers are not too well. The challenges are with the problems that arise when the mother is not well. The TB cases they cannot come in immediately they are very weak so the challenge comes with those patients” (Participant 1)

These findings were confirmed by Lee and O’Brien (2014:846), who stated that it was challenging to involve parents in caregiving if parents were not able to room at the hospital. Moreover, it becomes difficult for the mother to be involved when the neonate is born prematurely. Rabelo, Chaves, Cardoso and Sherlock (2007:333) stated that pregnant women and their families have hopes and expectations regarding the birth of their new baby. They wish for a stable, healthy birth filled with joy. When birth occurs prematurely, in some cases it leads to anguish and uncertainties in the life of the family as the neonate is anatomically and physiologically immature.

The healthcare providers in this study observed that some mothers were not ready to be involved in neonatal care because they delivered premature babies. This was highlighted as follows:

“The challenge is their bodies are not even ready yet to secrete milk because they delivered preterms. The challenge is secretion of milk and the size of the baby and the environment they find themselves in. When they fall pregnant they don’t have an accommodation of anything extra all they have in their mind is I go to the hospital deliver and go home but surprise surprise you find yourself in a neonatal unit where you don’t even know when you are going to be released and you are faced with the challenge of a very small baby” (Participant 1)

These findings in this study support those of Aagard and Hall (2008:e31), who indicated that giving birth to a preterm baby produced feelings of alienation, despair and grief. The new mother is not prepared and the development of maternal identity is delayed. The mother becomes distressed and her expectations of celebrating her newborn are shattered.

- **Mothers’ fear of the appearance of the neonate during involvement in care**

Mothers usually want to be included in the care of their sick, fragile neonate as participation enhances parenteral knowledge and decreases stress which, promotes affective bonding (Obeidat, et al. 2009:27). The state that the mother finds the neonate in sometimes makes it

difficult for her to be involved in taking care of the neonate. The neonates are at times admitted in a very ill condition or born prematurely. The mother may have a fear of touching the neonate as they are very small or they see them as being very sick. The mothers end up being stressed and wondering if the neonate will survive. Rabelo, et al. (2007:335) stated that daily care activities of bathing, touching, changing nappies and breastfeeding became complex when the neonate was premature.

In this study, mothers of very sick and premature neonates feared taking care of their neonates. Some mothers would come up with excuses in order to avoid seeing or touching their infants. They had to be counselled, taught and shown pictures of previous mothers who were in the same situation and were discharged. It was only then that they started to be involved in caring for their neonates. This was indicated as follows:

“Mothers got fears in care of prematurity neonates especially being first time having premature. Other mother got fears when their neonate was deformed or abnormal or in a critically ill especially on CPAP” (Participant 2)

“Most of the time in our unit mothers are having preterms for the first time in their lives so they become scared because they think they are special and different from the big ones. Of course they are but they also need to realize that they need the same attention of touching and nourishing as bigger babies. Teaching them makes them to adapt to the situation” (Participant 1)

Sometimes if the baby is too small they are afraid to see the baby and we tell them to take care of the baby then they are afraid they tell you there is no milk whereas the milk is there they don't want to breastfeed They also say the baby has got hair on the body [meaning lanugo] which makes them to be afraid of them”. (Participant 5)

The participant also indicated that:

“When we are with them we teaching them and showing them the photos they end up appreciating and accepting” (Participant 5)

These findings were confirmed by other studies where it is stated that mothers of neonates born prematurely became mothers without being prepared as the neonate was born early and was so tiny and fragile. The mothers are in a situation filled with anxiety because they fear that the baby may be ill or might not survive (Lindberg & Ohrling, 2008:462; van Rooyen, 2006:8). Jabraeeli, et al. (2013:175) also found that mothers whose neonates were admitted to the neonatal ward experienced a sense of alienation towards their neonate because of the size of the baby. During the implementation of family-integrated neonatal care, mothers who were afraid of their preterm neonates were supported by healthcare providers educating them and showing them photos of neonates who were discharged.

- **Mother-to-mother support to enhance involvement in neonatal care**

Mothers should support each other during admission of their neonates in the neonatal ward. Mothers who had their neonates admitted to the neonatal ward can assist other mothers to accept and deal with the situation better. This will enhance their involvement in the care of their own neonates during their stay in the neonatal ward. Gooding, et al. (2011:22) indicated that peer support was required for the mother to be able to cope with the situation of their infant being admitted.

The results of this study showed that mothers who were used to the neonatal ward provided psychological support to other new mothers who had preterm neonates. This was shown as follows:

“They get empowered because at times to support that even the mothers in the unit, like they have been here for some time and are able to help us support the new mother that comes in. They are able to say look we have been there we know is unbelievable the first day but it works. Look at where we are. Like mothers in KMC will be counselling them that I have done that before, I have done this take their advice it works”. (Participant 1)

“When other mothers come for checkup we show them those mothers and they communicate with them then bit by bit they become ok”. (Participant 4)

Findings in this study were confirmed by O’Brien, et al. (2013:2) who discovered that parents who had experience with their babies being admitted to the neonatal ward could be valuable sources of information, hope, advice and support to mothers undergoing the same experience. During

family-integrated care mothers who were used to taking care if their neonates provided support to mothers who were new in the neonatal unit.

b) Role of the father in the care of the neonate

During admission of the sick or preterm neonate, the mother is generally seen as the primary care giver. Fathers thus feel that they are excluded from the care of their own neonates during admission. Traditionally men are the ones working for a living and protecting and providing for their families. However, fathers' roles are now changing as they want to be included in caring for their own neonates. According to Lindberg and Engstrom (2013:149), fathers want to be recognised as active participants in caregiving. Being present for the mother and the neonate is described as family togetherness, during which time the father can continue in their role as caregiving partners and supporters in care (Lindberg & Engstrom, 2013:149).

• Supportive role of the father

Early involvement of the father in child care has positive effects on the behavioural, psychological and cognitive outcomes of the child. The early father-child relationship has been found to be protective in the face of family discord. The admission of an ill or premature neonate interrupts the parent-child relationship. The interruption is due to anxiety and despair and the physical environment that parents find themselves in. Fathers should be encouraged to touch their neonate to promote the parent-child relationship (Noergaard, et al. 2017:E17; Soares, Christofell, Rodrigues, Machado & Cunha, 2015:415).

The results of this study showed that fathers were supported by being encouraged to take part in caring for the neonate. They are allowed to do skin-to-skin contact with the neonate and they received necessary information. This was shown as follows:

“We encourage them and applaud them for being supportive parents because not everyone does that. We impart knowledge that gives them an overview of understanding the role they need to play of being supportive fathers, of helping with nappy changing. We also give them information that they ask about. I personally encourage them to put their babies and cradle them over their big bellies.” (Participant 1)



“The father is allowed to visit as much as possible in all hospital visiting times. They play a supportive role and we see the difference in the attitude and milk secretion of the mother when the fathers are involved” (Participant 3)

“Fathers give support and sometimes encouraged to do KMC” (Participant 2)

Another participant indicated that: *“If the father is the father of the premature we encourage them to kangaroo the baby”*. (Participant 5)

“We encourage the fathers to visit their wives so that they can be happy in the hospital and they will not miss home because they are coming to see them”. (Participant 6)

These results are confirmed by other studies where it was indicated that the fathers' main role was to fulfil the needs and expectations of their wives. They would be able to support their partners if they were provided with the information they needed. When the neonate is stable the fathers should be encouraged to take them in their arms for skin-to-skin contact (Noergaard, et al. 2017:E17; Soares, et al. 2015:415). According to Arockiasamy, Holsti and Albersheim (2008:e220), fathers of sick neonates should be supported by asking them how they feel about the admission of their neonate and how they feel about being equally included in the care of the infant. In this study, fathers of neonates were encouraged to visit the mother in order to support her when family-integrated neonatal care was implemented.

- **Fathers fear of a premature baby during neonatal care**

A premature neonate is seen by its father as fragile, small and immature. Having a premature neonate admitted in the neonatal ward is a sad, complicated, difficult and painful experience for the father. The fathers are therefore afraid of touching the premature infant and are afraid of losing them. The fathers place their confidence in the technological environment of the NICU and on the health workers to maintain the life of the neonate (Soares et al 2015:415). In this study, some fathers were afraid of touching their premature neonates because they were very small. They therefore failed to do skin-to-skin contact when they were offered the opportunity during their visit in the neonatal ward. This was confirmed as follows:



“Men are not like women. Not everybody responds the same to the babies or the environment some are scared but for those that can really be there and not be intimidated by the hospital environment, we do make use of that” (Participant 1)

“Some they want some they don’t want because they are afraid of the baby” (Participant 4)

“Some fathers got fear to prematurity babies” (Participant 2)

These findings are supported by Hollywood and Hollywood (2011:34), who indicated that premature birth causes a lot of emotional stress and anxiety on the parents as they are not prepared for the situation. Fathers, in particular, were not ready for the rollercoaster ride that resulted from the premature birth of their neonate. Fathers had a fear of the unknown when handling premature babies and feared how the neonate would be physically and developmentally in future, and they therefore described their wish of having a normal neonate (Hollywood & Hollywood 2011:35). Fathers were not afraid of handling their infants were involved during the implementation of family-integrated neonatal care at the district hospital.

c) Role of neonates’ grandmothers in neonatal care

According to Gooding et al. (2011:20), it is important to provide care to the neonate and the family as a whole. The entire family is to be included as caregivers and decision makers in the care of the neonate. These family members include mothers, fathers, siblings, grandparents and friends. Other members of the family are important as they contribute to the wellbeing of the mother and the sick neonate (Gooding, et al. 2011:20).

A family in the context of family-integrated care also include the grandmother of the neonate who, in the absence of the mother, could assist in caring for the neonate. According to Iganus, Hill, Manzi, Bee, Amare, Shamba, Odebiyi, Adejuyigbe, Omotara and Skordis-Worral (2015:1258), grandmothers and other female members of the family should be involved in newborn care as they play an important role as advisors, decision makers and caregivers; especially for first time mothers. These family members need to be present during the first days and weeks of life of the neonate to help and support the mothers.



- **Limited involvement of grannies in neonatal care**

There was limited involvement of grandmothers in this study. The grandmothers were called in only when the neonate was due for discharge. They were only involved in cases of long-term health-related issues with the mother. Moreover, there was also a lack of trust in the grandmothers in this study. This was revealed by participants stating:

“They come once to see the baby then some other days they just come to see the mother outside the ward”. (Participant 4)

“The grandmother only comes into the high care and ICU once then allowed to see the baby when in KMC as much as they want”. (Participant 3)

“We haven’t actually thought about it but in my experience I find that you can also involve wrong people in the process .wrong people in the sense that we limit people who comes in. you may find that they now start bringing in their aunties and neighbours to come into the unit in the pretense of coming to do that but grannies we have accommodated in terms of mothers that are very sick because is like a long term thing yes because we have a granny recently from that baby that I was holding that other side the mother was transferred to Nystrom because of TB MDR. The granny came in the granny took the baby home. She stayed like overnight and then took the baby home. So in that case when the problem is like long term it is ok but if the problem is short term like the caesarian section we want the mothers to know how to do their staff”. (Participant 1)

“The grandmothers are involved in the care in neonates when the mother passed away or transferred to other institutions to prepare for feeding method before discharge” (Participant 2)

The lack of trust in the grandmothers of the neonate was highlighted as follows: *“If you bring a granny, the granny might not even tell the right things because it is the very granny that tells her not to follow instructions. So at times you look at their outlook to life and their orientation to life and some grannies are like just having their own theories on top what you are explaining so if you bring such a granny (laughing...) it is going to be detrimental because she going to say don’t worry I got it.so in the mean time she is going to do her own things. so its two sides of the coin it is about the support and benefiting the support*



and benefiting from the integrated care with everybody orientated to what must happen but then if that is broken if the purpose is not served accordingly then we can head for a disaster.” (Participant 1)

Iganus, et al. (2015:1258) supported these findings when they indicated that child health interventions have traditionally been focused on the mother-child dyad with the family receiving limited attention. This limited attention was mainly due to the fact that there was a lack of understanding of their cultural systems, social structures, collective values and beliefs of family members, especially grandmothers. It was perceived that grandmothers are a negative influence, and they are incapable of changing their views. There was a need to broaden interventions to include family members and other decision makers in newborn care.

