

AN EVALUATION OF THE CULTURE OF PATIENT SAFETY AS A CRITICAL ELEMENT OF HEALTHCARE IN A PUBLIC HOSPITAL IN DURBAN, KWAZULU-NATAL

by

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Submitted in fulfilment of the requirements of the degree of Master of Health Sciences in Nursing, in the Faculty of Health Sciences at the Durban University of Technology.

I, Vathanayagie Govender, do hereby declare that this dissertation is representative of my own work, both in conception and execution.

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ABSTRACT

Aim

The study evaluated the culture of patient safety and the factors that contribute and influence patient safety as a critical element, to healthcare in a public hospital in Kwa-Zulu Natal, through a predesigned questionnaire with the objectives of establishing the current status of the culture of patient safety in the said hospital, evaluating responses from nurses and doctors and other healthcare professionals, exploring the effectiveness of communication and teamwork within units and hospital.

Methods

A quantitative descriptive design was used for the study. The target population were healthcare professionals working in the hospital and a purposive convenience sample was selected, 180 questionnaire were distributed and 130 responses were received. Data were analysed using Statistical Package for the Social Sciences (SPSS) version 22.0. Factor analysis was used for data reduction and revealed components that grouped the questions together to give a better understanding of the responses. A principal component analysis was used as the extraction method and Varimax with Kaiser normalisation were employed as rotational method.

Results

The resultant data from the predesigned questionnaire was divided into components of teamwork within and between units, hospital and supervisor management support for patient safety, communication openness and feedback regarding errors, non-punitive response to errors, hospital handover of information staffing and overall patient safety grade. The study was compared to the studies in the US and three other countries across the European continent, Netherland, Taiwan, and US [Wagner *et al.* 2013]. The findings as possible strengths of the study were teamwork within units, learning in the organization, feedback and communication, and manager and supervisor support for patient safety. The areas that needed attention were teamwork across units, communication openness, staffing, non-punitive response to errors and overall patient safety grade, handover of information between units.

Conclusions

The findings, reflective of a developing country, compared to the findings from similar studies in developed countries such as the USA and countries in transition such as Netherlands and Taiwan. In reference to the precincts that face a developing country such as South Africa, certain highlights emerged from the comparison, as areas of strength, areas requiring attention, and a preliminary insight into current practices within the South African context which can be viewed as an opportunity to sustain current good practices and inform future research.

DEDICATION

I dedicate this study to my parents who believed that education empowers and sets you free of dependence, can be shared , but never taken away, in life they inspired me to become who I am, in death left a legacy of love, beautiful memories and lessons to guide me in my journey through life.

To my dear husband, who values my caring profession and walks beside me through all my challenges in life and never deterred by his own challenges, an immeasurable support, constant encouragement and motivation throughout my study.

To my dear children, Kim and Sugen, whose pride in me and my work and constant display of love and affection and unlimited support, motivation and encouragement has helped me complete my study.

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[In the words of William Butler Yeats, "Education is not the filling of a pail but the lighting of a fire." We must credit our teachers who ignite the fire of learning in the mind that is yearning for knowledge].

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TABLE OF CONTENTS	PAGE
ABSTRACT	i
DEDICATION	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS	vi
LIST OF FIGURES AND TABLES	xiii
ABBREVIATIONS AND SYMBOLS	xvi
DEFINTIIONS OF TERMS	xvii
 CHAPTER ONE: THE INTRODUCTION	 1
 1.1 BACKGROUND TO THE STUDY	 2
1.1.1 Healthcare Professionals and Patient Safety	4
1.2 PROBLEM STATEMENT	5
1.3 THE RESEARCH QUESTION	5
1.4 AIM OF THE STUDY	5
1.5 OBJECTIVES	6
1.6 SIGNIFICANCE OF THE STUDY	6
1.6.1 The Value of a Safety Culture to Healthcare Organisations	7
1.7 THEORETICAL FRAMEWORK	7
1.8 LAYOUT OF THE CHAPTERS	8
1.9 CONCLUSION	8
 CHAPTER TWO: THE REVIEW OF THE RELATED LITERATURE	 9
 2.1 INTRODUCTION	 9
2.2 DEFINITION OF CULTURE	10
2.2.1 A Culture of Patient Safety	10
2.2.2 A Just Culture	11
2.2.3 A Reporting Culture	12
2.2.4 An Informed Culture	12

2.2.5 A Learning Culture	12
2.2.6 A Flexible Culture	13
2.3 MEASURING THE CULTURE OF PATIENT SAFETY	13
2.3.1 Patient Safety	13
2.3.2 Global Perspectives on Patient Safety	14
2.3.3 Medication Errors	17
2.3.4 Patient falls	18
2.4 A CULTURE OF BLAME AND SHAME	20
2.5 THE AFRICAN CONTINENT	21
2.6 SAFETY CULTURE: SYSTEMIC MINDFULNESS MODEL	23
2.7 HEALTHCARE DONABEDIAN QUALITY FRAMEWORK	25
2.8 THE IMPORTANCE OF AN ORGANISATIONAL CULTURE	26
2.9 CONCLUSIONS	26
 CHAPTER THREE: METHODOLOGY	 28
 3.1 INTRODUCTION	 28
3.2 RESEARCH DESIGN	28
3.3 RESEARCH SETTING	28
3.4 POPULATION AND SAMPLE	29
3.4.1 Nursing Categories	30
3.4.2 Selected Key Informants	30
3.5 INCLUSION CRITERIA	30
3.6 EXCLUSION CRITERIA	31
3.7 RESEARCH INSTRUMENT	31
3.8 THEORETICAL AND CONCEPTUAL FRAMEWORK	33
3.9 DATA COLLECTION PROCESS	34
3.9.1 Access and Sampling	34
3.9.2 Pilot Study	35
3.9.3 Main Study	36
3.10 DATA ANALYSIS	36
3.11 RELIABILITY AND VALIDITY	37
3.12 ETHICAL CONSIDERATIONS	38

3.13	CONCLUSIONS	39
CHAPTER FOUR:	PRESENTATION OF RESULTS	40
4.1	INTRODUCTION	40
4.2	THE SAMPLE RESPONSE	40
4.3	THE RESEARCH INSTRUMENT	40
4.4	STUDY RESPONDENTS	42
4.4.1	Gender and Age Distributions	42
4.4.2	Position and Nursing Category	44
4.4.3	Periods of Employment	44
4.4.4	Hours of Work	45
4.4.5	Contact and Interaction with Patients	45
4.5	RELIABILITY STATISTICS OF MEASURING INSTRUMENT	47
4.6	FACTOR ANALYSIS	48
4.7	ROTATED COMPOUND MATRIX	49
4.7.1	Component 1: Non-punitive Response to errors	50
4.7.2	Component 2: Learning in the Organisation and Continuous Improvement	50
4.7.3	Component 3: Co-operation within the Unit	50
4.7.4	Component 4: Staffing and Hours of Work	51
4.7.5	Component 5: Teamwork within Units	51
4.7.6	Component 6: Workload and Mistakes	51
4.8	RESULTS BY SECTION	52
4.8.1	Section C: Your Supervisor or Manager	52
4.8.2	Section D: Feedback and Communication	52
4.8.3	Section E: Frequency of Events Reported	53
4.8.4	Section F: Your Hospital	54
4.8.4.1	Component 1: Hospital Handover and Transfer of Information	55
4.8.4.2	Component 2: Hospital Management Support for Patient Safety	55
4.8.4.3	Component 3: Teamwork across Hospital Units	55

4.9	SECTION ANALYSIS	55
4.9.1	Section B: Your Work Area or Unit	56
4.9.1.1	<i>Teamwork within units</i>	58
4.9.1.2	<i>Staffing</i>	58
4.9.1.3	<i>Learning in the organisation and continuous improvement</i>	58
4.9.1.4	<i>Non-punitive Response to errors</i>	58
4.9.1.5	<i>Overall Perceptions of Patient Safety</i>	58
4.9.1.6	<i>Test Statistics</i>	59
4.9.2	Section C: Supervisor / Manager Expectations and actions promoting patient safety	59
4.9.2.1	<i>Test Statistics</i>	60
4.9.3	Section D: Communication Openness and Feedback about Error	61
4.9.3.1	<i>Test Statistics</i>	62
4.9.4	Section E: Frequency of Events Reported	62
4.9.4.1	<i>Test Statistics</i>	63
4.9.5	Section F: Hospital Management Support for Patient Safety	64
4.9.5.1	<i>Hospital Management Support for Patient Safety</i>	65
4.9.5.2	<i>Teamwork across hospital units</i>	65
4.9.5.3	<i>Hospital handovers and transfer of information</i>	65
4.9.5.4	<i>Test Statistics</i>	65
4.9.6	Section G: Number of Events Reported	66
4.9.6.1	<i>Test Statistics</i>	67
4.9.7	Section H: Patient Safety Grade	67
4.9.8	Section I: General Comments	67
4.10	HYPOTHESIS TESTING	67
4.11	CORRELATION BETWEEN VARIABLES	68
4.11.1	Section B: Your Work Area or Unit	69
4.11.2	Section C: Supervisors and Managers Expectations of Patient Safety	73
4.11.3	Section D: Communication and Feedback	75
4.11.4	Section E: Frequency of Events Reported	77
4.11.5	Section F: Hospital Management Support and Communication	78
4.11.6	Section G: Frequency of Events Reported	87
4.11.7	Section H: Overall Perceptions of Patient Safety	88

CHAPTER FIVE: DISCUSSION	89
5.1 INTRODUCTION	89
5.2 THE STUDY METHODS	89
5.3 DISCUSSION OF RESULTS	90
5.3.1 Biographical Data, Hours of Work, Work Area	90
5.3.2 Components of Strength for the Study	91
5.3.2.1 <i>Teamwork within Units</i>	91
5.3.2.2 <i>Learning in the organization and Continuous Improvement</i>	93
5.3.2.3 <i>Communication Openness and Feedback and about Errors</i>	94
5.3.2.4 <i>Supervisors and Managers actions promoting Patient Safety</i>	95
5.3.3 Areas requiring improvement	97
5.3.3.1 <i>Teamwork across Hospital</i>	97
5.3.3.2 Staffing	99
5.3.3.3 Non-Punitive Response to Errors	100
5.3.3.4 Frequency of Events Reported	102
5.3.3.5 Hospital Management Support for Patient Safety	103
5.3.3.6 Handover and Transfer of Information between Hospital units	105
5.3.3.7 Overall Perceptions of Patient Safety	106
5.3.3.8 Overall Patient Safety Grade	108
5.3.3.9 Number of Events Reported	108
5.4 COMMENTS ABOUT PATIENT SAFETY, ERROR, OR EVENT REPORTING IN YOUR HOSPITAL	108
5.4.1 Staff Shortages	108
5.4.2 Lack of Equipment	109
5.5 CONCLUSION	109
CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS	111
6.1 INTRODUCTION	111

6.2	CONCLUSIONS	111
6.2.1	Objectives of the Study	111
6.2.2	Limitations of the Study	114
6.3	RECOMMENDATIONS FOR FUTURE RESEARCH	115

REFERENCES	117
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APPENDICES

APPENDIX A

Ethical Clearance Letter from the Durban University of Technology

APPENDIX B

Approval from Department of Health

APPENDIX C

Approval from EThekweni Municipality

APPENDIX D

Approval from CEO Mahatma Gandhi Hospital

APPENDIX E

Approval of Amendment to Topic

APPENDIX F

Approval of Pilot Study

APPENDIX G

Letter of Information and Consent

APPENDIX H

Hospital Questionnaire

APPENDIX I

Test Statistics: Primary Work Area or Unit In The Hospital

APPENDIX J

Test Statistics: Supervisor / Manager Expectations and Actions Promoting Patient Safety.

APPENDIX K

Test Statistics

Chi Square Results of Communication With Regards To Safety Incidents

APPENDIX L

Chi Square Results Indicates Frequency of Events Reported

APPENDIX M

Chi-square tests on hospital management support for patient safety

APPENDIX N

The chi square test on number of events reported

APPENDIX O

Correlation Table

LIST OF FIGURES AND TABLES

FIGURES	PAGE
Figure 1: Systemic Mindfulness Model of Proactive Patient Safety	24
Figure 2: Donabedian Healthcare Framework	25
Figure 3: Gender and Age Characteristics of Sample	42
Figure 4: Gender and Age Distributions (by percentage of respective gender)	43
Figure 5: Percentage Sample by Role or Designation	44
Figure 6: Period of Employment	45
Figure 7: Hours of Work per week	46
Figure 8: Primary work area or unit in the hospital	57
Figure 9: Supervisor / Manager Expectations and actions promoting patient safety.	60
Figure 10: Communication openness and Feedback and with regards to errors	61
Figure 11: Frequency of Events Reported	63
Figure 12: Hospital Management Support for Patient Safety	64
Figure 13: Number of events reported	66

TABLES

Table 1:	Gender and Age Characteristics of Sample	42
Table 2:	Direct Interactions or contact with patients	42
Table 3:	The Cronbach's alpha score for all questionnaire items	47
Table 4:	Kaiser-Meyer-Olkin Measure and Bartlett's Test of Sphericity scores	48
Table 5:	Your Work Area or Unit Rotated Component Matrix	49
Table 6:	Your Supervisor/Manager Rotated Component Matrix	52
Table 7:	Feedback and Communication Rotated Component Matrix	52
Table 8:	Frequency of Events Reported Rotated Component Matrix	53
Table 9:	Your Hospital Management Support for Patient Safety Rotated Component Matrix	54
Table 10:	<i>Primary work area or Unit in the Hospital</i>	56
Table 11:	<i>Patient Safety Grade</i>	67
Table 12:	<i>Teamwork within units</i>	92
Table 13:	Average for Teamwork within units	92
Table 14:	Learning in the organisation and continuous improvement	93
Table 15:	Average for Learning in the organization and Continuous improvement	94
Table 16:	Communication Openness and Feedback about Error	94
Table 17:	Average for Communication Openness and Feedback about Error	95
Table 18:	Supervisors and managers actions promoting patient safety	96
Table 19:	Average for Supervisors and managers actions promoting patient safety	97
Table 20:	Teamwork across hospital units	98
Table 21:	Average for Teamwork across hospital units	98
Table 22:	Staffing	99
Table 23:	Average for Staffing	100
Table 24:	Non-punitive response to errors	101
Table 25:	Average for Non-punitive response to errors	101
Table 26:	Frequency of events reported	102
Table 27:	Average for Frequency of events reported	103

Table 28:	Hospital management support for patient safety	104
Table 29:	Average for Hospital management support for patient safety	104
Table 30:	Handover and transfer of information between hospital units	105
Table 31:	Average for Handover and transfer of information between hospital units	106
Table 32:	Overall perceptions of Hospital	107
Table 33:	Average for Overall perceptions of Hospital	107

ABBREVIATIONS AND SYMBOLS

AHRQ	Agency For Healthcare Research and Quality
CANSO	Civil Air Navigation Services Organisation
CDC	Centre For Disease Control
CSCWG	Canso Safety Culture Workgroup
DALY	Disability Adjusted Life Years
DOH	Department of Health
ICNE	International Conference of Nursing Ethics
IOM	Institute of Medicine
KZN	KwaZulu-Natal
NDOH	National Department of Health
SANC	South African Nursing Council
SARAH	Strengthening South Africa's Response to HIV and Health
SQHN	Society for Quality Healthcare in Nigeria
WHO	World Health Organisation

DEFINITIONS OF TERMS

Enrolled Nurses [Staff Nurse] refers to “a person who has met the prescribed education requirement and acquired and maintains the competencies to practice as a staff nurse [enrolled nurse] and is registered as a staff nurse (enrolled nurse) in terms of section 31(1)(a) of the (Nursing) Act). The clinical practice of a staff nurse is to provide basic nursing care for the treatment and rehabilitation of common health problems for individuals and groups, the practitioner can establish an environment in which healthcare can be provided safely and optimally, and demonstrate and maintain adequate knowledge and skills for safe practice. Limitations of practice are can only provide nursing care and treatment to persons with health problems under the supervision of a professional nurse (DOH 2013).

Enrolled Nursing Assistants (Auxiliary Nurse) refers to a member of the nursing staff who provides elementary nursing care as prescribed and delegated by a professional nurse or staff nurse. The clinical practice of an enrolled nurse is to maintain an environment that promotes safety, security and rights of healthcare users (DOH 2013).

Ethical and Clinical Practice of a Professional Nurse requires a practitioner to demonstrate, knowledge of and insight into laws and regulations relevant to nursing, midwifery, and healthcare in the Republic; protect the human rights of individuals and groups within the healthcare environment; practice nursing, midwifery and healthcare in an ethically just manner; accept and assume accountability and responsibility for his or her own actions and omissions within the legal and ethical parameters of a dynamic healthcare environment; establish and maintain an environment in which healthcare can be provided safely and optimally; and incorporate current and appropriate research findings to ensure an evidence based nursing and midwifery practice. (DOH 2013).

Registered Nurse (Professional Nurse/Midwife) refers to a person who has met the prescribed education requirements for registration as a professional nurse midwife, has acquired and maintains the competencies to practice as a professional nurse and midwife and is registered as a professional nurse in terms of section 31(1) (a) of the (Nursing) Act. The scope of practice of a professional nurse: it is within the competence of a professional nurse to resume full responsibility and accountability for the provision of comprehensive nursing treatment and care of persons in all healthcare settings, the management of nursing

care of individuals, groups and communities, providing emergency care, ensuring the safe implementation of nursing care, the care of persons with health conditions in all settings, and the delegation of nursing care ensuring that nursing care is only delegated to competent practitioners and persons. (DOH 2013)

Scope of Practice means the parameters within which a category of nurse who has met the prescribed qualifications and registration requirements may practice. (DOH 2013)

CHAPTER ONE: INTRODUCTION

Working as a quality manager in a healthcare organisation for a number of years, the researcher recognized the importance of the culture of patient safety as a critical element of quality healthcare and the importance of a positive safety culture that underpins all activities that revolve around the patient. This fuelled the researcher's passion to pursue this study when the opportunity arose. Patients who visit a healthcare organization enter into an unwritten contract that they entrusts their life into the care of the healthcare professionals and they expect them to keep them safe. As a healthcare worker it is a moral and ethical obligation to comply with that expectation. The country is also undergoing a transformation in healthcare with the introduction of the National Health Insurance and one of the priority focuses of the National Core Standards is patient safety (NDOH 2011).

It was also the most appropriate time to embark on a research such as the culture of patient safety as a contribution to the existing best operating practices in healthcare in the public hospitals in South Africa. There has been a thread of commonality in the definition of the culture of patient safety in an organisation, from different viewpoints of researchers that will be discussed in the coming chapters. The most important words such as attitudes, norms and values and commitment that are surfacing in most literature search is really the cement of the culture of patient safety in an organisation (Rockville *et al.* 2004).