- **The use of traditional medicines by grandmothers in neonatal care**

Healthcare providers believed that the grandmothers were the ones encouraging the young mothers to use traditional medicines on their neonates. The medicines were used for protective and preventative reasons. However, this practice became dangerous to the neonates when they were given medicines which resulted in death. This was indicated as follows:

“Because you can have that granny that is going to take the baby from here first thing in the morning to go to the herbal chemist to get all these things and if you bring a granny like that it does not help” (Participant 1)

“There was one that came with all this things on the head and that mother was even manipulated because she said no then the granny manipulated her and they went to somebody to a place to do whatever they were going to do out of the mothers consent they did that but after a while when the mother saw that the baby had some razor cuts and everything when they came to the hospital the mother was furious but what do you do. The mom was furious and unfortunately we lost that baby that day” (Participant 1)

“They take their babies to the traditional healers neh to do their fontanelle. They give them herbal medication and when they come back to the hospital they die.” (Participant 8)

The grandmothers are manipulative and overpowering the mothers in the use of traditional medication on their neonates. They even go so far as telling them not to tell healthcare providers



that they gave traditional medicine to the infant. They further intimidate the mothers with the fact that they used the medicines on them (mothers) and on other members of the family and everything worked very well. Participants shared:

“If it was for me I would not consider the grannies a lot because they are the ones that lead the little one astray and unfortunately they intimidate them with the fact that this is how I brought you up are you an imbesile.... (laughing) or are you invalid now because this is how I brought you up. Do think I brought your mothers up and everybody and they are healthy do think I could have had them right if I was not doing this thing. so the little ones because they are intimidated by the fact that they have evidence this is a good job that they have done look at your uncles and everyone and you too and your mom gave you to me at an early age and I worked your magic so now the little one gets disorientated and they can be convinced that they know nothing they need to be told and learn from the grannies” (Participant 1)

“When they come back [meaning re admitted] and you ask the mother what kind of medication did you give the baby, they tell you I did not give him anything. But when you suction a clot of something comes out and ask you ask her what is that she tells you I don't know. It is only when the baby die that the mother tell you I took the baby to the traditional healer and they gave her herbal medicine to drink” (Participant 5)

According to Kayombo (2013:2), traditional remedies are administered to infants orally, through bathing or wearing an amulet around the arm or waist as protection against the evil eye, witchcraft or infectious diseases. Different traditional methods are used to protect infants, including herbal remedies that were administered orally, through incisions made on the forehead, in the middle of the chest, on the left and right of the abdomen, and at the toes. These sites of incision were seen as points of entry used by sorcerers to penetrate charms to harm the infant. The incisions were smeared with herbal remedies that closed these entrants from witches and sorcerers (Kayombo, 2013:2).

- **Grandmothers' beliefs in myths regarding the treatment of neonatal health-related problems**

Dharel and Bhattarai (2016:2) defined jaundice as a yellowish discoloration of the skin or the whites of the eyes that is seen in both full-term and preterm neonates. Neonates with high levels

of bilirubin, called hyperbilirubinemia, develop the yellow colour when bilirubin accumulates in the skin. Severe hyperbilirubinemia can be toxic to the nervous system and can cause encephalopathy or permanent brain damage, called kernicterus. Grandmothers of neonates in this study claimed to have knowledge about the causes and treatment of jaundice. They indicated that the mother drank Fanta orange during pregnancy and that is the reason why the neonate will present with yellowish discoloration of the skin a few days after birth. Grandmothers therefore requested a discharge for the neonate, so they could treat them elsewhere even when the neonate was still under treatment at the hospital. This was said as follows:

“We have seen lots of grannies not being health wise orientated because when they come in they will ask for discharge on behalf of the mother and this I know how to treat I tell you jaundice there is nothing like this this one was given Fanta and I know how to handle it when somebody is given Fanta and you don’t know what is happening.” (Participant 1)

There were some grandmothers who believed that they also had a solution for fractures:

“At few times we had grannies that asked discharge for the mother with regards to those issues. like we had a mother who wanted to sign refusal of hospital treatment because eh during labour management of shoulder dystocia is to have the humerus being fractured to get the delivery over, so after that when the fracture was to be taken care of for ten days then the granny said no I know how to handle that I heard about it already and I knew it was going to happen. So bring the baby home. How do you give a granny to to take care of a fracture at home? What is the granny going to do ag the grannies?” (Participant 1)

These findings were confirmed by Dharel and Bhattarai (2016:2), who found that foods that the mothers ate while pregnant were seen as the cause of jaundice and grandmothers resorted to traditional measures for treatment. The involvement of grandmothers in family-integrated neonatal care was thus limited mainly due to their use of traditional medicines and superstitions.

d) Benefits of family-integrated neonatal care

Family-integrated care has positive outcomes for the neonate, the mother and the healthcare team in the neonatal ward. However, healthcare providers require a major mind shift from the

normal routinised care that they provide to family-driven neonatal care. Including parents as primary caregivers require that the parent should be at the hospital all the time. Therefore, the parents should be provided with accommodation, parking facilities and recreation facilities including social and psychological support during their stay in the neonatal ward. Teaching caregiving skills to parents in the neonatal ward can only yield positive results to the neonatal ward as a whole (O'Brien, et al. 2013:3). Implementing family-integrated neonatal care improved the quality of neonatal care in the neonatal unit of the identified district hospital.

- **Benefits of family-integrated care to the neonate**

Positive outcomes were observed in this study with regard to the benefits to the neonates. Neonates who had their mothers in the neonatal ward were seen to be thriving better than those who did not have their mothers involved in neonatal care. This model of care also prevented diarrhoea and other infections. The length of stay of the neonates was also reduced with family-integrated care. Bonding and breastfeeding were also improved. These results were communicated as follows:

“There will be a peptide bond between the mother and the neonate” (Participant 3)

“It reduced the long stay of the neonates in the hospital” (Participant 2)

“I think by teaching the mothers to take care of their babies at the hospital even when they go home they will do their best they won't come back having diarrhea and infections”
(Participant 6)

“Their growth you know a happy neonate you can just see because their growth exceeds our expectations we have seen a difference in those mothers that are not sick at all who are like hands on and fulltime involved their babies grow better than those whose mothers are not involved because of other challenges like we have this TB cases that we cannot have the mother be involved there fulltime they take long to pick up on their weights unlike the mother that is there and being involved so they, I must say the benefits to the neonate is that that neonate will be growing at an expected rate, that neonate that will have less challenges than the one that does not have a mother to oversee.” (Participant 1)

These findings were in agreement with those of O'Brien, et al. (2013:4) and Galarza- Winton, et al. (2013:336), who discovered that the outcomes of family-integrated care for the neonate were decreased retinopathy of prematurity, and decreased necrotising enterocolitis and other infections. Medication errors, morbidity and mortality rates were also reduced. There was a reduced length of stay, increased weight gain and a reduction in the number of critical incident reports. Breastfeeding was improved on discharge. The implementation of family-integrated neonatal care improved the growth of neonates during their stay in the neonatal unit.

- **Benefits to the mother**

Parents whose neonates are admitted to the neonatal ward experience a lot of fear and stress due to their sick or preterm neonates (Carter, et al. 2009:f109). The stress is due to the fact that they are unable to help, hold, or care for the neonate and protect the infant from pain and share the infant with their family members (Cleveland, 2008:666). Parents should be allowed to see, touch, and take pictures of their own infant. Parents should be encouraged to feed, do skin-to-skin contact, and hand cupping as this makes the parents feel connected to their neonate; promoting bonding (Gooding, et al. 2011:23). The presence of parents in the neonatal ward would improve communication with the healthcare providers and would also give them a better understanding of the condition of their neonate (Harris, 2014:22). This will, in turn, reduce the stress and anxiety that the parents experience during admission of their neonate.

In this study, healthcare providers noticed the importance of involving mothers in the care of their neonates. The mothers were enriched with knowledge about caring for their infants that they would use in future. The bond between the mother and the neonate was improved. The mothers also relaxed when they were involved in caring for their neonates. This was indicated as follows:

“The involvement of the mother in taking care of the neonates has been in place for a while now. I must say it is a success both for us staff and the mother. For us we impart information and we empower them. So it benefits them in the sense that they bond and then they relax in taking care of their babies.” (Participant 1)

“There will be a bond between the mother and the neonate and it makes the mother to feel confident in it as some are primigravidae and they don't have an idea of handling neonates. The mothers become pleased if you communicate with them in a polite way” (Participant 3)



Participant 3 added that: *“It helps the mother because she will care for her neonate in totality and in future to help others.”* (Participant 3)

“The mother will know the reasons why the neonate is admitted and will be openness to ask questions”. (Participant 2).

Findings in this study were confirmed by those of O’Brien, et al. (2013:5), who indicated that outcomes of family-integrated care included mothers who gained comfort and hope, improved bonding, reduced stress and it provided the mothers with psychological support. The mothers also gained confidence and knowledge in caring for their own baby. The relationship between mothers and healthcare providers was improved. Implementation of family-integrated neonatal care improved bonding, knowledge about caring and communication between the healthcare providers and mothers.

- **Benefits to the healthcare providers**

The results of this study showed that healthcare providers benefited from family-integrated care. They had less work but more teaching to do. They also had time to keep records while the mothers were taking care of their neonates. Some healthcare providers indicated that they have gained more knowledge about neonatal care and were even eager to assist their own relatives with caring for neonates. This was said as follows:

“It lessens the hard work of the 3 hourly feed, 3 hourly nappies changing and observations and the report writing so we are able to have it easier while they do the manual work under supervision we have time to note whatever needs to be noted. So our benefit it lessons our work load”. (Participant 1)

“It reduced our work because if we are having 4 babies in the ward then the 4th is not having a mother; the other 3 mothers will take care of their babies while we take care of this one that does not have a mother”. (Participant 8)

“Myself I came here from another hospital not knowing prematurity. I came here I experienced it they I can help even my relatives at home not to panic when they have a premature baby.” (Participant 4)

The results of this study were in accordance with those of O'Brien, et al. (2015:3), who stated in their study that the role of healthcare providers, especially nurses, had changed as they were doing less hands-on caregiving and more teaching. The relationship between parents and healthcare providers improved as nurses felt closer to parents. The implementation of family-integrated neonatal care reduced the workload of healthcare providers in the identified district hospital.

6.3.2.2 THEME 2: Infrastructure of the neonatal ward

According to Gooding, et al. (2011:20), family members are to be included in the care of the neonate during admission. Mothers are considered primary caregivers in most cases. The fathers should be allowed to visit their partners and neonates during their stay in the neonatal ward. Visitation from the father is important as it contributes positively to the wellbeing of the mother and the sick neonate (Gooding, et al. 2011:20). The hospital must have an infrastructure that is accommodative to parents during visitation.

a) Inadequate ward facilities for visitation

The neonatal ward must recognise the role of parents and other family members as part of the neonatal care team. The neonatal ward must create a welcoming environment that will provide adequate space for families at the bedside of their infant.

- **Lack of space for visitation of other family members**

There has to be enough space to accommodate all the fathers of the neonates in the neonatal ward of the identified district hospital. This will allow the fathers to provide care to the neonate while visiting them in the hospital. Lack of space in the neonatal ward might hinder practices of family-integrated neonatal care with regard to involving fathers. It was shown in this study that there was a lack of space to accommodate all the fathers during their visits in the neonatal ward as it is a small unit. This was shown as follows:

“Our challenge is that our unit is very small so much as we want the parents to get involved if is mom and mom and dad and it will just be a miracle one day that everybody pitching up and is mom and dad....(laughing) the unit will just bel too small and too full so the unit



is small fortunately is not every the dad that comes all the time so we get to have our space” (Participant 1)

“Our small structure makes it impossible to allow grannies as much as fathers” (Participant 3)

There was thus a need for some improvement with regard to the environment as lack of space in the neonatal unit made provision of family-integrated care difficult. The infrastructure problem still remains as the unit is unchanged, despite other members of the family being involved in family-integrated neonatal care.

6.4 DISCUSSION

Looking at the quantitative data, length of stay, weight gain and neonatal mortality rates were measured. Results showed that neonates in Cycle III gained weight in all weight categories as compared to neonates in Cycle I. Length of stay was also reduced in Cycle III as compared to that of Cycle I. However, neonatal mortality remained the same in both cycles. Results of the diagnosis of neonates in Cycle III show that there were no neonates who were diagnosed with neonatal sepsis or necrotising enterocolitis during their stay in the neonatal unit, which indicate that neonatal infections were also reduced. The results of the qualitative data revealed that mothers were taught activities of taking care of their neonates during admission in the neonatal unit. Fathers who were willing to participate in the care were allowed to provide skin-to-skin contact during visiting hours. However, the grandmothers of the neonates were only engaged on discharge if the mothers were unable to take care of their neonates themselves. Family-integrated neonatal care in the district hospital reduced the work of the healthcare providers and gave mothers confidence in caring for their own neonates. Thus, family-integrated neonatal care has been successfully implemented according to the results.

6.5 SUMMARY

The aim of Chapter 6 was to discuss the evaluation of family-integrated neonatal care that was implemented at the identified district hospital. Quantitative data related to the wellbeing of the neonates and perceptions of healthcare providers related to the current care provided were



discussed in detail. The following chapter will present the summary, limitations and recommendations of the study.

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

The previous chapters presented an overview of the study, the methodology and the findings of the different cycles applied in this research. This chapter discusses the conclusion, limitations and recommendations of the study.

7.2 CONTEXT OF THE STUDY

The study was conducted in a district hospital of the Limpopo Province of South Africa. The hospital was chosen because the need for family-integrated neonatal care was identified in the particular hospital and it was accessible to the researcher. The neonatal unit was situated inside the maternity ward. This unit comprised 16 beds in total, including the high care area with four beds, low care area with six beds and a six-bedded KMC unit. Neonatal care in the neonatal unit of this district hospital was mainly provided by the neonatal healthcare team which comprised all categories of nurses and doctors. Mothers with sick and small neonates in the neonatal unit were provided with a room in the postnatal ward until the neonate was due for discharge home or for transfer into evaluate the KMC unit where the mother could stay with the neonate. Routine neonatal care was provided with minimal family involvement in the care of the neonate.