These are the words that define how an organisation can be conscientious and persistent in its culture of patient safety and the importance of the multidisciplinary team and management in the contribution to the safety culture of the organization. This was also gleaned from the researchers own experience as a quality manager and has been the springboard to the present research. In the opinion of the researcher both academia and the healthcare practice setting can benefit from such research

1.1 BACKGROUND TO THE STUDY

There are errors that suffuse our lives daily the same applies to healthcare where patients and clinicians are touched by adverse events that impacts on their lives by causing pain or trauma to the patient and concern and apprehension for the clinician (Hughes 2008: v). In 1999 the institute (Institute) of Medicine (IOM) released a report to the public on the incidence of medical errors and untoward patient outcomes giving statistics as many as 98,000 deaths annually due to medical errors (Donaldson 2008:1). The 2006 Institute of Medicine report acclaims that on average a patient in hospital is subject to more than one medication error a day (Hughes, Belgen: 2008:4). Patient safety is the keystone to excellent quality health care and is developed on the culture of patient safety and encompasses healthcare professionals and organisations where healthcare is provided care (Mitchell 2008:1, 4).

“Primum non-nocere”, (First do no harm), in terms of the Hippocratic Oath, is embedded in the pledges taken by medical practitioners and is ‘a guiding principle for physicians that whatever the intervention or procedure, the patients wellbeing is the primary consideration’ (McGraw – Hill 2002). The research on patient safety culture has been encouraged by the Institute of Medicine (IOM) who contends that organisations are able to learn from such research to reduce error and prevent harm to patients. They have urged organisations to make patient safety a critical component of healthcare by adopting safety standards as best operating practices by designing jobs and promoting an environment that supports patient safety. Examples of these include safety standards for equipment, supplies and processes. They add that for a safety culture to be sustained within an organisation, leadership should create a culture of trust, good observation, and good communication from clinicians to leaders (Donaldson 2008:5).

They concur with patient safety experts who argue the importance of cultural attributes such as leadership support, teamwork, communication and fair and just culture principles being a critical element in patient safety (Croll, Coburn, Pearson: 2012). Some authors have added that patient safety culture surveys may be used as a means of promoting organizational learning and building a culture of safety (Croll *et al.* 2012). Others have argued that patient safety has become ‘increasingly important in recent

years due to the number of medical errors and the increasing awareness of the public and the patients to safe care' (Rockville, Sorra, and Nieva 2004). Patient safety issues have also been argued to increase healthcare costs and to have eroded trust in healthcare professionals and institutions (Rockville *et al.* 2004). There has also been an increase in demands placed on healthcare professionals at every all levels and categories with regard to patient safety. Rockville *et al.* (2004) acknowledge that patient safety is a critical component of healthcare quality, and that organisations are always striving to improve the quality of care, and recognising the importance of evaluating and establishing a culture of safety. They add to achieve a culture of safety an organisation must be aware of what values, beliefs, norms, and attitudes and behaviours with regards to patient safety is required (Rockville *et al.* 2004). They affirm that organisations that have been recognised with a positive safety culture have good communications that is based on mutual trust, acknowledge the importance of patient safety, and are confident in the efficiency of their preventive measures (Rockville *et al.* 2004).

A report entitled 'Knowledge is the enemy of unsafe care' (Madiba 2005), states that "patient safety is under researched in developing countries due to resources being channelled to other research and when protocols are written in developed countries they do not take into account local cultural issues". This report further argues that "developed countries do not build a capacity to conduct research in developing countries, this leads to dependency, colonization of research and exploitation of poor communities" (Madiba 2005). Therefore there is a need for research in patient safety in developing countries such as South Africa.

The report entitled Strengthening South Africa's response to HIV and Health, (SARAH 2010) highlighted that South Africa was one of the eight countries that were involved in a study to address adverse patient incidents. This report indicates that the health system would be strengthened by adherence to standards that cover six quality priorities, which include: improve patient safety; infection control and prevention; availability of medicines; reduced waiting times; improve cleanliness; and positive and caring attitudes, values and motivation (SARAH 2010).

South Africa is poised to implement The National Health Insurance (NHI) plan whose primary objective is founded on the constitutional principle of the right to quality health care. (SARAH 2010). The statement of the NHI plan recognizes that there are gaps in our healthcare system that needs to be addressed (NDOH 2011). The Minister of Health of South Africa has alluded to the importance of 'providing safe quality health services, and that it is non-negotiable in improving South Africa's current poor health outcomes' (Motsoaledi 2011). He has added that there are a number of areas that were identified as top priority to improve quality of healthcare that have been selected to fast track quality healthcare and one of these is patient safety.

According to The Department of Veterans Affairs National for patient safety 2006 states that "it is important to state that patient safety is not a destination it is a never-ending journey" (Bagian 2006:4). They add that traditionally healthcare expected healthcare workers to be perfect and equipment never failed in the provision of safe care. It was then realized that no individual is perfect and infallible, and equipment can also fail, which led to a new systems approach which nurtures a culture of safety and a culture of 'no blame, no shame' (Bagian 2006:4).

1.1.1 HEALTHCARE PROFESSIONALS AND PATIENT SAFETY

The researcher's experience of quality healthcare recognizes that healthcare professionals play a pivotal role in patient safety especially as the patient entrusts his life in their care and nurses are the crucial role players in patient safety. Therefore 90% of the sample population were nurses that have direct contact with the patients. Healthcare professionals and especially nurses have the ability to identify near misses before they become incidents and harm the patient and they can keep statistics and implement strategies that will contribute to patient safety. Furthermore it is the responsibility of all members of the multidisciplinary team whose work revolves around the patient to ensure the safety of the patient and it is their obligation to bring no harm to the patient by identifying and intercepting errors.

1.2 PROBLEM STATEMENT

The minister of health of South Africa has alluded to high quality and safe care as vital in improving 'South Africa's current poor health outcomes' (Motsoaledi 2011). South Africa is in the process of implementing The NHI which will span over 14 years, the South African healthcare system has recognized one of the specific priority areas, the promotion of patient safety, that when addressed may contribute to a 'efficient, equitable, and sustainable healthcare' for all based on the principle of the 'right to quality health care' for every citizen (SARAH 2010). To achieve this South Africa has embarked on learning from the global world on how to promote the culture of patient safety and has indicated that inadequate patient safety data was one of the contributing factors to the gaps identified in patient safety (SARAH 2010).

Patient safety is a global concern, as will be discussed in the next chapter. Very little research is available on patient safety in the South African context, and as previously mentioned healthcare professionals are integral to patient safety and their responses will be a valuable contribution to the quality of healthcare in South Africa. With this study the researcher hopes to add to the existing good practices and to build on those that require attention.

1.3 THE RESEARCH QUESTION

The following research question encompasses the study.

How may safety cultures be inculcated into organizational cultures to ensure commitment to safety and a just culture of no blame-no shame?

1.4 AIM OF THE STUDY

The aim of the study was to evaluate the culture of patient safety and factors that contribute and influence patient safety in a public hospital in KwaZulu-Natal.

1.5 OBJECTIVES OF THE STUDY

The study has three objectives:

1. To establish the current status of the culture of patient safety in a district hospital in KwaZulu-Natal?
2. To evaluate nurses, doctors and other health professionals responses to patient safety in the said organisation and to explore leadership support of a patient safety culture.
3. To explore the effectiveness of communication and teamwork within units in terms of the culture of patient safety.

1.6 SIGNIFICANCE OF THE STUDY

According to the Flex Monitoring Team (2012), by evaluating the culture of patient safety in an organization, the organisations is able to establish benchmarks and measure and monitor the impact of patient safety programmes. They argue that the greatest impact on organisational patient safety culture is to promote conversations around patient safety within health care organizations. Before the Institute of Medicine (IOM) report, 'To Err is Human', the (1999), organisations focused on incident investigations and took punitive action for incidents and blamed individuals. This approach focused on punishment rather than on prevention (Chiarello 2013). Patient safety according to literature search has been under researched in South Africa and in the African Continent. The issue of patient safety is a concern in the African region, other key issues are 'culture of denial and blame', inadequate patient safety data and inconsistent reporting (SARAH 2010). Whether this still exist in the South African context has to be evaluated this study hopes to shed light on the current South African situation in a public hospital regarding the culture of patient safety and the culture of 'no blame no shame'.

1.6.1 THE VALUE OF A SAFETY CULTURE TO HEALTH ORGANIZATIONS

Organizations that have a strong safety culture according to the Centre of Disease Control were found to have positive effects on productivity, costs and employee satisfaction, and the organisations with a strong safety culture report fewer injuries than organisations with a weak safety culture due to programs that are implemented and management commitment to safety is evident (Chiarello 2013). The knowledge from this study will strengthen existing good practices and address areas that require attention, and result in healthcare workers becoming more aware of their practices and become critical thinkers and careful clinicians.

1.7 THEORETICAL FRAMEWORK

Sheehan (2014) recognizes the importance of theoretical frameworks on which nursing practice develops, frameworks form the backdrop to nursing practice and the best operating practices are derived from theoretical frameworks, research studies also lean on theoretical frameworks to add meaning and value to the practices (Sheehan 2014). The theoretical model that was identified for this study is the Systemic Mindfulness model of proactive patient safety. The 'corkscrew' model focuses on a journey towards error reduction where the "blunt" (handle) end may be seen as leadership whose policies affect patient safety and the 'sharp' (screw) end is nurses who are in direct contact with patients (Rich 2008: 3-4). The model also focuses on what is happening at each level of the healthcare system, in terms of patient safety and moving from a 'bureaucratic organisation to generative patient safety culture' (Rich 2005y 3-4). This model serve as a framework to answer the research questions, in terms of how safety cultures may be inculcated into organizational cultures so as to ensure commitment to safety and a just culture of no blame-no shame which will be elaborated on in the next chapter.

The Donabedian framework was also used to further explain the impact of such study on the quality of patient care and safety of the patients. The quality and safety of patient care go together. The Donabedian definition of quality of care includes structure process and outcomes. These three processes are interdependent and they

influence each other, Hughes (2008) explains that 'structure' measures the availability and quality of resources such as equipment, the level of training and skills of clinicians; 'process' measures the quality of service of clinicians; and 'outcomes' are the result of such services (Hughes 2008:2). In consequence when there is this interdependency and support, 'healthcare workers display high levels of job satisfaction, patients are given high quality of care and the healthcare outcomes are effective' (Hughes 2008:2.).

1.8 LAYOUT OF THE CHAPTERS

- Chapter 1: Introduction / Background to the study
- Chapter 2: Literature Review
- Chapter 3: Research Methodology
- Chapter 4: Results
- Chapter 5: Discussion of Findings
- Chapter 6: Conclusions and Recommendations

1.9 CONCLUSION

This chapter focused on an introduction and a background to the culture of patient safety, gave an indication of the importance and significance of the study for the South African Healthcare system and provided a brief overview of the theoretical framework. The following chapter will focus on the literature concerning patient safety and the culture of patient safety.

CHAPTER TWO: THE REVIEW OF THE RELATED LITERATURE

2.1 INTRODUCTION

“As human beings we recognize that we will make mistakes, and as a health care worker this is difficult to accept. Perfectionism is correlated to competence and mistakes are correlated to incompetence. Healthcare workers are forced to feel incompetent at times which leads to shame and guilt” (Reiling 2005). Human beings are mortal and have their capacities and also their limitations and cannot attend to a number of processes at the same time and not make mistakes (Hughes 2008:3). According to an article, ‘The time is now’ (Damrose 2010), patient safety experts say that the human factors, such as management control, effective communication, working as a team and learned personnel, are critical in building the culture of patient safety, and all of these revolve around the patient as the most important human being in healthcare (Damrose 2010). These ‘patient safety experts’ also allude to “culture change as the kind of lubricant that allows patient safety work to happen.” (Damrose 2010). The culture of patient safety was expanded on by many researchers, who concluded that a safety programme will only be effective if specific efforts are made by hospitals to improve the culture of safety in their organisations and add that the (re)modeling of culture is the most difficult. According to Hughes (2008:14), converting an organisation’s culture starts with an evaluation of the existing culture and assessing the relationship between that culture and the quality of healthcare emerging from within that culture.

In research studies healthcare leaders and researchers have turned to high reliability organisations in industry such as The National Aeronautics and Space Administration to learn lessons from them on safety and apply it to healthcare (Hughes 2008: 7). According to Hughes high reliability organizations implement safety through a systems approach such as identifying risks and errors, safety related behaviours, and implementing a reward and recognition programme, similarly healthcare can adopt these systems and become high reliability organisations by attitude change, good leadership and teamwork, and a dedication to a system of mindfulness and hypervigilance in implementing safety in healthcare. (Hughes 2008:7). Fracica (2006)

and colleagues suggest that it is important for an organization to undertake an assessment of their safety culture to establish baseline measures before implementing changes. Although some organisations use data from others to implement change, it is more effective to identify one's own strength and weaknesses using an appropriate evaluation tool, than using data from other organizations (Fracica *et al.* 2006).

The literature search focused on global and local research on the culture of patient safety and patient safety beginning with a definition of the culture of patient safety and discussing a few of the common adverse events that bring harm to the patient such as medication errors and patient falls.

2.2 DEFINITION OF CULTURE

2.2.1 A CULTURE OF PATIENT SAFETY

According to Petersen (cited in Routon *et al* 2002: 29), the best definition of 'culture' was from a worker whom he had interviewed, that stated that "culture is the way it is around here". It is the unwritten rules of the ballgame that the organization is playing. Culture is what everybody knows, therefore it does not have to be stated or written' (Routon *et al.* 2002: 29).

The Health and Safety Commission of Great Britain discusses patient safety culture of an organisation as a result of the personnel's values, attitudes, opinions, their expertise and commitment to the culture of patient safety (Croll *et al.* 2012). The Centre for Disease Control and Prevention (2013), refer to culture as factors that guide the approach and performance of patient safety in an organisation and adds that such a culture refers to those factors that influence the overall attitudes behaviour in organizations (Chiarello 2013). Organisations are rooted in factors that influence patient safety culture such as the mission, vision and goals and how work is carried out, management styles and quality and how work processes are planned, all of these contribute to a formidable patient safety culture (Chiarello 2013).

Other definitions of the culture of patient safety emerge, such as The Agency for Healthcare Research and Quality (2007), concurs that the culture of patient safety is the values, norms, beliefs in healthcare that underpin the culture of patient safety culture, and they add that there are certain attitudes and behaviour that are related to patient safety that are required to promote and sustain the culture of patient safety. They elaborate that there has to be an understanding of the values, beliefs, norms, attitudes and behaviours that the organisation expects of a healthcare worker. Similarly the healthcare worker expects to be supported and rewarded by the organisation in their dedication and commitment to patient safety (AHRQ 2007). Organisations that have established positive patient safety cultures display characteristics of good communication trusting partnerships, value the importance of patient safety and have belief in the efficiency of steps taken to prevent adverse patient safety events (Rockville *et al.* 2004).

The Civil Air Navigation Services (CANSO) emphasize that safety is not simply an image of the personnel that make up the organisation it should rather be viewed in its totality its values, beliefs, norms and attitudes and behaviour towards patient safety (CANSO 2013). They add 'that a safety culture is like one's personality, it takes time to grow and change and therefore cannot be simply implemented, but rather can be redirected through concerted effort and action by an organisation' (CANSO 2013). The CANSO Safety Culture Workgroup (CSCWG) has divided safety culture into 5 different elements and each element has been defined and explained, these elements are interdependent on each other (CANSO 2013). The elements are discussed below:

2.2.2 A JUST CULTURE

A just culture is recognised in an environment of reliance in which people are stimulated in providing important patient safety-related information, and are aware of what is appropriate and inappropriate behaviour, in a just culture all incidents and events unsafe acts and errors are to be studied before an appropriate decision is taken and is also insupportable to pardon unsafe acts that cause harm to the patient (CANSO 2013). Therefore a just culture is interdependent on other cultures such as the reporting culture and the informed culture and a precondition for a just culture is

drawing the line between appropriate and inappropriate behaviour (CANSO 2013). The explanation of a reporting culture and informed culture follows.

2.2.3 A REPORTING CULTURE

In an environment where a reporting culture exists, personnel at all levels of the hierarchy share patient safety information on incidents and near misses without the fear of blame and punishment and feel free to report incidents because in this environment a just culture exists (CANSO 2013). It can be argued that incidents, near misses, and unsafe acts will only be reported in an environment where personnel are empowered with adequate skills and experience on patient safety incidents. Therefore there is an interdependence within the just culture where incidents are studied before actions are taken and the reporting culture where incidents are reported without fear (CANSO 2013).

2.2.4 AN INFORMED CULTURE

An informed culture exists when personnel from the different levels of the hierarchy are enabled with the necessary knowledge, skills and experience with regards to patient safety and are able to identify risks and report on them without fear (CANSO 2013).

2.2.5 A LEARNING CULTURE

An environment in which a learning culture exists is when personnel learn from the reports that are generated after an incident, an unsafe act or a near miss. A learning culture has been defined by CANSO as an organization that establishes the motivation and the expertise to influence transformation from its safety information system and learns effectively from it (CANSO 2013).

2.2.6 A FLEXIBLE CULTURE

In an environment where the culture of patient safety is flexible the outcomes are dependent on the importance of the situation and the capability of the personnel that make the evaluations (CANSO 2013).

2.3 MEASURING THE CULTURE OF PATIENT SAFETY

Notwithstanding the various definitions and classifications of a safety culture, any such safety culture needs to be measured to be monitored (CANSO 2013). To measure the culture of safety, the literature search revealed several tools that have been used to measure the culture of patient safety. The tool Hospital Survey on Patient Safety Culture designed by the Agency for Healthcare Research and Quality was selected for use in this study. This tool was among the 13 tools that was researched for 'usability' and 'reliability' and was one of them that was selected as the "cut above the rest", that is 'reliable' and 'valid' to measure the culture of patient safety in a unit as well as benchmarking statistics in a hospital (Wilson 2007). According to AHRQ, the questionnaire adds value by developing personnel mindfulness of patient safety evaluate the current status of the patient safety culture, and identify strengths for patient safety culture improvement. Identify trends in patient safety incident statistics over a period of time in a unit and in a hospital. The tool allows the statistics gathered in this study to be measured against statistics gathered nationally and internationally from hospitals that used the same tool (AHRQ .2014). This tool will be discussed in detail in the chapter on methodology.

2.3.1 PATIENT SAFETY

In an article called 'Advances in Patient Safety', patient safety is defined as "a discipline in the healthcare sector that applies safety science methods towards a goal of achieving a trustworthy system of healthcare delivery" (Berwick *et al.* 2008). Other explanations of patient safety emerge such as "the prevention of harm to patients" and "freedom from accidental or preventable injuries produced by medical care" (Mitchell 2008:2). "Healthcare" has been defined by the Medical Dictionary Online as "the

prevention, treatment and management of illness and the preservation of mental, and physical wellbeing through the services offered by the medical and allied health professionals” (Houghton 2007). “Patient safety practices” has been defined as “those (practices) that reduce the risk of adverse events related to exposure to medical care” (Mitchell 2008:2.)