7.3 RESEARCH DESIGN AND METHOD

The aim of the study was to develop and implement the strategies of family-integrated neonatal care in a district hospital of Limpopo Province. The objectives of the study were:

7.3.1. To explore and describe the current care provided in the neonatal unit of a district hospital of Limpopo Province. This objective further consisted of two sub objectives.

Sub objective 1: Obtain retrospective baseline data regarding neonatal mortality, length of stay and weight gain of the neonates in the district hospital in Limpopo.

Sub objective 2: Obtain baseline data regarding the experiences of healthcare providers regarding the neonatal care they provide to families in the neonatal ward of the district hospital in Limpopo.

7.3.2. To formulate, implement and describe the strategies of family-integrated neonatal care in a district hospital of Limpopo Province.

7.3.3 To evaluate the implementation of family-integrated care in a district hospital of Limpopo Province.

The Piggott-Irvine PRAR Model was used to attain the objectives of this study. The model consisted of three cycles, namely obtaining baseline data, implementing the change, and evaluating the implemented change. Each cycle had four steps; plan, act, observe and reflect. A summary of the findings will follow in the next section.

7.4 GAINING ACCESS

Clearance was obtained from the Research Ethics Committee of the Faculty of Health Sciences, University of Pretoria and also from the Provincial Department of Health of the Limpopo Province to conduct the study. The researcher requested permission to conduct the study from the Chief Executive Officer, and the Nurse Manager of the identified district hospital. Maternity ward meetings were utilised to introduce the neonatal staff to the concept by giving them general information about family-integrated neonatal care. Information leaflets that explained the nature and purpose of the study were distributed to those who showed interest in the concept. Staff were then invited to participate by signing the attached informed consent form. This was done in order to gain access and establish rapport with the participants as suggested by Creswell (2014:95). A steering committee was formed from the stakeholders of the maternity ward with the aim of driving the implementation of family-integrated care in the identified district hospital.

7.5 SUMMARY OF FINDINGS

7.5.1 Cycle I: Situational analysis to obtain baseline data

Cycle I was used for obtaining baseline data regarding the neonatal care that was provided at the identified district hospital. The plan, act, observe and reflect steps were followed. The first

objective of this cycle was to obtain retrospective baseline data regarding neonatal mortality, length of stay and weight gain of the neonates of the district hospital in Limpopo.

- **Quantitative data**

Records from the neonatal unit were used to capture measurable data associated with the wellbeing of neonates for the year 2015 (prior to the implementation of family-integrated care). There were 500 neonates admitted to the neonatal unit during that period. A systematic random sampling method was used to select a sample of records from the total number of annual records. The sample size was selected using Yamane's formula. The sample size was 222 records per annum. The researcher assessed 19 files per month in order to get an equal distribution of files per month. In the third step, data were analysed using descriptive statistics to describe the outcomes of neonatal care.

- **Gender, gestation weight gain and length of stay of neonates**

A total number of 229 neonates were studied during the situational analysis. Most of the neonates (n=125, 54.59%) were boys, while 104 (45.41%) were girls. One hundred and ninety-two (83.84%) of the neonates were full-term and 37 (16.6%) were preterm. Outcomes which were measured included weight gain, length of stay and neonatal mortality. The results showed 100 (43.67%) neonates gained weight during their stay in the neonatal unit. The need for implementation of family-integrated neonatal care was deemed necessary as the results also indicated that more than half (n=113; 49.34%) of the neonates lost weight during their admission in the neonatal unit. Sixteen (6.99%) of the neonates did not gain weight in Cycle I. With regard to the length of stay, most (n= 177;77.29%) of the neonates had a length of stay of 1-5 days. Of these 177 neonates, 78 (44.07%) were in the weight category of 2500g-3500g, 29 (16.38%) neonates weighed less than 2500g, while 70 (39.55%) were above 3500g. Of the 26 neonates who stayed for 6-10 days, 10 (38.46%) weighed less than 2500g, 11 (42.07%) were between 2500g-3500g, and 5 (19.3%) were above 3500g. Most of the neonates (n=19;79.17%) who stayed in the hospital for more than 10 days weighed less than 2500g, 2 (8.33%) were between 2500g-3500g and 3 (12.50%) were above 3500g. Of the 229 neonates studied, 221 (96.51%) neonates were discharged alive and 8 (3.49%) neonates died in the selected sample. Two neonates died of birth asphyxia and respiratory distress syndromme each. One neonate each died of herbal intoxication, low birth weight, meconium aspiration and neonatal sepsis.

The demographical details of the mothers included their age and parity. It was found that 7% of mothers were teenagers, 88% were within the childbearing age of 18 and 36 years, while 10% of the mothers were above the age of 36. With regard to parity it was found that 65 (26.38%) mothers who delivered at this district hospital were primigravidae, 61 (26.64%) were gravida 2 para 2, 39 (17.04%) were gravida 3 para 2, 24 (17.06%) were gravida 4 para 3 while 13 (0.87%) were gravida 5 para 4. Matured mothers and multiparous mothers assisted the teenagers and primigravidae with support during the implementation of family-integrated neonatal care.

- **Baseline data of the experiences of healthcare providers regarding the neonatal care they provide to families in the neonatal unit**

Two focus groups were held with healthcare providers. One was for professional nurses and the other was for enrolled auxiliary and enrolled nurses. The researcher first described the demographical details of the healthcare providers before presenting their experiences on the care they provided in the neonatal unit.

- **Demographical data of participants**

The demographical details included participants' age, gender, highest level of education and years of experience in nursing. The age groups of the participants showed that there were 9 participants in this cycle. Three (33%) participants were within the age group of 20-25, 2 (22%) were between 36-40 years, while 1 (11%) participant each was within the age group of 26-30, 31-35, 50-55 and 56-60 years. Three (33.3%) participants had a certificate in auxiliary nursing, 2 (22.2%) had a certificate in enrolled nursing, 3 (33.3%) participants had a diploma in general nursing, and 1 (11.1%) participant had a diploma in general nursing and midwifery. Most participants (5, 55.6%) had 1-5 years of experience in nursing, 2 (22.2%) participants had 6-10 years' experience while 1 (11%) participant each had 11-15 years and 26-20 years' experience.

- **Experiences of healthcare providers regarding current neonatal care provided in the neonatal unit**

The following themes emerged during data analysis of the focus group discussions held with the healthcare providers.

Challenges encountered with mothers and neonates during neonatal care

This theme was discussed in relation to HIV-positive mothers, the mother' reactions towards neonatal care as well as the healthcare providers' experiences related to the neonates.

HIV-positive mothers

It was found that HIV-positive mothers were not willing to breastfeed their neonates during admission in the neonatal unit. HIV-positive mothers also failed to disclose their HIV status to their partners and immediate family members. During the implementation of family-integrated neonatal care mothers who were HIV positive were encouraged to breastfeed their neonates and to disclose their HIV status to their families.

Reactions of the mother towards neonatal care

Mothers showed some emotional reactions and some failed to sustain KMC after being discharged from the hospital. During the implementation of family-integrated neonatal care mothers learnt caregiving skills and were encouraged to continue with the KMC practice at home.

Experiences of healthcare providers related to the neonate.

It was found that preterm neonates had problems with apnoea. Midwives also scored neonates incorrectly on the Apgar score. Midwives should do the Apgar score properly for healthcare providers to be able to select neonates who are eligible for family-integrated neonatal care. Doctors were prescribing wrong doses of medication during the admission of neonates to the neonatal unit. Doctors are to be provided with in-service education to prevent complications related to medications that may occur during the implementation of family-integrated neonatal care.

Equipment and resources

The theme on equipment and resources discussed the utilisation of equipment and the provision of resources in the neonatal unit of the identified district hospital.

Utilisation of equipment

The utilisation of equipment is discussed in relation to poor maintenance and shortage of equipment in the neonatal unit of the identified district hospital.

Poor maintenance of equipment

Medical equipment needs to be functioning properly in order to provide quality neonatal care. A good maintenance plan should be in place to ensure that the equipment is functioning properly.

Inadequate provision of structural, material and human resources

The inadequate provision of material and human resources in the unit is discussed in relation to the shortage of staff and material resources.

Shortage of staff

Shortage of staff was raised as one of the challenges that the healthcare providers encounter during the provision of neonatal care in the neonatal unit.

Shortage of material resources

Material resources should be supplied at all times to ensure the smooth running of the ward. The healthcare providers raised the issue of a shortage of material resources which negatively affected the relationship between the healthcare providers and the families of the neonates.

Unconducive working environment

The healthcare providers described the neonatal unit of the identified district hospital as being unconducive to work in as it became too congested at times.

Lack of rest rooms in the neonatal unit

There are no rest rooms where healthcare providers can take their tea or lunch and freshen up during their breaks. Infrastructure is thus required for proper family-integrated neonatal care.

Role of family in neonatal care

The theme on the role of the family in neonatal care discussed the importance of including the family of the mother and neonate in the neonate's care.

Family involvement in neonatal care

Family members must be included to support the mothers during their stay in the hospital.

Lack of family involvement in neonatal care

Parents and family members are important partners in the care of neonates. They should be included in the care of the neonate during admission in the neonatal unit. Many neonatal units still continue to have policies that prevent parents from having access to their neonates, which means

that they fail to recognise parents as partners in care. The family of the neonate should be involved to support the mother during the implementation of family-integrated neonatal care.

7.5.2 Cycle II: Implementation of strategies of family-integrated neonatal care

The aim of Cycle II was to develop, describe and implement the strategies of family-integrated neonatal care. The strategies were formulated by the steering committee based on the experiences of the healthcare providers, obtained through focus groups in the situational analysis. The researcher adopted the McKinsey 7S Model framework to develop the strategies of family-integrated neonatal care. This is a Value Based Management model that is intended to provide an organisation with a framework to generate value within its overall organisation. This model considers the organisation of a company as a mix of six dimensions that function around a seventh one, which is the shared values of a company. The six dimensions were: strategy, structure, systems, style, staff, and skills (Ward & Rivani, 2005:8). Eight strategies were adopted to implement family-integrated neonatal care, however, only 5 strategies were fully implemented as they did not require major structural changes.

Strategy 1: The managers are to ensure that midwives assess the neonates properly by using the Apgar score during the implementation of family-integrated neonatal care

Strategy 1 addressed the skills of the midwives as it was mentioned in the focus group discussions that the clinical appearance of the neonates seemed not to correlate with their Apgar scores from the labour ward. Correct Apgar scoring will assist the healthcare providers in selecting neonates that are eligible for family-integrated neonatal care. In-service education was provided to midwives regarding Apgar scoring.

Strategy 2: The managers are to prevent the occurrence of medico-legal hazards related to medication prescriptions during the implementation of family-integrated neonatal care

Strategy 2 also addressed the skills of the doctors in terms of medication prescriptions as it was observed that they were prescribing wrong doses to neonates on admission. The strategy will prevent the occurrence of medico-legal hazards related to medication that result in complications during the implementation of family-integrated neonatal care. Doctors received in-service training on the management of sick and small neonates and medical internship doctors were rotated in the neonatal unit to practice neonatal care.

Strategy 3: The healthcare providers are to prevent the transmission of the human immune deficiency virus from the mother to the neonate during the implementation of family-integrated neonatal care

This strategy addressed the system component of the McKinsey 7S Model, which is the daily activities of the unit. The study found that HIV-positive mothers were not disclosing their HIV status to their partners and family members, thus discontinuing antiretroviral drugs for neonates due to lack of disclosure. It was also found that HIV-positive mothers were not willing to breastfeed their neonates. Lack of disclosure to the family and unwillingness to breastfeed put the neonates at risk of contracting the HIV virus (Nyadat & Van Rensburg, 2017:6). Exclusive breastfeeding, regardless of the HIV status of the mother, promotes bonding. Breastfeeding is an important component of family-integrated neonatal care, in which it is stated that it promotes bonding (O'Brien, et al. 2013:4). It was therefore important to develop this strategy to assist mothers in disclosing their HIV status to their partners and family. Mothers were also encouraged to breastfeed their neonates exclusively and thus protect the neonates from contracting the HIV virus. Health education was given to mothers to exclusively breastfeed their neonates regardless of their HIV status. Mothers were encouraged to disclose their HIV status and to bring their partners or a family member for adherence counselling. Implementation of family-integrated neonatal care encouraged the HIV-positive mothers to disclose their HIV status and to breastfeed their neonates.

Strategy 4: The healthcare providers are to provide support to mothers during the provision of family-integrated neonatal care

This strategy addresses the system component of the McKinsey 7S Model. Mothers of sick and preterm neonates admitted to the neonatal ward experience a lot of stress due to their inability to adapt to the fact that the neonate is sick or preterm. The mothers also saw their neonates as fragile and they felt unable to protect their neonates from pain. Mothers usually want to be included in the care of their sick, fragile neonate as participation enhances parenteral knowledge and decreases stress, which promotes affective bonding. Providing support to the mother during their stay in the neonatal unit will benefit the mothers as they will be able to provide care to their neonates in a relaxed and competent way. Mothers were taught caregiving skills during the provision of family-integrated neonatal care.