2.3.2 GLOBAL PERSPECTIVES ON PATIENT SAFETY

Ancient Greek philosophers, such as Aristotle and Plato, speculated about healthcare quality centuries ago; and it was envisioned in the western world that quality healthcare demands adherence to standard norms and value and they conceded that for healthcare quality to thrive, patient safety is a critical element (Mitchell 2008:1). According to Mitchell, patient safety is viewed by many as the heart of quality of healthcare (Mitchell 2008:1). Similarly, the IOM considers patient safety to be intertwined with the delivery of quality healthcare (Mitchell 2008:1). Mitchell contends, further, that patient safety is the cornerstone of quality healthcare. She adds that for patients to receive a high quality of care, respect and dignity, safety practices have to be adhered to (Mitchell 2008:4).

Samuel Johnson, in his tribute to Medicine, mentioned that the greatest contribution made to medicine was as a result of a statement by Florence Nightingale in which she argued that the very ‘first requirement of a hospital is that it should do the sick no harm’ (Vincent 2010). Vincent (2010) recognizes that patient safety forms the basis of good patient care, and argues that ‘healthcare can heal a patient as well as can harm a patient’, if patient safety is not integral and critical to quality healthcare (Vincent 2010: IX-2-3). Although he adds that patient safety, medical error patient harm have been discussed, described and knowledge has been gained on this subject longer than a century. Nursing and medical profession except a few such as Florence Nightingale acknowledged how critical patient safety is to healthcare. Although they were conscious of patient safety this was not enough, patient safety is far reaching than a singular patient it encompasses the whole healthcare system (Vincent 2010). Therefore patient safety commands single-minded attention.

In 1999, the IOM released an alarming report entitled “To Err is human; Building a safer Healthcare System” the report was alarming because it revealed that thousands of American were harmed by the very healthcare system that supposed to care and cure them (Wakefield 2008:1). The report brought considerable awareness to the public on the critical issue of patient safety in the United States and globally and a further report written by the IOM on “A New Health System for the 21st century” followed in 2002, in which a broadening gap between what is currently practiced in healthcare and what should be done to adhere to the principles, norms and values of patient safety (Kohn *et al.* 2014).

The Institute of Medicine IOM report 2000 explains that harmful events have a negative impact on the economy of the health care system. In the United Kingdom, hospitalization stays as a result of inadequate initial health care provision costs approximately 2000 million pounds a year because of incompetent initial health care. Furthermore litigation claims cost the National Health Service around 400 million pounds annually (Kohn *et al.* 2014). The IOM report 2000 adds that not all the costs can be equated to a monetary value, there is also a loss of trust in the healthcare system by patients as well as healthcare professionals (Kohn *et al.* 2014). The patient’s longer stay in hospital adds to his and their healthcare cost together with physical and psychological discomfort, pain and trauma to the patient. Health care professionals lose their self-esteem and are disappointed at not being able to deliver the best care possible (Kohn *et al.* 2014). The total ‘national cost of preventable adverse medical events in the United States of America including lost income, disability and medical expenses is estimated to be between 17 to 29 million US dollars annually’. Added to these costs is the ‘erosion of trust, confidence and satisfaction among the public and health care professionals’ (Kohn *et al.* 2014). Similar impact of costs is experienced in other continents such as Australia where estimated patient safety harm costs over \$2 billion per year (Runciman *et al* 2001: xiii). Patient safety is a global issue.

Hindle adds that according to Bates, Spell, Cullen, Burdick, Laird and Petersen (1997), one of the frequent adverse events is medication errors, although not all errors harm patients. Research in two prestigious hospitals in Australia revealed that 2.9% of admissions experienced ‘preventable adverse drug events and 6.6% experienced

death' (Hindle *et al.* 2005). Hindle and colleagues (2005) add that Bender (2000) argues that many errors in healthcare are undetected and that 95% of cases of error are not due to inattention or lack of concern. He further argues that 'some of the worst errors are made by the best doctors and nurses'. He foresees a gigantic problem if healthcare errors are not effectively addressed in the foreseeable future (Hindle *et al.* 2005).

Woolf (2004) further expands on the concept of patient safety and argues that patient safety is significant to the Hippocratic Oath, and contradicts the belief in medicine to harm an individual who seeks medical care. He argues that safety and medical errors have engaged the public interest ever since the release of the "To Err is Human" report (Woolf 2004). The report states that 44 000 to 98 000 Americans die each year through medical errors (Woolf 2004). He further argues that this report has led to the extensive perception that, regardless of meaningful attempts to make progress in the enhancement of the quality and safe care to patients, patient safety has not yet progressed to the level intended by the Institute of Medicine 1999 report (Woolf 2004). Before the publication of the IOM 1999 report *To Err is Human*, there was more focus on blaming individuals for errors and malpractice, since the publication attention and mind-sets have shifted to improving the healthcare system, although the IOM 2000 report does not mention great strides in progress, there has been a paradigm shift from blame to progress. Further, the most significant hurdle to improving patient safety has been argued to be a deficiency of the knowledge of the degree to which errors occur every day in health care settings and organisations (Wakefield 2008:1).

Hughes acknowledges Nightingale's contribution to patient safety in her evidence-based handbook to nurses on patient safety. She attests to nursing having 'a rich history of using research in practice pioneered by Florence Nightingale' and she also started setting up systems and practices that are used in the present day to improve and enhance patient safety. Hughes applauds the nurses for raising concerns about patient safety for many years. She cites examples of nurses being interrupted 16 times when getting medication ready which leads to errors, and the likelihood of serious injuries to the patient and the nurse when lifting a heavy patient. She agrees that nurses form the majority of the workforce within the healthcare system and they use their knowledge skills and experience to provide care. According to Hughes (2008)

Ebright and colleagues stated that nurses ability to make rational and precise conclusions on patient safety is guided by their adequate knowledge, expertise and information gathered from incident reports (Hughes 2008:2). Medication errors and patient falls adds to the burden of patient safety and influences the quality of healthcare.

2.3.3 MEDICATION ERRORS

According to Hughes and Blegen (2008:3-4), a common definition for medication error is 'any preventable event that may cause or lead to inappropriate medication use or patient harm, while the medication is in the control of the health care professional, patient, or consumer'(Hughes and Blegen 2008:3). They further explain that these adverse events may be related to 'professional practice, health care products, procedures, and systems, including prescribing; order communication; product labelling, packaging, dispensing, distribution, administration, education and monitoring'. They argue that with patients depending on medication therapy to aid in recovery, it also exposes them to potential harm. They add that harm from medications can arise from errors from 'wrong medication, wrong time, wrong dose, and wrong route'. They further argue that nurses are continuously challenged to ensure that patients receive the right medication at the right time. Although they have adequate nursing education about patient safety and quality, 'increased workloads', 'inadequate staff', 'poor and illegible handwriting on prescriptions', 'poor dispensing systems', 'problems with labelling of drugs contribute to errors' (Hughes and Blegen 2008:3).

The IOM 2006 report declares that at least 1,5million preventable medication errors occur each year in the United States. These numbers do not include the errors of medication omission (Lucian *et al.* 2012). The report also acclaims that on average a patient in hospital is subject to more than one medication error a day (Barnsteiner 2008:1). Another report by the IOM acclaims that medication related errors were a contributory cause to morbidity and mortality: one out of every 131 outpatients' deaths and one out of 854 inpatient deaths annually. The report presented other statistics such as 7000 deaths annually from medication errors, and difficulty in reducing medication errors when there is underreporting. (Hughes *et al.* 2008:3-4). Hughes (2008) adds that 'Bates' (2001) argues that not every medication error harms the

patient, there are 100 mostly-undetected medication errors that cause no harm and go undetected by clinician (Hughes *et al.* 2008:3-4). According to Hughes, nurses can intercept errors because they administer medication; therefore this is one of the critical responsibility of nurses to contribute to patient safety (Hughes *et al.* 2008:4)

2.3.4 PATIENT FALLS

According to Currie (2008), patient falls are defined as “unplanned descents to the floor”. She claims that patient falls may occur because of a number of factors such as illness or an unsafe environment. Other contributing factors may be poor risk assessment for falls and injuries on admission of a patient which prevents appropriate interventions from being carried out (Currie 2008:3). In 2005, the Joint Commission on Accreditation of Healthcare Organisations in America emphasised the importance of screening all patients for falls using a risk assessment tool, which should become a National Patient Safety Goal. The argument is that these risk assessment instruments may not be reliable and valid (Currie 2008:3).

She adds that patient falls and injury are a major concern in the healthcare system In the United States. Fall-related deaths increased between the years 1999 to 2004 from 29 to 41 per 100 000 population and the healthy people fall related programme aims to work on reducing these statistics (Currie 2008:1). Fall-related injuries became costly to patients and family notwithstanding the physical pain and suffering psychological trauma and the extended hospital stays. The monetary cost of falls was estimated to be between \$16 billion and \$19 billion for non-fatal fall injuries, and \$170 billion for fall-related deaths based on the research statistics in the year 2000 in the United States (Currie 2008:1).

The World Health Organization (WHO) (2009) Topic 1 discussed that patient safety is a problem for all countries that deliver healthcare whether they are privately owned or a public healthcare system that is government funded, there are other reasons besides medication errors and financial resources that bring harm to the patient such as effective and transparent communication and commitment between healthcare providers that care for patients (WHO 2009).

In 2004 the WHO commenced a global safety programme to address the importance of patient safety as it was becoming a worldwide health concern the WHO also appealed to the African state to make patient safety an urgent concern in healthcare and to put the necessary infrastructures policies and skills to address the problem of patient safety (WHO 2012). The WHO continued with the quest for patient safety and released a multi-professional curriculum guideline in October 2011 that promoted the need for patient safety education in universities and schools for healthcare workers (WHO 2011). Another curriculum guide was released in 2012 in which the regions throughout the world participated in the launch; patient safety workshop was part of this event (WHO 2012).

A most recent study that was published in September 2013 by the WHO, that is evidence based, speaks of adverse events being the main source of morbidity and mortality rates and reiterates the importance of quality and patient safety worldwide (Jha *et al.* 2013). This observational study also discusses 'estimated disability adjusted life years measured as lost to mortality and morbidity (DALY) due to adverse events' (Jha *et al.* 2013). The study has data available on the following adverse drug events: 'catheter-related urinary tract events, catheter-related blood stream events, nosocomial pneumonia, venous thrombo-embolism, falls and decubitus pressure ulcers (Jha *et al.* 2013).

Interestingly this study estimates 421 million hospitalization in the world annually, and 42.7 million adverse events for the seven adverse events described, resulting in 23 million (DALY) lives lost per year' (Jha *et al.* 2013). "Two thirds of the DALY lost were from the low and middle income countries' (Jha *et al.* 2013). The study highlights that the quality of care the patients receive throughout the world especially within the low income countries this has a negative impact on their health and wellbeing (Jha *et al.* 2013). This study also highlights that patient safety events become obstacles to the world's poor who reach for healthcare that's within their reach in the public sector (Jha *et al.* 2013). The 'burden of unsafe' care has far reaching consequences for those seeking healthcare in the low and middle income countries than those in high income countries statistics show that 15.5 million DALY lives lost per year in low and middle income countries compared to 7.2 million in high income countries (Jha *et al.* 2013). This significant study has raised concerns and a call to the 'scientific communities' to

investigate into this important line of work ‘to fill in the current gaps of data availability and quality’ as a contribution to patient safety (Jha *et al.* 2013).

In an article by Verel a most current survey, “Patient harm tops hospital concern but most hospitals do not have the data to fix it” is discussed (Verel 2014). The article cites financial burden on hospitals due to patient harm as being 100 billion \$dollars annually. The survey also highlights the importance of hospitals having ‘real time data’ on patient safety as a contribution in the reduction of adverse patient safety events and to reduce the cost of unsafe care. (Verel 2014). This need supports the argument for current research on patient safety using real time data for implementation and improvement strategies by evaluating the culture of patient safety in one’s own organisation. The question is, “can transparent data be obtained when a culture of blaming and shaming exists?”

2.4 THE CULTURE OF BLAME AND SHAME

According to Wolf and Hughes (2008), many healthcare workers are afraid of reporting errors because of consequences and ‘career threatening disciplinary actions’. Because of this, they feel remorse and anxiety and also fear for the impact on the patient. There is also the concern of malpractice litigations liabilities and costs , this can lead to underreporting of incidents or not reporting at all , or reporting only because the incident has been exposed (Wolf and Hughes 2008:6). Although healthcare workers do not wilfully harm the patient they do place the patient’s life at risk by not reporting the incident. They admit that healthcare organisations have a “name you, blame you, shame you” mantra (Wolf and Hughes 2008:6). They say that many organisations are being influenced to create an environment in which healthcare workers report incidents without fear and punishment. According to Hughes (2008) when nurses were involved in errors, they were made to feel guilty and were always placed on the ‘sharp end of blame’ (Hughes 2008:14). Because of the nature of their work nurses have the capability of preventing and intercepting errors (Hughes 2008:14). Managers in healthcare should create an environment where a just culture prevails within which healthcare workers can report without fear and be able to trust their leaders to make informed decisions and differentiate between ‘blameless and

blameworthy' (Hughes 2008:14). Everywhere there are patients there are patient safety issues especially in the developing countries. Lessons can be learnt from both countries in transition and from developed countries.

2.5 THE AFRICAN CONTINENT

In developing countries, and on the African continent in particular, there has been an increase in the attention paid to patient safety but there is not much literature to support this. The WHO has focused on patient safety on the African continent and there has been a focus for accreditation of hospital to improve quality of care to patients (Powell *et al.* 2011). Implementing and sustaining a patient safety programme needs actions to be taken at different levels of the healthcare system. According to an article on patient safety in Africa (Powell *et al.* 2011), research shows that information on quality of care and patient safety is sporadic and restricted. The article also discusses the paucity of information on actions taken to implement good operating practices with respect to patient safety this creates a gap for patient safety and quality of care in the African continent (Powell *et al.* 2011).

The article also adds that these gaps are due to a number of factors: limited resources, poor infrastructure, but mostly a lack of accurate patient safety data to help with improvements (Powell *et al.* 2011). This, in itself, identifies a need for 'real time research. Although the international community such as the WHO has paid attention to patient safety, there has also been a demonstration of local interest in patient safety by the Society for Quality Healthcare in Nigeria (SQHN). Their research concluded that a positive patient safety culture attitude is as important locally as it is internationally. "First do no Harm" is a universally applicable tenet (Powell, *et al.* 2011).

South Africa's intends to gather knowledge from other healthcare providers, especially the international community, in the promotion of high quality health care built on trustworthiness, esteem and elevation of the culture of patient safety, through solidarity, transparent, responsible and good governance in the promotion of safe high quality health services (SARAH 2010). Ndiokubwayo (2010), in his address at the National Core Standards Forum, discussed an overview of patient safety as a world-

wide and nationwide health concern that influences all healthcare systems whether they have established healthcare systems, or countries that are undergoing a transition in healthcare and countries that have an underdeveloped healthcare system. He argued that up to 75% of healthcare errors are avoidable and an average of 10% of all inpatient visits end in unintentional harm (Ndiokubwayo 2010). He added that the gaps in the healthcare of developing countries, such as South Africa, is because of meagre substructure, ineffective strategies and processes, poor quality assurance, and inadequate patient safety data to effect safety measures, which leads to increased abnormal patient safety occurrences. He also added that there is a predominant culture of blaming and shaming, which leads to inconsistent and under-representative reporting of incidents. His report included medication safety, safe services and a safe environment to be some of the most pressing items in the healthcare agenda of South Africa. He explains that the culture of blaming and shaming that exists in the public healthcare system, which leads to underreporting and inconsistent reporting of incidents, leads to poor measuring and managing of safety incidents. Other researchers also allude to such issues that exist in healthcare that impact on patient safety specifically a lack of awareness and patient safety data.

Powell and colleagues (2011) argue that this lack of awareness exists because the majority of errors are not reported, due to fear of punishment of nurses by the nursing supervisors. They also affirm that nurses' fear of transparent reporting of adverse events impacts on adverse patient incident data, and further impacts on corrective measures being implemented (Powell *et al.* 2011). The lack of data and transparent open information are gaps that are constantly evident in the literature search on patient safety.

According to the Minister of Health of South Africa, a similar problem exists in the South African Healthcare system. He affirms that 'focusing on staff for improvements is not enough. The root cause of the current situation needs to be identified, such as poor management, lack of accountability, a culture of mediocrity rather than excellence, demotivated staff and an erosion of professional ethics which are to blame for the current situation' (Motsoaledi 2011).

He adds that the importance of providing safe quality health services is 'non-negotiable and better quality and safe care is fundamental towards improving South Africa's current poor health outcomes' (Motsoaledi 2011). A number of areas have been selected to furthering progress of patient safety. These crucial areas include cleaner facilities, shorter waiting times, and improved patient safety and care. Although there has been progress in implementing quality patient safety measures there is still an urgent need for assurance that patients are given a high quality safe care. He advises that leaders play a pivotal role in ensuring that the principles and values underpinning patient safety are adhered to. 'Simply reminding health care staff of their basic duty is not enough to achieve widespread and sustainable improvement in South Africa's healthcare' (Motsoaledi 2011).

The Minister emphasizes that it is vital to rebuild the trust of the patient and the staff in South Africa's Healthcare System. According to the report of National Consultation on Quality of Health Services in South Africa (2010) the health system will be reinforced by observance of principles, values, ethics and guidelines that will influence the six quality priorities of The National Core Standards one of which is to improve patient safety (SARAH 2010). This position would serve to substantiate the need for research within the context of patient safety and the prevention of harm to patients (Mitchell 2008:2). Recommendations to improve and monitor progress will be made based on patient safety data which will be gathered during the study. This will serve to enhance the efforts already made by the healthcare system to improve the quality of care by safe nursing practice.