Strategy 5: The healthcare providers are to encourage KMC after discharge while providing family-integrated neonatal care

This strategy was developed to address the systems component of the McKinsey 7S Model. The study found that the mothers did not continue with KMC after being discharged from the neonatal unit as observed from the perceptions of the healthcare providers. This strategy was developed to provide the mothers with the skill of practising KMC while still in the hospital. Skin-to-skin contact is an important component of KMC and family-integrated neonatal care that can help to establish thermal stability, breastfeeding, and reduces crying in newborns as separation and hunger are eliminated. This strategy will assist the mother to continue with KMC even after being discharged from the hospital. During the implementation of family-integrated neonatal care, mothers were taught how to do skin-to-skin contact in the neonatal unit. Fathers of the neonates were encouraged to assist mothers in providing skin-to-skin contact during visiting hours so that they were able to continue assisting the mothers at home.

Strategy 6: The managers are to ensure the availability of durable and functional medical equipment during the implementation of family-integrated neonatal care

This strategy addresses the system component of the McKinsey 7S Model. The equipment is required to monitor the wellbeing of the neonates during the implementation of family-integrated neonatal care. This medical equipment requires maintenance, repair, user training and should be discarded if it is no longer functioning properly. The unavailability of and non-functioning equipment result in failure of the health system to provide quality neonatal care. A needs assessment list was done and submitted to the procurement office. Available equipment is serviced according to the master maintenance plan and broken equipment are sent for repairs. Functional equipment is required to monitor the wellbeing of the neonates during the implementation of family-integrated neonatal care.

Strategy 7: The managers are to ensure the provision of adequate human and material resources during the implementation of family-integrated neonatal care in the neonatal ward

This strategy addressed the system component of the McKinsey 7S Model. Shortage of staff was identified as a problem during focus group discussion with the healthcare providers. Staff should teach care activities and monitor both the mothers as well as the neonates during implementation of family-integrated neonatal care. Material resources are provided although there are some shortages, especially with linen. Adequate staff is required to teach and supervise the mothers

during implementation of family-integrated neonatal care. Material resources such as nappies and linen are required during the provision of family-integrated neonatal care.

Strategy 8: The managers are to develop a policy on the involvement of other family members during the implementation of family-integrated neonatal care in the neonatal unit

This strategy also addressed the systems component of the McKinsey 7S Model. Family support activities are done in order to assist the family in coping with the stress of admission of their neonate in the neonatal unit. It is important to include the entire family as caregivers and decision makers in the care of the neonate. This strategy would provide healthcare providers with a policy that describes the role of the family during the implementation of family-integrated neonatal care. Family is important as they provide psychological support to the mother during the provision of family-integrated neonatal care. A policy on the involvement of family members is yet to be developed, but the mothers are currently providing neonatal care activities. Fathers of neonates who are willing are also involved in the actual care of the neonates. Grandmothers are only involved if the mothers are not able to take care of the neonates on discharge.

Monitoring of implementation of strategies of family-integrated neonatal care

Strategies for family-integrated neonatal care were implemented by the steering committee with the assistance of the healthcare providers in the neonatal unit. Meetings were held with the steering committee in order to reflect on the progress of the implementation of the strategies. Members of the steering committee gave feedback on the progress of the implemented strategies of family-integrated neonatal care.

7.5.3 Cycle III: Evaluation of the implementation of strategies of family-integrated neonatal care

Cycle III evaluated the implementation of strategies of family-integrated neonatal care. The same steps from Cycle I were repeated in Cycle III in order to compare the results. There were three sub-objectives in this cycle. The first was to obtain data on weight gain, length of stay and neonatal mortality in the neonatal unit after implementation of family-integrated neonatal care. The second objective was to obtain data on the perceptions of the neonatal healthcare providers regarding implementation of family-integrated neonatal care. The third objective was to compare the findings prior to and after the implementation of family-integrated neonatal care.

7.5.3.1 Quantitative data

Age of the mother

The sample size for the quantitative data for this cycle was 102. The demographical details of the mothers were also described. The weight gain, length of stay, and mortality of the neonates were collected. The results showed that 83% of the mothers who delivered at the identified district hospital in Cycle I was between the age of 18 and 36 years. Seven per cent were younger than 18 years old, while 10% were above 36 years of age. In Cycle III, 7.84% of the mothers were in the age category younger than 18 years, while 72.55% mothers were between the ages of 18 to 36 years and 20% of mothers were above the age of 36 years. There was a reduction in teenage pregnancy and an increase in women older than 36yrs. Teenage mothers were supported by elder mothers during the implementation of family-integrated neonatal care. Mothers who needed to go to school to write tests and examinations were allowed to do so during the implementation of family-integrated neonatal care.

Parity of the mother

The results of Cycle 1 on the mothers' parity showed that 65 (26.38%) mothers were primigravidae, 61 (26.64%) were gravida 2 para 2, 39 (17.04%) were gravida 3 para 2, and 24 (17.04%) were within the gravida 4 para 3 category. In the category of gravida 5 para 4 there were 13 (0.87%) mothers. Nineteen (53.18%) mothers were within the group of grande multiparas with 11 (20.84%) mothers within the category of gravida 6 para 5, 6 (23.25%) in the category of gravida 7 para 6, and 2 (9.09%) within the category of gravida 8 para 7. Results of Cycle III showed that 27 (26.47%) mothers were gravida 3 para 2, 15 (14.7%) were primigravidae while 16 (16.68%) were gravida 2 para 1. There was an equal distribution of only 1 mother each in the categories of gravida 3 para 1, gravida 4 para 2 and gravida 6 para 4 respectively. Fourteen (13.72%) mothers each were gravida 4 para 3 and gravida 5 para 4, while 5 (4.90%) were gravida 6 para 5 and gravida 7 para 6, and 3 (2.94%) mothers were in the category of gravida 8 para 7. Most mothers who delivered in Cycle I were primigravidae, followed by gravida 2 para 2 and gravida 4 para 3. In Cycle III, most women who delivered were gravida 3 para 2 followed by gravida 2 para 1, gravida 1 para 0, gravida 4 para 2 and gravida 7 para 6. Multiparous mothers supported the primigravidae during the implementation of family-integrated neonatal care.

Gender and gestation of neonates

The results showed that there were 125 (54.59%) boys and 104 (45.41%) girls in Cycle I while Cycle III results showed that there were 52 (51%) boys and 50 (49%) girls. This indicates that there were more boys than girls admitted to the neonatal unit during both cycles. One hundred and ninety-two (83.84%) were full-term while 37 (16.6%) were preterm in Cycle I as compared to 73 (73%) full-term and 29 (28.43%) preterms in Cycle III. The results therefore showed that there were more full-term than preterm neonates admitted to the identified hospital in both cycles. Neonates gained weight and had reduced length of stay during the implementation of family-integrated neonatal care, irrespective of their gender and gestation.

Health-related problems

Cycle III results showed that most of the neonates (n=27; 26.47%) were admitted with low birth weight, followed by respiratory distress (23.5%). Fourteen (13.72%) neonates had meconium aspiration while 10 (8%) neonates were admitted with jaundice. Only 2 (1.96%) neonates were admitted for lower respiratory tract infection. One (0.98%) neonate each were admitted with tuberculosis exposure, transient tachypnea of the newborn, bowel obstruction, congenital pneumonia, constipation, fractured humerus and macrosomia. Family-integrated neonatal care reduced infections such as neonatal sepsis and necrotising enterocolitis.

Weight gain

Cycle III results showed that there were 36 (35.29%) neonates in the weight category under 2500g, 45 (44.11%) of the neonates were between 2500g and 3500g, and 21 (20.58%) neonates were above 3500g on admission. Thirty-seven (36.27%) neonates were discharged weighing less than 2500g. Most of the neonates (n= 46; 45.09%) were discharged within the weight category of 2500g and 3500g, while 19 (18.63%) neonates were in the weight category above 3500g.

In terms of weight gain in this study, 6 (5.88%) neonates did not lose nor gain weight, most neonates (n= 55; 53.92%) gained weight, while 41 (40.19%) lost weight during their stay in the neonatal unit of the identified district hospital. The change that was noted was that more neonates gained weight during the evaluation phase than in the situational analysis where most of the neonates had lost weight. Therefore, the implementation of family-integrated neonatal care increased the neonates' weight gain.

Length of stay

Results also indicated that only 2 (100%) neonates within weight category of 2500g were admitted for less than a day. Most neonates (n=78; 44.07%) were admitted for 1-5 days while 13 neonates were admitted for 6-10 days. Nine (8.82%) neonates stayed in the hospital for more than 10 days. Only 1 (11.11%) neonate above 3500g stayed in the hospital for more than 10 days. Length of stay was reduced in all weight categories in Cycle III. The implementation of family-integrated neonatal care thus reduced the length of stay of neonates.

Mortality of neonates

Four (3.9%) neonates died in Cycle III while 8 (3.49%) neonates died in Cycle I. There was no difference in terms of the neonatal mortality rate of the neonatal unit when comparing data of Cycle I with that of Cycle III. Implementation of family-integrated neonatal care did not have any effect on the mortality of the neonates.

7.5.3.2 Experiences of healthcare providers on the provision of family-integrated neonatal care

Demographical data of participants

In the second objective, the researcher conducted interviews and focus group discussions with the healthcare providers. There were 7 participants in Cycle III. Four (57%) were within the age group of 20-25 years, while 1 (14%) participant each was within the age group of 41-45, 50-55 and 56-60 years of age. When comparing data from Cycle I to that of Cycle III it was observed that most participants were between the ages of 20-25 and fewer participants in the other age groups. Three (42.9%) participants were auxiliary nurses, 1 (14.2%) had a certificate in enrolled nursing. One (14.2%) participant each had a diploma in general nursing, general nursing and midwifery, and a 4-year comprehensive diploma in nursing. Of the 7 participants, 4 (57.1%) participants had experience of 1-5 years, 1 (14.3%) had 6-10 years' experience, while 2 (28.86%) had 11-15 years' experience.

Two themes emerged during data analysis of the focus group and interviews with the healthcare providers.

Experiences of healthcare providers regarding family-integrated neonatal care

This theme was discussed in relation to the inclusion of the mother, and the role of the father and grandmother in neonatal care.

Inclusion of the mother in care

Mothers are supported to be able to cope better with the admission of their neonate in the neonatal unit. Mothers were taught caregiving activities during the implementation of family-integrated neonatal care.

- Empowerment of the mother to enhance involvement

Mothers are taught daily care activities in order to support them in the neonatal unit. The daily care activities include cord care, skin-to-skin contact and nappy changing. During the implementation of family-integrated neonatal care, mothers were taught caregiving skill so that they were able to take care of their neonates.

- Attitude of the mother towards care

Some mothers portrayed a negative attitude when the healthcare providers tried to include them in caring for their neonates. However, some mothers cooperated. During the implementation of family-integrated neonatal care, mothers who were used to caring for their neonates supported mothers who had a negative attitude towards their involvement in the care of their own neonates.

- Timing of involvement of the mother in care

There was a delay in the involvement of sick mothers, and mothers who delivered by caesarean section in this district hospital.

- Mothers fear of the condition of the neonate

The state in which the mothers found the neonates also made it difficult for them to get involved in the care. Mothers feared to touch their very small and sick neonates.

- Mother-to-mother support

Mothers accepted and dealt with the situation better when they were supported by other mothers in the neonatal unit. Mothers who were afraid of caring for their own neonates were supported by mothers who were already used to caring for their neonates during the implementation of family-integrated neonatal care.

Role of fathers in neonatal care

In most circumstances, the mother is considered as the primary caregiver during neonatal care. Fathers need to be involved early in order to promote bonding and for the father to support the mother during neonatal care.

- Supportive role of the father

Fathers should be encouraged to visit the mother and to provide skin-to-skin contact to their neonates during visiting hours.

- Fathers' fear of the neonates

Some fathers showed that they were afraid of touching their premature neonates as they were fragile. Fathers were included in the care of their neonates during the implementation of family-integrated neonatal care.

Role of the grandmother in neonatal care

Family members must be included in the care of the neonate to support the mother during admission of the neonates. However, it was noted that there was limited involvement of the grandmothers in neonatal care. The use of traditional medication by grandmothers made it difficult for healthcare providers to involve them in the neonate's care.

Benefits of involvement of mother in neonatal care

Implementation of family-integrated neonatal care reduced infections and length of stay of neonates in the neonatal unit. Weight gain, breastfeeding and bonding were improved with the mothers' involvement in neonatal care. Family-integrated neonatal care improved communication between the mother, family and healthcare providers. The stress and anxiety associated with the admission of the neonate were reduced with the implementation of family-integrated care. Benefits to healthcare providers included that they were involved in teaching and were less hands-on.

INFRASTRUCTURE

The infrastructure must be accommodative to all parents during neonatal care.

- Inadequate unit facilities

The neonatal unit must create a welcoming environment that will provide adequate space for families at the bedside of their neonate. There has to be enough space to accommodate all the fathers of the neonates in the neonatal unit of the identified district hospital. This will enable the fathers to provide care to the neonate while visiting them in the hospital. Lack of space in the neonatal unit might hinder family-integrated neonatal care with regard to the fathers' involvement.

Conclusion

During the implementation of family-integrated neonatal care, there was no deterioration when compared to the situational analysis. However, the mortality rate of the neonates remained the same. The strategy did, however, improve the quality of care in the neonatal unit of the district hospital. Mothers, neonates and healthcare providers benefited from the implementation of family-integrated neonatal care.

Findings in this study showed that neonates gained weight during their stay in the neonatal unit and the neonates' length of stay was also reduced. Infections, such as necrotising enterocolitis and neonatal sepsis were reduced as there were no neonates diagnosed with such health-related problems during their stay in the neonatal unit in Cycle III. Bonding and breastfeeding were promoted. Mothers were found to be confident and much more relaxed when providing care to their own neonates. Communication between the mother and the healthcare providers was also improved. Healthcare providers provided more teaching and less hands-on caregiving and had more time to do other work in the unit.

The research question was "How is the implementation of family-integrated neonatal care in the district hospital of Limpopo Province?" Family-integrated neonatal care was implemented using the three cycles of Piggot-Irvine's action research model. Based on the findings of the study, the implementation of family-integrated neonatal care was a success at the identified district hospital.

Contribution to the body of knowledge

Implementation of family integrated neonatal care in the contributed to neonatal practice as it improved the weight gain, reduced neonatal mortality and length of stay of neonates. Mothers were involved as primary care givers in a planned and structured manner. Fathers who were willing to participate in the care of their own neonates were also involved which improved bonding

between the father and the neonate. Family integrated care improved communication between the healthcare providers and the family of the neonate. Furthermore, the roles of the healthcare providers had changed from hands on to education and support to the mothers which gave them time to do other chores in the unit.

The study contributed to the body of knowledge about what is known on family integrated neonatal care and the specific contribution is the study was conducted in an African country and in a low setting area which is a district hospital.

In research the study added on the uses of the PRAR model in healthcare and in improvement of neonatal care.

7.6 LIMITATIONS OF THE STUDY

The study was conducted in a district hospital of Limpopo with low resources. The results cannot be generalised to another context.

There were time constraints in this study. Quantitative data in Cycle I covered a period of 1 year while Cycle III quantitative data covered only 6 months. It was therefore difficult to compare data of 1 year to that of 6 months.

Limitations were also observed with records when neonatal files were retrieved for analysis. Although the researcher was able to get all the required information, the process was very slow and time-consuming.

In the second cycle during the strategic planning the steering committee had planned to develop a policy on visitation of neonates in the neonatal ward. The limitation was that the policy was not developed as it involved other stake holders outside the neonatal ward.

Another limitation was encountered in the third cycle when the researcher had to collect data from the healthcare providers. The researcher had a plan to conduct focus groups with both the lower category of staff and professional nurses. However, it became impossible to do so with the professional nurses as there were only 3 left from the original group. The other 3 were on study leave or had resigned from the institution. The other 2 professional nurses were not there at the beginning of the study and they were thus excluded.

The researcher initially planned to describe the general neonatal mortality rate of the hospital. The limitation in this regard was that statistically the researcher could only describe the mortality of the sample, and not of the whole hospital.

7.7 RECOMMENDATIONS

Recommendations related to neonatal nursing practice, research and nursing education are made as follows.

7.7.1 Recommendations for Neonatal Nursing Practice

7.7.1.1 Recommendations for the inclusion of parents in neonatal care

- Family-integrated neonatal care should be practised by all neonatal units as it has positive effects on the quality of neonatal care.
- All parents should be considered as primary caregivers during admission of their neonates in the neonatal unit.
- Parents should be taught caregiving skills so that they are able to provide neonatal care to their neonates during admission in the neonatal unit.
- Guidelines on how to provide family-integrated neonatal care should be developed.

7.7.1.2 Recommendations to support mothers during the implementation of family-integrated neonatal care

- The hospital should consider including other members of the family in caring for the neonate in the presence or absence of the mother so that they are able to support the mother during and after discharge from the hospital.
- A policy on the role of the family members in neonatal care should be developed to protect the healthcare providers and neonate in the neonatal unit.
- Mother-to-mother support groups can be formed to support mothers during their stay in the neonatal unit and on discharge.

- Healthcare providers must support mothers during their stay in the neonatal unit to reduce the stress related to the admission of their neonates.
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7.7.1.3 Recommendations in terms of requirements for proper implementation of family-integrated neonatal care

- The district hospital should procure all essential equipment to be used in the neonatal unit.
- Broken equipment should be repaired, and irreparable ones should be condemned.
- There should be a proper maintenance plan for equipment and maintenance should be carried out according to the proposed plan.
- The hospital should recruit more staff to cap up the shortage of staff in the neonatal unit.
- The unit managers should ensure that they order adequate stock and measures to control the stock should be in place to control the movement of the stock.
- The district hospital should develop a standard operating procedure to manage linen as it was identified that there is a shortage of linen which affect the provision of quality neonatal care.
- The ward should be big enough to provide neonatal care and also accommodate members of the family. Healthcare providers raised a concern of the lack of space in the neonatal unit.
- The hospital management should consider creating rest and dining facilities for the healthcare providers to use during their tea and lunch breaks.

7.7.1.4 Recommendations made in relation to other findings of the study

- The healthcare providers should encourage HIV-positive mothers to disclose their HIV status to their partners and immediate family members during the implementation of family-integrated neonatal care.
- HIV-positive mothers should be encouraged to breastfeed their neonates during the implementation of family-integrated neonatal care.
- Mothers of preterm babies should be taught how to do skin-to-skin contact during the provision of family-integrated neonatal care, and they should be encouraged to continue with KMC at home while they are still admitted in the neonatal unit.

- Midwives should be trained on the correct use of Apgar scoring during the implementation of family-integrated neonatal care to ensure proper selection of neonates to be included in family-integrated care.
- All healthcare providers working in the neonatal unit should be trained on the management of sick and small neonates, including the family's involvement.
- In-service training should be provided to medical doctors and interns regarding medical prescriptions to prevent complication that might occur due to medication errors during the implementation of family-integrated neonatal care.

7.7.2 Recommendations for Research

- A study should be conducted to explore the experiences of mothers regarding the provision of family-integrated neonatal care in the identified district hospital.
- Follow-up studies should be conducted to refine and continuously improve family-integrated care in the identified district hospital.
- The quantitative part of Cycle III should continue as a longitudinal study after implementation of family-integrated neonatal care so that collected data should be compared to that of the situational analysis for accurate results.
- The study should be repeated in other neonatal wards in the public and private sector in South Africa, and in urban and rural settings.
- Action research should be used for similar studies in nursing practice.
- Findings of this study should be presented at neonatal and midwifery conferences.
- Articles should be written on the findings of this study, and published in accredited research journals.

7.7.3 Recommendations for Nursing Education

- Student nurses in training need to be allocated to the neonatal unit to get orientated in neonatal and family-integrated care.
- Nurses should receive in-service training on the provision of family-integrated neonatal care so that they are able to support and supervise the mothers to become the primary caregivers of their neonates.



7.8 SIGNIFICANCE OF THE STUDY

The significance of this study was that family-integrated neonatal care was implemented in a district hospital of Limpopo Province in a developing country, South Africa. The district hospital is a low resource setting in terms of availability of equipment, staff and other material resources. Implementation of family-integrated neonatal care contributed to nursing, and neonatal nursing practice – as policies – had to be changed to accommodate both the mothers, neonates and their families during the provision of neonatal care. Family-integrated neonatal care improved the quality of neonatal care in the district hospital despite the shortages of equipment, staff and other resources.

7.9 FINAL CONCLUSIONS OF THE STUDY

The primary aim of the study was to explore and describe the implementation of family-integrated neonatal care in the identified district hospital of Limpopo Province. Piggott-Irvine's PRAR Model (Piggott-Irvine, 2009:14), which has three cycles, was adopted to attain the main purpose of the study.

In Cycle I a situational analysis was done to obtain baseline data regarding the neonatal care provided at the identified district hospital. In the second cycle, family-integrated neonatal care was implemented. Strategies for the implementation of family-integrated care were developed and implemented by the steering committee. Mothers of neonates in this study were involved as primary caregivers in the care of their own neonates. Mothers learnt primary caregiving skills to enable them to provide care to their own neonates. Healthcare providers played a supportive role to the mothers during the provision of care to neonates.

Cycle III evaluated the implementation of family-integrated neonatal care. It was found that the family-integrated neonatal care reduced the length of stay, increased weight gain and reduced infections among neonates. Communication was improved between healthcare providers and mothers. Mothers were also seen to be more confident and relaxed while providing neonatal care activities to their neonates. The workload of healthcare providers was reduced.

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ANNEXURE A: UNIVERSITY OF PRETORIA ETHICS APPROVAL

The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.

- FWA 00002567, Approved dd 22 May 2002 and Expires 28 August 2018.
- IRB 0000 2235 IORG0001762 Approved dd 22/04/2014 and Expires 22/04/2017.



19/01/2017

**Approval Certificate
New Application**

Ethics Reference No.: 424/2016

Title: IMPLEMENTATION OF FAMILY INTEGRATED NEONATAL CARE BY HEALTH CARE PROVIDERS IN A DISTRICT HOSPITAL OF LIMPOPO PROVINCE

Dear Mrs Morogwana Shokane

The **New Application** as supported by documents specified in your cover letter dated 2/01/2017 for your research received on the 11/01/2017, was approved by the Faculty of Health Sciences Research Ethics Committee on its quorate meeting of 18/01/2017.

Please note the following about your ethics approval:

- Ethics Approval is valid for 1 year
- Please remember to use your protocol number (**424/2016**) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, or monitor the conduct of your research.

Ethics approval is subject to the following:

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

We wish you the best with your research.

Yours sincerely

*** Kindly collect your original signed approval certificate from our offices, Faculty of Health Sciences, Research Ethics Committee, Tswelopele Building, Level 4-60*

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

The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2015 (Department of Health).



ANNEXURE B: APPROVAL LIMPOPO DEPARTMENT OF HEALTH



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH

Enquiries: Latif Shamila (015 293 6650)

Ref:4/2/2

Shokane MA
University of Pretoria

Greetings,

RE: Implementation of family integrated neonatal care by Health Care Providers in a District Hospital of Limpopo Province

The above matter refers.

1. Permission to conduct the above mentioned study is hereby granted.
2. Kindly be informed that:-
 - Research must be loaded on the NHRD site (<http://nhrd.hst.org.za>) by the researcher.
 - Further arrangement should be made with the targeted institutions, after consultation with the District Executive Manager.
 - In the course of your study there should be no action that disrupts the services.
 - After completion of the study, it is mandatory that the findings should be submitted to the Department to serve as a resource.
 - The researcher should be prepared to assist in the interpretation and implementation of the study recommendation where possible.
 - The above approval is valid for a 3 year period.
 - If the proposal has been amended, a new approval should be sought from the Department of Health.
 - Kindly note, that the Department can withdraw the approval at any time.

Your cooperation will be highly appreciated.


Head of Department

14/12/2016
Date



ANNEXURE C: QUANTITATIVE DATA RECORDING TOOL

QUANTITATIVE DATA COLLECTION TOOL

Record no	Admission date	Discharge date	Pre/full term	Gender	Mortality y/n	Mom's parity	Mom's age	Diagnosis	Birth weight	Weight d1	D2	D3	D4	D5	D6
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UNIVERSITY OF PRETORIA
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ANNEXURE D: SAMPLING OF FILES



AFRICAN PRIDE HOTELS

Feb & March

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 21 ~~22~~ 23 ~~24~~ ⑳ 26 27 ~~28~~ 29 ~~30~~
 ⑨ 32 33 ⑩ 35 36 ⑪ 38 39 ⑫
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Record NO.

~~31~~, 7, 9, 11, 13, 15, 17, 19
 21, 23, 25, 27, 29, 31, 33
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April

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AFRICAN PRIDE
HOTELS

April

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starting point

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sep same as Feb

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42

Oct

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June 2015

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July 2015

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Nov 15

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36 37 38 39 40

Record no.

2, 4, 6, 8, 10, 12, 14

Record Number

2, 4, 6, 8, 10, 12, 14
16, 18, 20, 22, 24, 26



AFRICAN PRIDE
HOTELS

Dec

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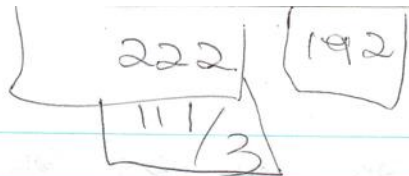
June

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32339 Intra Jani



18/19 files



JAN ~~4~~ 33

Feb = 30

March = 27

April = 33

May = 34

June = 35

192

Jan

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Feb

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March

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April

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May



ANNEXURE E: INFORMATION LEAFLET FOR HEALTHCARE PROVIDERS

INFORMATION LEAFLET AND CONSENT FOR HEALTH CARE PROVIDERS

Dear participant

IMPLEMENTATION OF FAMILY INTEGRATED NEONATAL CARE BY HEALTH CARE PROVIDERS IN A DISTRICT HOSPITAL OF LIMPOPO PROVINCE

I am a PhD student in neonatal nursing science at the University of Pretoria in the Nursing Department and hereby would like to invite you to voluntarily participate in the abovementioned study.

1. Introduction

This information leaflet will help you to decide whether you want to participate or not. It is important that you understand what is involved before you agree to participate. If there is anything you do not understand and is not addressed in this leaflet please do not hesitate to ask the investigator, me Anna Shokane.