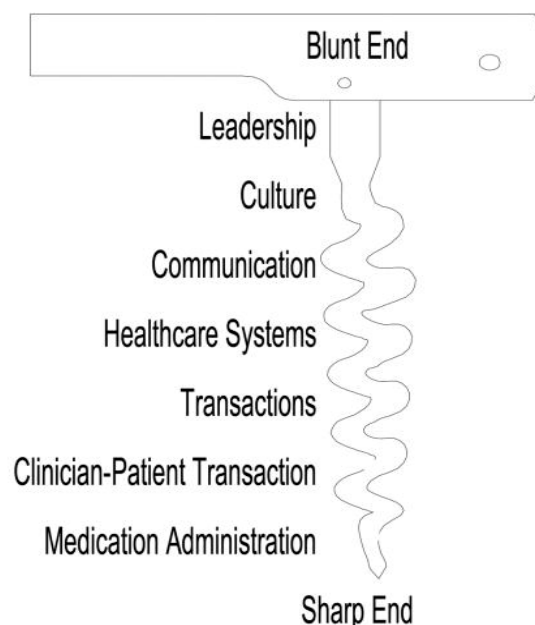
2.6 SAFETY CULTURE: SYSTEMIC MINDFULNESS MODEL OF PROACTIVE PATIENT SAFETY

The researcher has identified the Systemic Mindfulness model of proactive patient safety to be the appropriate model for this study (**Figure 1**). According to Rich, who has elaborated the model, the model is complex and circular, and proposes a cork-screw metaphor, representing the journey to error reduction as a complex sequence of cycles towards a goal. Systemic mindfulness refers to being alert and focused on what is happening at each level of the healthcare system in terms of patient safety.

An uninterrupted situation that has endless systems of mindfulness and values in which patient safety practices are fulfilled, and holds 'the sharp and blunt ends personally and professionally accountable for patient safety' (Rich 2008:3-4).

The 'blunt' end refers to leadership, whose policies and clinical outcomes affects patient safety and the 'sharp' end refers to nurses, who are in direct contact with patients. In addition the 'communication between both ends must be bidirectional'. Good communication is important in terms of healthcare systems, and clinical transactions. The Healthcare Leadership Alliance 2004, which includes nurse executives, identified the importance of competencies of nurse leaders in implementing safety cultures in an organisation. They challenge that nurses should be hyper vigilant and be transparent in reporting errors and near misses without fear of consequences (Rich 2008:1). This model seeks to answer the research questions in terms of how safety cultures may be inculcated into organizational cultures to ensure commitment to safety and a just culture of no blame-no shame.

Model of Error Reduction (Complex Circularity)



The Systemic Mindfulness Model of Proactive Patient Safety is complex and circular and must constantly be evaluated. At the blunt end are executive nurse leaders. At the sharp end are the nurses/clinicians who provide direct care to the patients. (Rich,2005)

Figure 1: Systemic Mindfulness Model of Proactive Patient Safety

2.7 HEALTHCARE DONABEDIAN QUALITY FRAMEWORK

According to Hughes (2008) Donabedian definition of quality of care represents the 'structure, process and outcomes where all of these processes are interdependent and where the attributes of one influence the other' (Hughes 2008:5). Hughes adds that 'when teams function well and organizational structures factors support their work the outcomes are better' (Hughes 2008:5). The coordination of patient care and the delivery of high quality safe patient outcomes are under the control of healthcare profession .The Donabedian Quality Framework, in this research study, was used to evaluate the culture of quality and patient safety in the organization (**Figure 2**). The questionnaire that was used to gather data covers aspects of patient safety and has a section for participant's comments. The analysis of the data can identify the following.

Structure: The culture of the organization in terms of patient safety where care is delivered. The available structures and equipment to keep patients safe. An example will be the availability of cot sides or cot beds to prevent patient falls.

Processes. Are there written policies and procedure to ensure safety of patients, are the good medical practices being used. An example is disorientated patients being nursed in cot beds.

Outcomes What are the patient outcomes in terms of patient safety, has the risk been reduced, is the risk assessment effective. Is there continuous monitoring of patient outcomes in terms of patient safety statistics, an example will be a reduction in the number of patient falls.



Figure 2: Donabedian Healthcare Framework

2.8 THE IMPORTANCE OF AN ORGANISATIONAL CULTURE

The culture of safety is critical to healthcare and should not be viewed by the care giver as an isolated added task, and should be implemented such that it becomes an integral aspect of care giving and shares the successful outcome and joy of safe healing with the patient and family. An experience such as this can be achieved when the carer is valued, and supported, and feels safe and is involved in decisions on patient safety and patient safety services are provided with a 'smile' (Sankarayan *et al.* 2013).

The following domains fit the SMILE concepts (Sankarayan *et al.* 2013):

- S - Systems and Support
- M - Morale and Motivation
- I - Information and open communication
- L - Leadership and commitment
- E- Empowerment and engagement

All of these contribute to the culture of patient safety

2.9 CONCLUSION

Clancy and Lavizzo-Mourey (2008) conclude that nurses are the heart of patient care and therefore are vital in the promotion of patient safety. They add that patient safety remains one of the most critical issues facing health care today (Clancy and Lavizzo-Mourey 2008: iii). They acknowledge that nurses have the capability of preventing and stopping errors that bring harm to the patient. They argue that the best research is presented to policy makers and healthcare providers and those who require medical care (Clancy and Lavizzo-Mourey 2008: iii). This should help all to make appropriate choices in implementing measures for better patient safety outcomes (Clancy and Lavizzo-Mourey 2008: iii). The researcher proposes to use the study to contribute in improving patient safety practices, thus improving quality of care preventing harm and providing better patient outcomes.

This study will seek to shed light on the current status within the South African context, as a means of informing within a broader context of evolving improvement in patient safety and provision of healthcare viewed within the conclusion that “if you are convinced that your organisation has a good safety culture, you are almost certainly mistaken ... a safety culture is something that is striven for, but rarely attained. The virtue – and the reward – lies in the struggle rather than the outcomes” (CANSO2013).

CHAPTER THREE: METHODOLOGY

3.1 INTRODUCTION

In the previous chapter in which the literature on the culture of safety was reviewed, it was affirmed that there is much to be learnt from the research of others and that the research of others informs the progress of future research. This chapter discusses the study design, the study setting, and the data collection tool, method of data collection, the pilot study, data analysis and ethical considerations.

3.2 RESEARCH DESIGN

According to Polit and Beck (2012), evidence for nursing practice depends on descriptive, correlational and experimental research; knowledge expansion begins with rich description (Polit and Beck 2012 -229). The researcher selected a quantitative descriptive design as a research design grounded on the aim of the study being an evaluation of the culture of patient safety which measured the opinions and views of healthcare professionals. A questionnaire (**Appendix H**) that had been prepared by the Agency for Healthcare Research and Quality (Rockville *et al.* 2004), and has been used for research on the culture of patient safety nationally and internationally, was used to gather data for this study. The model selected by the researcher focused on providers of care and not the recipients of care. The questionnaire has been designed accordingly.

3.3 RESEARCH SETTING

The research was carried out in a district regional public hospital that has an inpatient population of approximately 408 patients. The hospital is situated in Phoenix, EThekweni District of KwaZulu-Natal and provides comprehensive services across all disciplines such as medical, surgical, child and maternity services, and has an outpatient facility. It serves the areas of Phoenix, Inanda, Amaoti and Duffs Road. The population profile includes predominantly the Indian and Black communities. The

research was conducted in medical units, surgical units, and maternity units. These units were selected for having the important characteristic of 24-hour in-patient services. Additionally the medical units admit inpatients who are acutely ill as well as have chronic conditions, surgical units admit high risk patients for surgical conditions, post-surgery and trauma who require close monitoring and risk assessments, and maternity units that care for the mother and baby and require close monitoring and risk assessments to identify safety risks. These units all require a high level of patient safety monitoring and therefore an evaluation of patient safety within these units was projected to be particularly useful and representative of the culture of safety within the hospital.

3.4 POPULATION AND SAMPLE

According to Polit and Beck, quantitative researchers sample from an accessible population in the hope of sharing their findings with the target population (Polit and Beck 2012:274). The target population selected for this study were healthcare professionals working in the hospital. The sample population that were included were principally clinical staff that have direct contact with the patients such as doctors who spend long hours in the unit diagnosing and prescribing treatment. Pharmacist that dispense medications and treatments. Nursing staff of different categories that have direct contact with patients who administer treatment and provide nursing care according to their knowledge, skills and within their scope of practice. The category of nurses that are highly skilled and knowledgeable are the registered nurses whose scope allows them to make decisions and solve problem they have direct contact with patients they formed the majority of the sample size. The categories of enrolled nurses and enrolled nursing assistants have direct contact with patients provide nursing care and treatment and have the knowledge and skills to identify patient safety risks. Management staff such as The Nursing Services Manager, whose policy formulation and allocation of the number of nursing staff in a unit and who is involved with financial budgets for purchasing of equipment's, which has a direct impact on patient safety. The Quality Manager and infection control coordinator are the principal drivers of patient safety that were included in the sample population. The researcher selected a purposive convenience sample, as detailed below, from the target population. This was consistent with Polit and Beck's claim (2012:279) that in purposive sampling the

researcher has knowledge about the sample population and also knows that the population has knowledge of the aspects of the study.

3.4.1 NURSING CATEGORIES

• Registered Nurses	80
• Enrolled Nurses	40
• Enrolled Nursing Assistants	40

3.4.2 SELECTED KEY INFORMANTS

• Hospital Manager	1
• Nursing Services Manager	1
• Quality Process Manager	1
• Operations Managers	5
• Safety health environment and Infection Control Manager	2
• Clinical Coordinator	1
• Night Supervisor	1
• Doctors	6
• Pharmacists	2

The total sample population was 180 participants.

3.5 INCLUSION CRITERIA

1. Clinical staff that have direct contact and interactions with patients such as nurses and doctors, selected key informants .The different categories of nurses that work in teams , two teams on day duty and two on night duty.