2. The nature and purpose of this study

The aim of this study is to develop and implement strategies for family integrated neonatal care at your district hospital.

3. Explanation of procedures to be followed

We are asking you to participate in a focus group interview. In this interview the researcher will request you to tell her your perceptions regarding the care you provide in the neonatal. The researcher will also ask you some questions about the care you provide to neonates in the neonatal ward. The focus group interview will last for 30 to 45 minutes. The findings of this study will assist the researcher to formulate strategies that will assist in implementation of family integrated neonatal care in your district hospital.



4. Risk and discomfort involved

There are no risks in participating in the study as research in this around the implementation of family integrated in other countries has yielded positive results. All information received will be kept highly confidential.

5. Possible benefits of this study

The benefits of this study is expected to be improved bonding between the mother and the baby, reduced hospital attained infections, length of stay and improved psychological wellbeing of the mother. There is expected to be a less hands-on and more supervisory role for health care providers. There might be more time available that can be utilised for other duties.

6. What are your rights as a participant?

Participation in this study is voluntary. You can refuse to participate and you have the right to withdraw from the study without any consequences if you do not wish to continue with the study.

7. Has the study received ethical approval?

The study has been approved by the research ethics committee of the faculty of health sciences at the University of Pretoria and they can be contacted at 012 356 3085 or 012 356 3084.

8. Information and contact person

The contact person is Anna Shokane if you have any questions about the study you may [contact 0716036867](tel:0716036867) or [015 6331884](tel:0156331884). My supervisors can also be contacted , Dr RS Mogale and Dr Carin Maree at the department of nursing science, faculty of health sciences, University of Pretoria, Tel 012 356 3156 / 012 356 3164.

9. Compensation

Your participation is voluntary. No compensation or reward will be given for participation in this study.

10. Confidentiality

All information that you give will be kept strictly confidential. The researcher will ensure that no information is linked to the participant or institution once data is analyzed.



CONSENT TO PARTICIPATE IN THIS STUDY

I confirm that the person asking my consent to take part in this study has told me about nature, process, risks, discomforts and benefits of the study. I have also received, read and understood the above written information (Information Leaflet and Informed Consent) regarding the study. I am aware that the results of the study, including personal details, will be anonymously processed into research reports. I am participating willingly. I have had time to ask questions and have no objection to participate in the study. I understand that there is no penalty should I wish to discontinue with the study and my withdrawal will not affect me in any way. I have received a signed copy of this informed consent agreement.

Participant's name(Please print)

Participant's signature: Date.....

Investigator's name(Please print)

Investigator's signature Date.....

Witness's Name(Please print)

Witness's signature Date.....



ANNEXURE F: INFORMATION LEAFLET FOR MOTHERS

INFORMATION LEAFLET AND CONSENT FOR MOTHERS

Dear participant

IMPLEMENTATION OF FAMILY INTEGRATED NEONATAL CARE BY HEALTH CARE PROVIDERS IN A DISTRICT HOSPITAL OF LIMPOPO PROVINCE

I am a PhD in neonatal nursing science student at the University of Pretoria in the Nursing Department and hereby would like to invite you to voluntarily participate in the abovementioned study

1) INTRODUCTION

We hereby invite you to participate in a research study. This information leaflet will help you to decide whether you want to participate or not. It is important that you understand what it is involved before you agree to participate. If there is anything you do not understand and is not addressed in this leaflet please do not hesitate to ask the investigator me Anna Shokane

2) THE NATURE AND PURPOSE OF THIS STUDY

The aim of this study is to develop and put into practice ways of assisting you to take part in the care of your baby during your stay in the neonatal ward.

3) EXPLANATION OF PROCEDURES TO BE FOLLOWED

We are asking you to participate in activities of taking care of your baby with the assistance of the staff in the ward. In this study the nurses will teach how to do to certain activities around the care of your baby so that you are able to take care of your baby own. The nurses will time to time check on you to ensure that you are doing the correct thing.

4) RISK AND DISCOMFORT INVOLVED

There are no risks in participating in the study as research in this around the implementation of family integrated in other countries has yielded positive results. All information received will be kept highly confidential.

5) POSSIBLE BENEFITS OF THIS STUDY

The benefits of this study are that there will be improved bonding between the mother and the baby, the will be reduced hospital attained infections, length of stay in the hospital might be shortened and this will make you free and confident about the care of your baby.

6) WHAT ARE YOUR RIGHTS AS A PARTICIPANT?

Participation in this study is voluntary. You can refuse to participate and you have the right to withdraw from the study without any consequences if you do not wish to continue with the study.

7) HAS THE STUDY RECEIVED ETHICAL APPROVAL?

The study has been approved by the Research Ethics Committee of the Faculty of Health Sciences at the University of Pretoria and they can be contacted at 012 3541330 or 012 354 1677.

8) INFORMATION AND CONTACT PERSON

The contact person is Anna Shokane If you have any questions about the study you may contact 0716036867 or 015 6331884. My supervisors can also be contacted , Dr Shirley Mogale and Dr Carin Maree at the Department of Nursing, Faculty of Health Sciences, University of Pretoria, Tel 012 354 2125.

9) COMPENSATION

Your participation is voluntary. No compensation or reward that will be given for participation in this study.

10) CONFIDENTIALITY

All information that you give will be kept strictly confidential. The researcher will ensure that no information is linked to the participants

CONSENT TO PARTICIPATE IN THIS STUDY

I confirm that the person asking my consent to take part in this study has told me about nature, process, risks, discomforts and benefits of the study. I have also received, read and understood the above written information (Information Leaflet and Informed Consent) regarding the study. I am aware that the results of the study, including personal details, will be anonymously processed into research reports. I am participating willingly. I have had time to ask questions and have no objection to participate in the study. I understand that there is no penalty should I wish to discontinue with the study



and my withdrawal will not affect me in any way. I have received a signed copy of this informed consent agreement.

Participant's name(Please print)

Participant's signature: Date.....

Investigator's name(Please print)

Investigator's signature Date.....

Witness's Name(Please print)

Witness's signature Date.....



ANNEXURE G: APPLICATION TO DEPARTMENT OF HEALTH LIMPOPO

APPLICATION TO LIMPOPO DEPARTMENT OF HEALTH

Enquiries: *M A Shokane*
Tel: 015 6331800 ext 1884
Cell: 0716036867
Email: shokanema@gmail.com

The Chairperson
Research Committee
Department of Health
Private Bag x 9304
Polokwane
0700

RE: PERMISSION TO CONDUCT A RESEARCH PROJECT AT DISTRICT HOSPITAL OF LIMPOPO

Dear Sir / Madam

I am a PhD student in the Nursing Science Department at the University of Pretoria and an advanced midwife attached to labour wards one of the district hospitals of Limpopo. I hereby to request permission to conduct a research project in one district hospital. The title is: the implementation of family integrated neonatal care by health care providers in a district hospital of Limpopo Province. The study will assist the institution in reduction of neonatal mortality, length of stay and nosocomial infections. Bonding will be promoted between the mother and baby in the unit. The institution might have a reduced neonatal mortality rate and reduced average length of stay (ALOS) of neonates in the neonatal ward. The mothers will also gain confidence in caring for their own neonates during their stay in the neonatal ward. The study is of academic nature and participation is strictly voluntary. The participants' rights to self-determination and confidentiality will be respected. The study will not interfere with patient care in the identified hospital.

A steering committee will be formed from the doctors and professional nurses who manage the neonatal ward. The steering committee will drive the implementation of the intended project. The health care providers will be interviewed to find out their experiences regarding the care they

provide in the neonatal ward and what they think of the involvement of the mothers in the care of their neonates. Findings from the participants will assist the researcher to formulate and implement strategies of family integrated care in the identified hospital. The study has already received ethical clearance from the Ethics Committee of the University of Pretoria pending is the letter of permission from the institution to conduct the study.

Attached to this letter please receive my proposal and letter of ethical clearance from the Ethics Committee of the University of Pretoria

Yours faithfully

Morogwana Anna Shokane



ANNEXURE H: TITLE APPROVAL – SCHOOL OF HEALTH CARE SCIENCES



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences

01 September 2016

Faculty Ethics Committee
Faculty of Health Sciences
University of Pretoria

To whom it may concern,

**Evaluation of protocol for the following student:
Student Shokane (PhD Nursing Science) 22349228
Title: Implementation of Family Integrated Neonatal Care in a District Hospital in Limpopo.**

This letter serves to confirm that the abovementioned protocol was approved during the School PhD Defense of 01 September 2016 and referred to the School Academic Advisory Committee and Faculty Ethics Committee for final discussion.

Sincerely yours,

pp. Professor J Mothabeng
Chairperson: School Core Research and Proposal Review Committees



ANNEXURE I: FOCUS GROUP GUIDE CYCLE I

FOCUS GROUP INTERVIEW GUIDE FOR CYCLE I

SECTION A DEMOGRAPHICAL DEATAILS OF PARTICIPANTS

1. What is your age?

20-25 YRS	
26-30YRS	
31-35YRS	
36-40YRS	
41-45YRS	
46-50YRS	
50-55YRS	
56-60YRS	

2 What is your highest level of education?

1.Certificate in auxiliary nursing	
2 Certificate in enrolled nursing	
3. Diploma in General Nursing	
4 Diploma in midwifery	
5. 4 year diploma/degree in Nursing	

3 What is your gender?

MALE	
FEMALE	

4. Years of experience in Nursing?

1-5yrs	
6-10yrs	
11-15yrs	
16-20yrs	



SECTION B

1. Can you tell me your experience regarding the care that you give to neonates in the ward?
2. What do you think about the involvement of the mother in the care of the neonate?



ANNEXURE J: FOCUS/INTERVIEW GUIDE CYCLE III

FOCUS GROUP INTERVIEW GUIDE CYCLE III

SECTION A DEMOGRAPHICAL DEATAILS OF PARTICIPANTS

1 What is your age?

20-25 YRS	
26-30YRS	
31-35YRS	
36-40YRS	
41-45YRS	
46-50YRS	
50-55YRS	
56-60YRS	

2 What is your highest level of education?

Certificate in auxiliary nursing	
Certificate in enrolled nursing	
Diploma in General Nursing	
Diploma in midwifery	
4 year diploma/degree in Nursing	

3 What is your gender?

MALE	
FEMALE	

4. Years of experience in Nursing?

1-5yrs	
6-10yrs	
11-15yrs	
16-20yrs	



SECTION B

1 Can you tell me your experience regarding the involvement of the mother in the care of their neonate?

2 How are fathers and grandmothers of the neonates involved in the care of the neonate?

3 What challenges are you experiencing regarding involvement of the mother in the care of the neonate?

4 What were the benefits of involving the mother in the care of their own neonates?



ANNEXURE K: LETTER FROM THE STATISTICIAN



AGRICULTURAL RESEARCH COUNCIL

BIOMETRY

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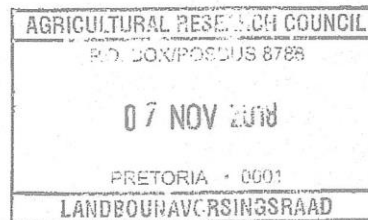
Proof of statistical analysis

This letter serves to confirm that Ms. Cynthia B. Ngwane, a statistician working at Agricultural Research Council-Biometry unit analysed quantitative data for Ms. Anna M. Shokane studying at the University of Pretoria. The data analysis tool used was Chi-squared test (for independence and equal proportion). All data was analysed using SAS statistical software package.

Name Cynthia Boitumelo Ngwane

Date 07 November 2018

Signature





ANNEXURE L: SUMMARY OF LITERATURE REVIEW

Table 2.2 Available literature on Experiences of mothers in the neonatal ward

Authors	Type of study	Citation	Methodology	Population/ Sampling	Findings
Arnold L Sawyer A Rabe H	Qualitative	BMJ open 2013 E 002487	Semi structured Interviews	32 mothers and 7 fathers of babies less than 32 weeks	Parents experienced a rollercoaster of emotions and could not remember the aspects of the birth of the baby. Some were nervous and fearful while some were excited about seeing the baby for the first time. ICU was over empowering for them and could not trust themselves around the equipment of the ICU.
Malakouti J. Jabraeeli M. Valizideh S. Babapour J.	Qualitative	Iran Journal of Critical Care Nursing 2013 5 (4) : 172-181	Semi structured Interviews	20 mothers	Mothers experienced a sense of alienation towards the baby because of the size of the baby. Alienation was also experienced towards the ICU environment. Mothers feared that babies would die in the absence of the technological equipments in the ICU there was a feeling of guilt for being unable to take care of the baby .the mothers therefore needed support in the neonatal ICU.
Araujo M BB Rodrigues BM	Qualitative	Rev Esc Enferm USP 2010 : 44(4) 865	Interviews	12 mothers	Mothers were challenged with having to face a small baby which needed to bonding for growth. Mothers had fear and were insecure regarding the care of their baby in the neonatal unit. Mothers had stress, fear ,anxiety, psychological problems and behavioral problems as observed by



					lack of sleep and loss of appetite
Heidari H. Hasanpour M Fooladi M	Qualitative	Iran Journal of Nursing Midwifery Research 2013 May-June 18 (3) 208-213	Interviews	12 parents	Parents had fears, hysteria, feeling of emptiness. Parents also had spiritual changes and concern that the baby would die. Being able to hold the baby for the first time brought feelings of nervousness, ambivalence, anger and joy in some parents.
Van Rooyen D.	Qualitative	Health S A Gesondheid 11(2),3-13	Interviews	Mothers	<p>Mothers were faced with challenges of shock, had fear that they would loose their neonate, were anxious frustrated and were feeling guilty. Perceived nurses as being competent about care of their neonates but were not supportive towards the mothers.</p>
Ohrling B. Lindberg K	Qualitative	International journal of circumpolar Health 2008, 67(5), 461-471	interviews	Mothers	<p>Mothers became parents without being prepared. Became shocked anxious and struggled to feel close to the neonate. Family life was disturbed and mothers were longing for the children that were at home</p>
Obeidat H Bond E A Callister C L	Literature review	Journal of perinatal education 2009, 18 (3) , 23-29			<p>Mothers felt like outsiders as reflected by feelings of despair, powerlessness and disappointment. Mothers had emotional instability, guilt and insecurity, fear frustration and anger</p>



					<p>Preterm birth has long term effects on maternal neonate relationship. Normal parenthood is interrupted. Parents are not physically, emotionally and psychologically ready for preterm neonate. Parents are anxious and fearful. Unable to hold and touch their neonate.</p> <p>Admission of neonate causes a strain on maternal – neonate relationship. Parents are anxious, insecure, guilty frustrated, helpless and worried about the outcome of the neonate. Parents needed to see touch, hold the neonate to facilitate bonding and attachment.;</p>
<p>Support and empowerment of parents</p> <p>Wigert H. Berg M. Hellstrom A. L.</p>	Qualitative	Interviews	Pediatrics 2008,8(3)	Mothers nurses and	<p>Parents begin their parenting in an unfamiliar and intimidating environment. Resulted in delayed attachment. Separation causes anxiety and depression to parents.</p>
<p>Herbst A. Maree C.</p>	Qualitative	interviews	Health Gesondheid 11(3)	SA Nurses parents and	<p>There was a need for establishment of rooms for the mothers to stay in during admission of their neonates in neonatal ward.</p>

<p>Family centered care</p> <p>Hutchinson SW Spillet M A Cronin M</p>	<p>Qualitative</p>	<p>Qualitative Report 2012 17 (23) 1-20</p> <p>I</p>	<p>Interviews</p>	<p>Parents</p>	<p>Neonate need specialized care provided by HCPs to adjust to extra uterine life. Parents are not allowed to take care of due neonates due to risks involved. there was a need to be empowered to transfer care giving skills to parents. Guidelines were developed based on the needs, experiences and suggestions of the mothers.</p>
<p>Trajkovski S Schemeid V Vickers M Jackson D</p>	<p>Qualitative</p>	<p>Journal of clinical Nursing 21 2477-2487</p>	<p>Focus group Face to face Individual Interview</p>	<p>33 neonatal nurses</p>	<p>Parents experienced fear, hysteria, awe, emptiness, spiritual change and concern about the death of the neonate. Parental incompleteness as they were unable to hold the neonate and they were discharged home without neonates at times. Need for parents to be assisted in the incompleteness of the parenthood.</p>
<p>Coyne I O' Neill C Murphy M Costello T O'Shea R</p>	<p>Qualitative</p>	<p>Journal of Advanced Nursing 67 (12) 2561-2573</p>	<p>Questionnaires</p>	<p>750 nurses working in children's ward 250 completed questionnaires grieving their baby death a compassionate and culturally sensitive</p>	<p>Parents should be involved in the ward round of their neonate to allay the fears of the parents. Staff should portray positive attitudes toward parents and attend to individual needs of the parents.</p> <p>Parents should be allowed to participate in the care of their own neonates with</p>



<p>Gooding J S Cooper L G Ariana I Blache B A Franck L S Howse J L Berns S</p>	<p>Qualitative</p>	<p>Serminars in Perinatology 35 20-28</p>	<p>Review of literature</p>	<p>bereavement support</p>	<p>clear defined roles. Parent's emotions should be accommodated during hospitalization of their neonates. Communication need to be improved to empower parents in care of neonates.</p>
<p>Harris C M</p>	<p>Qualitative Narrative</p>	<p>Nursing for Womens Health vol 18 (1) 18-27</p>			<p>There was a need for a multi disciplinary approach in promoting family centered care. Hospital facilities should accommodate the social, emotional and physical needs of the families. There should be appropriate staffing and managerial support to provide family centered care. Nurses viewed family involvement as a central component of family centered care. Information sharing and decision making were essential elements of family centered care. Neonatal care to include extended family in order to support the mother during her stay in the hospital.</p>
<p>Ortenstrand A Westrup Brostrom E B Sarman I Akerstrom S Brune T Lindberg L Waldenstrom U</p>	<p>Quantitative</p>	<p>Pediatrics 2010 125 e278</p>	<p>Randomized control trial</p>	<p>652 infants and sample consisted of 366 infants</p>	<p>Suggest that NICU staff can contribute to FCC but need training on how to explain medical concepts to the families. When ICU staff collaborates with parents in decision making this has a good influence of the process of infant recovery. Parent to parent support is essential to provide moral to each other</p>



					<p>regarding the condition of their babies. Families anticipating grieving their baby's death a compassionate and culturally sensitive bereavement support should be provided. The family should be encouraged to create memories.</p> <p>Suggest that NICU staff can contribute to FCC but need training on how to explain medical concepts to the families. When ICU staff collaborates with parents in decision making this has a good influence of the process of infant recovery. Parent to parent support is essential to provide moral to each other regarding the condition of their babies. Families anticipating grieving their baby's death a compassionate and culturally sensitive bereavement support should be provided. The family should be encouraged to create memories.</p> <p>Parents need to be present for bedside ward round whenever possible and feasible. Ward rounds allows the parents to discuss what transpired about the baby in the last</p>
--	--	--	--	--	---



					<p>24 hours thereby promoting an opportunity of information exchange and partnering in decision making.</p> <p>Study showed reduction of 5 days of total stay in hospital for preterm babies. no difference was observed statistically on the infant mortality rate.</p>
<p>Kangaroo mother care</p> <p>Rodgers C.</p> <p>Shrivastava S R Shrivastava PS Ramasamy J</p>	<p>Literature review</p>	<p>Journal of midwifery and women's health, 2013, 58 (3), 249-252</p> <p>S Afr Fam Pract 2013 55(4)</p>			<p>Skin-to-skin should be used for all babies to prevent hypothermia. Helps to establish thermal stability, breast feeding and increased neonatal blood glucose levels. Skin-to-skin reduces postpartum hemorrhage and increase oxytocin levels for the mother</p> <p>KMC is associated with reduction in several important adverse infant outcomes such as mortality and nosocomial infections, improves weight gain. Neonates on KMC have better oxygen saturation, suffer less stress from apnea and bradycardia. Have better ability to maintain temperature. And have more physiological stability</p>



					Mothers who provide KMC have better feelings towards their neonate. Perceive their neonate to be less abnormal. Exhibit less stress. Have fewer symptoms of depression. Competent and confident in meeting the needs of their neonates
FAMILY INTEGRATED					
O'Brien k. Bracht M Macdonell K. McBride T. Robson K	Quantitative	BMC Pregnancy and Child birth 2013 13 (suppl) s12	Cohort analytic	Infants admitted to NIC between 1 March and 30 April 2012	The family integrated programme supports parents spending time at the bedside. Reduced parental stress observed with this model of care. Breastfeeding is improved with the family integrated neonatal model of care
Bracht M O'Leary L Lee S K O'Brien K	Qualitative	Advances in Neonatal care 13 (2) 115-126	Questionnaire	39 mothers and 11 staff educators	Daily education lessons were very valuable to mothers. Education sessions to take place at bedside for continuous observation of the baby by the mother. Staff educators evaluations indicated that the support program empowered mothers to become keen and most informed participants.
Macdonell K. Christie K Robson K Pytlik K Lee K.S O'Brien	Qualitative	Advances in neonatal care 13 (4)	Interviews	Parents previously involved in NICU	It is important to include parents with previous experience of ICU in order to offer various insights that can help in forming a more holistic programme design. Veteran parents can offer continued contribution to the program. Parents should be from different



					professional backgrounds and specific skills to offer their professional expertise
					.
<p>Galarza Winton M Dicky T O' Leary L. Lee S K. O'Brien K.</p>	Qualitative	<p>Advances in neonatal care 13</p> <p>Canadian medical association Journal 186. 11 Aug 5 2014 p. 845</p>	interviews	26 Nurses	<p>Nurses were prepared for provision of family integrated care after the workshop. There was still a need for a refresher course to clarify study guidelines and nursing documentation.</p> <p>Integration of parents into their infant should begin on admission. Parents should be oriented in order to empower them to provide infant care as they are able. These include bathing, holding, changing diapers skin-to-skin and administering oral medication parents should take part in education sessions and are supported by nursing staff to actively participate in daily decision making provide reports during ward round and record their infant condition and progress.</p>
<p>Lee S K O' Brien K.</p>					



Developmental care Altimier L. Phillips R		Newborn and Infant Nursing Reviews 16 (2016)			Developmental care model identified 7 core measures for clinical guidance in delivering neuroprotective family centered developmental care to preterm neonates. The core measures are; positioning and handling, safeguarding sleep, minimizing stress and pain, non-nutritive sucking, and family involvement.
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ANNEXURE M: LETTER FROM THE EDITOR

Between lines editing

Leatitia Romero
Professional Copy-Editor, Translator and Proofreader
(BA HONS)

Cell: 083 236 4536
leatitiaromero@gmail.com
www.betweenthelinesediting.co.za

25 May 2019

To whom it may concern:

I hereby confirm that I have edited the thesis of ANNA SHOKANE, entitled: "IMPLEMENTATION OF FAMILY-INTEGRATED NEONATAL CARE BY HEALTHCARE PROVIDERS IN A DISTRICT HOSPITAL OF LIMPOPO PROVINCE". Any amendments introduced by the author or supervisor hereafter, is not covered by this confirmation. The author ultimately decided whether to accept or decline any recommendations made by the editor, and it remains the author's responsibility at all times to confirm the accuracy and originality of the completed work.

Leatitia Romero
(Electronically sent – no signature)

Affiliations

PEG: Professional Editors Group (ROM001)
EASA: English Academy of South Africa
SATI: South African Translators' Institute (1003002)
SFE: Society for Editors and Proofreaders (15687)
REASA: Research Ethics Committee Association of Southern Africa (104)



ANNEXURE N: ACTION PLANS FOR STRATEGIES OF IMPLEMENTATION OF NEONATAL CARE

Strategy	Why	Implementat ion	Responsible person	How often	Monitoring	Evaluation
1.Ensure correct Apgar scoring	To improve the skills of the midwives on Apgar scoring	Provide in-service education to midwives regarding Apgar scoring Conduct fire drills on Apgar scoring	Acting Operational manager (labour ward)	Monthly Continuously	In-service provided on Apgar score	Number of in-service education and fire drills conducted in the labour ward. Correlation of the condition of the neonate and the Apgar score on admission to the neonatal ward.
2.Prevent occurrence of medication errors in neonatal ward	Improve the knowledge of doctors on neonatal prescriptions	To provide in service education to interns on medical prescriptions for neonates. Intern doctors rotate in the neonatal ward for orientation	Pediatric doctor and clinical manager(paeds)	Continuous	In service education provided and interns rotating in the neonatal unit for two full months for orientation on management of sick and small neonates	Absence of medication errors related to prescriptions during admission in neonatal ward



<p>3. Health care providers to prevent transmission of HIV from mother to child</p>		<p>Provide couple counselling and testing Partners to attend adherence counselling Educate mothers about feeding options during ANC Educate them about the benefits of breastfeeding in HIV positive mothers</p>	<p>Antenatal clinic HIV/AIDS counsellors Nurses and doctors in labour and neonatal wards Acting Operational managers Pediatric doctor</p>		<p>Couple counselling sessions provided at high risk and wellness clinic. Health education with regard to disclosure of HIV and</p>	<p>Number of women disclosing their HIV status to partners and family Number of partners provided with couple counselling All HIV positive mothers breastfeeding their neonates Less number or no neonates with positive HIV test results at 6 weeks</p>
<p>4. Health care providers to provide support to the mother during admission of neonates</p>	<p>To allay the anxiety of the mother during their stay in the neonatal ward</p>	<p>Explain the condition of the neonate to the mother on admission Include the mother in the daily care activities of the neonate in the ward. Involve the father or other members of the family in the care of neonate to</p>	<p>All health care providers in labour ward and neonatal ward Paeds doctor All acting operational managers Assistant Manager</p>	<p>Continuous</p>	<p>Doctors explaining the condition of the neonate on admission Mothers are included in the daily care of the neonates</p>	<p>Mothers looking much more relaxed during their stay in the ward</p>



		support the mother. Encourage mother to mother support groups				
5. Encourage Kangaroo mother care after discharge	To sustain KMC after discharge	Teach the mother how to do kangaroo mother while still in the ward and involve other members of the family to provide support at home Assess the mother and the neonate using the KMC score prior to discharge. Monitor the growth of the neonate at the neonatal clinic at least twice a month	All health care providers in neonatal ward Paeds doctor Acting operational manager (neonatal)	Continuous	Partners interested in the care are involved in the care especially skin to skin. Mothers are taught how to do skin to skin then full KMC in the KMC ward Mother and neonate are assessed daily after admission in the neonatal ward using the KMC score sheet before they are discharged. Discharged neonates are all monitored at the neonatal clinic running weekly and	Number of mothers still providing KMC at discharge. Reduced number of neonates readmitted with failure to thrive during monitoring at follow up clinic