- all registered nurses in all the teams
- all enrolled nurses in all teams
- all enrolled nursing assistants in all the teams
- doctors who spend all their work hours in the unit

2. Hospital staff that may not have direct contact or interactions with patients, but whose work has a direct impact on the patients such as:

- the pharmacist
- the operational manager of the unit

- the nursing services manager
- the deputy nursing manager
- the quality process manager
- the safety health and environment co coordinator
- the clinical coordinator
- the infection control coordinator
- the night supervisor
- the hospital manager

3.6 EXCLUSION CRITERIA

The following staff were excluded from the study:

- the ward clerk
- nursing agency staff
- nursing staff that are on vacation leave

3.7 RESEARCH INSTRUMENT

The literature search revealed a number of research instruments that were used to measure the culture of patient safety. Singla and colleagues researched 13 tools that were used to evaluate the culture of patient safety (Wilson 2007). This evaluation included a measure of usability and reliability (Wilson 2007). Of these 13 tools, two were identified as being a “cut above the rest” and, of these, one was the research instrument from The Agency for Healthcare Research and Quality hospital survey (AHRQ) (Wilson 2007).

This tool was identified as reliable and valid to measure patient safety culture in a unit, as well as benchmarking in a hospital (Wilson 2007). According to AHRQ the research instrument adds value by raising staff awareness, and assessing the current status of patient safety culture. In addition, it identifies strengths and trends in patient safety culture over a period of time (AHRQ 2014). The research evaluates cultural impact of patient safety initiatives and interventions which findings can be compared externally and internally (AHRQ 2014). The questionnaire was designed for responses from the providers of care and not recipients of care and the model selected by the researcher focuses on providers of care and not recipients of care.

The hospital questionnaire was divided into 10 sections and each of these sections related to specific questions at hospital level and at unit level. There are 50 questions in total and 17 of them were reverse worded. It is vital to mention that when a participant disagrees with a reverse worded question this response signifies a positive opinion of patient safety in that unit (Rockville *et al.* 2004).

The answers to the questions are based on a Likert scale in which participants are expected to indicate the degree to which they agreed or disagreed with each question (AHRQ 2007). The scores for each question ranged from a low score of 1 = strongly disagree to a high score of 5 = strongly agree and a score of 1 = never to a score of 5 = always (Appendix 1) (Rockville *et al.* 2004). The different sections are described below. Each of the sections comprised of reverse worded questions which will be highlighted under each section:

Section A : the participants were expected to fill in their biographical details such as male, female, age in years, their staff position in the hospital, and how long they were employed in the hospital and the number of hours of work , whether they have direct contact and interactions with patients.

Section B: the participants were expected to indicate their primary work area in the hospital. For the rest of the questions in this section they were expected to respond in agreement or disagreement to specific questions correlated to their work area such as teamwork, staffing, and learning from the organization. In this section 8 of the 18 questions were reverse worded. (1) Staff in this unit work longer hours than is best patient care. (2) We work in “crisis mode” trying to do too much too quickly. (3) We use more agency / temporary staff than is best for patient care. (4) We have patient safety problems in this unit. (5) We have patient safety problems in this unit.(6) Staff feel that their mistakes are held against them.(7) It is just by chance that more mistakes don’t happen. (8) When an event is reported it feels like the person is written up and not the problem (Appendix 1) (Rockville, *et al.* 2004).

Section C: the participants were expected to indicate agreement or disagreement with the statements regarding the supervisor / manager to whom they directly report to in their unit. 2 of the 4 questions in this section were reverse worded. (1) Whenever pressure builds up supervisor / manager wants us to work faster even if it means taking shortcuts. (2) My supervisor/manager overlooks patient safety problems that happen over and over.

Section D: the participants were expected to reflect on their hospital units regarding patient safety. There were no reverse worded questions in this section.

Section E: the questions were related to the frequency of events reported in a unit such as when mistakes are made how often they are reported, there were no reverse worded questions in this section.

Section F: the questions were directed at the hospital level where participants had to agree or disagree on questions pertaining to hospital management and the work environment, 7 of the 11 questions were reverse worded in this section. (1) Hospital units do not coordinate well with each other. (2) Things “fall between the cracks when transferring patients from one unit to another. (3) Important patient safety information is often lost during shift changes. (4) It is often unpleasant to work with staff from other hospitals. (5) Problems often occur in the exchange of information across hospital units. (6) Hospital management seems interested in patient safety only after an adverse event happens. (7) Shift changes become a problem for patients in the hospital.

Section G: participants had to respond to the number of incident reports that they filled out and submitted in the past 12 month.

Section H: participants were expected to respond on the overall patient safety grade in their units ranging from excellent, very good, acceptable, poor, and failing.

Section I: was reserved for comments on patient safety, error or event reporting in the hospital (Appendix 1) (Rockville, *et al.* 2004).

The responses from these sections would be further divided to identify components of strengths and areas for improvement in the study that will be discussed under chapter five (AHRQ 2014). Each questionnaire was given an identifying code, to capture on computer to link data to the actual questionnaire it came from this also secured anonymity and confidential for the participant as the responses will not be linked to them. The research instrument was subjected to a pilot study to ensure the content validity of the questionnaire and that the questions were understood by the participants.

3.8 THEORETICAL AND CONCEPTUAL FRAMEWORK

Nursing research is enriched by theoretical frameworks and one of the theoretical frameworks the research study was based on was the Donabedian conceptual framework used popularly in healthcare to evaluate quality of care within healthcare

organisations. The Donabedian Quality Framework has been discussed in detail in Chapter 2. This framework is classified into structure, process and outcomes and can be applied to an evaluation of the culture of patient safety. Each of these processes is interdependent, to correlate this to patient safety, the structure that impact on patient safety are the human resources and patient safety equipment , the process, training of clinician on patient safety ,implementing and monitoring safety measures , outcomes, a reduction on adverse patient incidents , and high quality of care to patients.

3.9 DATA COLLECTION PROCESS

3.9.1 ACCESS AND SAMPLING

To commence the study, a letter of permission together with a copy of the abridged proposal document and the ethical clearance certificate from the DUT Institutional Research Ethics Committee (IREC) was emailed to the District Manager EThekwini Health District. Permission was received from the EThekwini District Manager approving of the study. The permission letter together with the proposal and the ethical clearance certificate was sent by email to the KZN Department of Health. After appropriate follow-up of the letter, permission to conduct research was granted by the provincial Department of Health.

Thereafter, the researcher contacted the secretary of the CEO of the Mahatma Gandhi Hospital who advised that all documents outlining the research and the permission letters were to be emailed to her. The researcher also provided The CEO with hard copies of the permission letters and the IREC certificate. Written permission was subsequently granted by the CEO of Mahatma Gandhi Memorial Hospital.

The researcher visited the facility to introduce herself to the hospital management and to discuss the research plan, obtain pertinent background information and to become familiar with the hospital as the research site. In another brief meeting with the CEO, the researcher outlined the purpose of the study and explained the contents of the information letter to her. She advised that a meeting should be

arranged with the nursing management as a means of informing the nursing units of the intended research. This meeting was arranged with the Nursing Services Manager (NSM), as a gatekeeper to nursing personnel in units, and both the information letter and the overview of the study were explained to her. A memorandum was sent to the units by the NSM informing the units of the research study and requesting their cooperation. A nursing allocation list was obtained from the regional matron with the names and numbers of the different categories of nurses allocated to each nursing discipline. The doctors that work in these units that were available and willing to participate in the research were chosen.

The researcher met with the public relations officer (PRO) explaining the purpose of the study and to seek permission to place a locked box in her office into which participants would be able to deposit their completed questionnaires. The importance of confidentiality was explained to the PRO, and she agreed to this and gave full co-operation throughout the study. The researcher met with the operational managers of each unit, individual doctors that worked in the unit and the chief pharmacist. An explanation was given on the purpose of the study, the information letter and the consent form. The study was commenced after all necessary permissions and informed consents were received from intended participants.

3.9.2 PILOT STUDY

Before commencing the formal study, a pilot study was conducted to ensure the content validity of the questionnaire and that the questions were understood by the participants. Full approval was received from the CEO of the hospital and the Nursing Manager before the pilot study was conducted. Permission was also granted by the operational managers of the units in which the pilot study was conducted.

The study was conducted using 10% of the total population of units that were not included in the main study, by random sampling. The questionnaire was given to 20 healthcare professionals: 10 registered nurses, 5 enrolled nurses, 5 enrolled nursing assistants. The information letter was discussed with them. Informed written consent was obtained and they were advised to complete the questionnaire and drop it into the safe box at the offices of the PRO (as would occur in the formal

study). The response rate was 80% (n=16). The results revealed that the participants understood the questionnaire and had no difficulty completing it. A letter was sent to the chairperson of The Institute of Research and Ethics committee in the Faculty of Health Sciences of The Durban University of Technology informing them of the pilot study. They were informed that the questionnaire, as originally submitted for approval, would not be changed to actuate the objectives, the results of the pilot study were discussed with the research supervisor. The results of the pilot study were not included in the main study and the participants of the pilot study were excluded from the main study. Permission was given by the IREC to commence the main study.

3.9.3 MAIN STUDY

The data collection was done using a Likert scale questionnaire (AHRQ 2007) outlining specific questions of the culture of patient safety in an organization. The questionnaire was distributed to the participants after the permissions from the various authorities were shown to them, the letter of information and the informed consent were explained. The participants were informed that their responses were anonymous and that confidentiality was assured as no names would appear on the questionnaire. They were advised that the completed PRO. A total of 180 questionnaires were distributed. Participants were also advised that at the end of the study a more formal feedback would be given to key participants at a quality assurance meeting, as recommended by the Chief Executive Officer and The Nursing