<p>6. Managers to ensure availability of durable equipments</p>	<p>To monitor the wellbeing of neonates in the neonatal unit</p>	<p>Have a need assessment list Procure new required equipments Maintenance plan for available equipments Train personnel on how to use them Condemn and repair broken and malfunctioning equipments</p>	<p>Operational Manager Assistant Manager Procurement Officers Maintenance office</p>	<p>Continuous</p>	<p>all those who are not thriving well are readmitted until the condition is stable</p> <p>Availability of functioning equipments Need assessment list made and wish list submitted to stores for procurement through the district office Master plan for servicing of equipments available at the maintenance office</p>	<p>Number of new equipments procured</p> <p>Master plan on maintenance of equipments.</p> <p>Availability of inventory list</p> <p>Borrowing books to control the movement of equipments.</p>
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<p>7.Ensure adequate supply of human and material resources</p>	<p>For provision of quality neonatal care</p>	<p>Make a need assessment to identify which category to recruit Develop a retention strategy for the recruited health care providers. Have an overtime budget utilize it payment of the available health care providers to cap up shortage of health care providers Develop a standard operating procedure on handling of linen Order an adequate amount of stock to prevent shortages that hinder quality care</p>	<p>Operational Manager Supply chain Nurse Manger</p>	<p>Continu ous</p>	<p>Overtime is currently being used to cap up shortages of health care providers in the neonatal ward Enough stock is ordered monthly</p>	<p>Improved ratio of staff on duty. Stock ordering books available Enough material resources in stock available</p>
<p>8.Develop a policy on the involveme nt of other family</p>	<p>To involve other members of the family in the care of neonates during visiting hours</p>	<p>Have a policy clarifying roles of other family members in the care of the neonates. Encourage fathers and</p>	<p>Chief executive officer Nurse Manager Assistant manager (neonatal ward) Operational manager (neonatal ward)</p>	<p>By July 2018</p>	<p>Having fathers providing skin to skin and other chores to neonates. Grandpare nts fully engaged in</p>	<p>Policy not available but parents involved. Grandpare nts involved in cases where the</p>



members during		grandparents to provide skin to skin during visiting hours			care of neonates	mother cannot take care of the neonate.
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ANNEXURE O: MINUTES AND REFLECTION OF STEERING COMMITTEE



6 Feb 18

Agenda

1. Opening
2. Purpose of meeting
3. Presentation
4. Reflection
5. Closure

1. Researcher - Trained the

9. Committee for attending

2. Purpose

~~to propose about the info~~
Present the intention of the
researcher about the imple-
mentation of FICARE

3. Brief presentation

- What is FICARE

- Outcomes of the FICARE
on the neonate, parent
and nurses

- What is entailed in FICARE
w/ parents taking care of neonate

- Parents doing Non-invasive
procedure - Top & tailing, Temp. Napp
- changing, Cord care
feeding, Skin to skin
oral Med.



0 April 2018

Opening

Researcher - thanked the steering committee for attending

2. Purpose

To give feedback on the findings of the situational analysis conducted by the researcher

3. Presentation

These were seen as problems that were underlying the results of the total care

group interviews are as follows
1 Experiences of the ~~mat~~ nurses regarding mothers in the neonatal ward.

• Mothers (Hiv Positive) not willing to breastfeed their neonates → mainly due to fear of infecting them.

• Mothers (Hiv Positive) Not disclosing to family members - due to fear of rejection by family & partners etc.

Nurses still do their own recordings

The role of the committee will be to steer the implementation - Monitor and have meeting on the implementations

Reflection

- Sounded like a good program that might solve the problems of re-admission due to infection & herbal intoxication etc.

- Can assist Her. Management to have something to present on research
- Present Litigations
- Go ahead given

Closure and further meetings will be held after data collection.

EQUIPMENTS AND STAFF

- Lack of knowledge regarding the use of some equipments

- Lack of proper maintenance of equipments

- Too old & not working well
- Do not have some of the equipments

- Inadequate provision of human & material resources

- Shortage of staff
- Shortage of material resources
→ nappies, toilet papers, linen etc -> causing misunderstanding between staff and relatives

Policies

-> lack of visitation policies

- lack of policies on role of family members during visiting hours -> Nurses clashing on the role of the relatives

• Mothers unsettled in the ward
Compressed etc

Experiences related to 1st & 2nd ward staff

- Poor Apgar scoring by midwives
- At times hiding the correct

scores - Physical condition of the neonate not correlated with the Apgar on paper

- Doctors prescribing wrong doses of medication to neonates

Unmet Experiences related to

the Neonatal ward

- Lack of restrooms
- Unconducive working environment -> Too small to move in -> Lack of space

Nothing much can be done on structural problems

-> Rest room -> Board room to be returned to maternity

Nurses although is a process

CEO ~~REINFORCED~~



Researcher

What is our aim? What do we want to achieve.

Want to improve the day to day activities done in the ward.

Improve the status of the nurses and doctors as a whole
To maintain a secure busy running of the ward.

Develop some action plans and have to monitor and see the output of the action plans develop -

How can we address the problems

Labour ward OPM will attend to the problems in labour ->

Neonatal problems - to be addressed by the MNOPIU

Reflections -

- Thanked the researcher for bringing up such important information.

• Were not aware that

Some things were really hindering neonatal care

• Aware of the problems

Shortage of staff, linen and equipments which posed a big problem not only in the neonatal ward but the whole hospital.

• Pinning how to solve the problems

• How can we solve the above ->

• Sounded like the general problems that affected the unit from the environment to the staff and skills of the midwives and doctors

1) How to address the problem of poor apgar score by labour ward midwives

↳ To ensure that midwives assess the neonates properly by using the apgar score

- Inservice education & fire drills on apgar score to midwives in labour ward

* Responsible person : LABOUR WARD OPN. ASSISTANT TO NURSE Output.

- Inservice provided.

↳ Improved Apgar Scoring correlating with these appearance of the baby.

2) PREVENT OCCURENCE OF MEDICOLEGAL HARDS RELATED TO MEDICATION.

- All doctors to be given inservice education on prescriptions for Neonates
- ↳ Inters allocation to Neonates

STRATEGIES PREVENTION OF TRANSMISSION OF HIV FROM MOTHER TO CHILD
1) How can we attend to the

Problem of Mothers not disclosing and not breastfeeding Neonates

- Health education to encourage mothers to disclose their status to family & partners. Provide Couple Counseling if opportunity arise
- ↳ encourage breastfeeding about the importance of exclusive breastfeeding
- ↳ Retention Postpartum women

Responsible Person ⇒ All health

Care Providers → Monitoring - OPN

- Target ANC clinic → use lay counsellors
- ↳ Output : Number of women being disclosed ↓ +

↳ Status of Neonates seroconverting. COT Cases



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Support groups of Mothers why
I see neonate,

Responsible Person: OPN to
check on ward nurses
mothers

Output: Confident & happy
Mothers in the ward!

Closure -> to have another
meeting next week
same time to
continue

21 Nov 2018

1. Welcome - Thanked members

for attending
Purpose - Continue with the
strategies as we did not
finish before last time
Read the previously provided
Strategies 1-4.

Continuation

5 How to address the problem
of Mothers Not Sustaining
KMC after discharge

before ward calls

Responsible Person: DR
Moficoe

Output: Medication errors
Observed from prescription

Monitoring: IF insurance was
given

4 How to address the problems
of distressed mothers in the ward
HEALTHCARE PROVIDERS TO PROVIDE
SUPPORT TO MOTHER DURING THEIR
STAY IN THE WARD

- explain condition (reason of admission) to the mother during admission.
- Inform Mother if condition is improving or not
- Take Mothers round in the block (Nurses, Bands etc)
- Teach care activities
- Attend doctors round on ward



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* NURSES TO ENCOURAGE TO DO KMC AFTER DISCHARGE

- Give health education on the importance of KMC
- Show how to do it whilst still in hospital
- Show other family members

How to assign if discharge responsible persons: Dr. Ngalole and Olu to mobilise at Neonatal Clinic in the week → Mothers to attend.

Output → Mothers doing the work or discharge
~ Bus as they were at Neonatal Clinic.

6) How can we address the problem of equipments & ~~other~~ TO ENSURE AVAILABILITY OF durable, and functioning Medical equipments.

- Make a list of equipments that need to be purchased and submit to stores
- All personnel to be trained on the use of new equipments
- Maintenance Plan and should be served according to the plan.
- Coddeming are repairing
- Inventory book & Borrowing Book

Output ⇒ Availability of necessary essential equipment.

⇒ Control Movement
Control books available.
Responsible ⇒ All → AS NANCER
→ ASSET OFFICES
→ PROCUREMENT



7 How to address the problem of Shortage of staff and other resources

TO ENSURE PROVISION OF ADEQUATE HUMAN AND MATERIAL RESOURCES

- Create the needed category
- ~ Motivate at URU & DCH on filling of posts
- exit interviews -> identify problems causing resignations
- measure on the stated policy
- Overtime budgets
- Come up with a retention strategy
- ~ Order store monthly according to the Plan
- Develop a standard operating procedure on handling of dirty & clean linen, ^{ASSISTANT} Responsible persons ^{ASSISTANT}

Output

Adequate staff available to cover all subject.

= linen counts & availability

=> Availability of Store Closures toilet papers etc

8 How to address the problem of Policies. ON FAMILY UNIT TO DEVELOP A POLICY ON THE INVOLVEMENT OF FAMILY MEMBERS

in Draw a policy that describes the role of atleast the father and the grand mother in the ward

Responsible persons ASSISTANT MANAGER, DEPUTY NURSING MANAGER = CHIEF EXECUTIVE OFFICER

Output: AVAILABLES ON POLICY REGARDING FATHERS IN NURSING



MONITORING { 7 AUG. 18 }

1. OPENING

Thanked everyone for attending

2. Purpose

- To report back on what we implemented or what was not implemented on the strategies

1. PREVENTION OF PMTCT

~ Dietitian giving health education to all Mothers on ANC Clinic

regardless of Positive or Negative

~ Counsellors providing counselling on adherence to POC. Patient

• Couple Counselling provided to

Clients across pregnancy partner to clinic but very few

⇒ ON going ⇒ Doctors reporting

only 2 babies tested positive at 6 wks (most are negative)

2. ALGAR SCORING.

inservice provided by Senator

CLOSURE: WE WILL LOOK AT THE EVALUATION OF THE STRATEGIES IF THE MAN AGED OR NOT. WE WILL BE GIVEN TIME FOR EACH OF US TO GO AND CHECK ON THE TASKS ALLOCATED AND WILL BE ABLE TO REPORT ON SOMETHING NEXT TIME WE MEET





6) Equipments → NOT covered
Shortage SKI (Sensors)
running around to use
for ~~parents~~ every where
Too many babies need
incubators - monitors
etc.

7) STAFF
still a big problem
Shortage capped through
overtime Staff exhaustion →
Policy of 32 hrs per week
or less too

8) Not achieved needs
All Managers: TIME
too short ⇒ AS to make
time ~ Continuous care
but staff allow many
Fathers to get involved
in care and grand
mothers like caretaker

were read to practice
sconing -

- For ongoing ⇒
Nuch measurement ~~practice~~
~~about~~ problems SKI practicing
as observed by the Dr. Dr. Dr.
Report from nurses →

- ON Going Monitoring

4) ~~Some~~ Skills taught to nurses
and are providing care to own
Neonates with assistance of
Nurses

→ Some still difficult with
neonate attitudes

→ Drs still need more but
ongoing of the problem
in neonatal for skills
Difficult to Monitor areas

to be Dr-Not Sure what

units happening at home

as some babies are re-admitted

with problems of having a lot

weight beyond expectations

but others are doing well



6) Equipments → Not covered
Shortage SKU (Growth)
Running around to use
for parents every where
Too many babies need
incubators - monitors
etc.

7) Staff
SKU a big problem
Shortage capped through
overtime Staff exhaustion
Policy of 32 hrs per wk
or poster too

8) Not achieved needs
All Managers: Time
too short ⇒ AD to make
time ~ Continuous care
but staff allow many
Parents to get involved
in care and grand
mothers like caretaker

were read to practice
scoring -

- For ongoing ⇒
Nuch measurement ~~practice~~
~~about~~ problems SKU presenting
as observed by the Dr. After
Report from nurses

- On going Monitoring

4) ~~Some~~ Skills taught to mothers
and are bonding care to own
Nurses with assistance of
Nurses

5) Some still difficult with
negative attitudes

DRs still need more but
ongoing of the problem
in the hospital for nurses
Difficult to Monitor areas

to the Dr-Not Sure what
units happening at home

as some babies are re-admitted
with problems of having a
weight beyond expectation
but others are doing well

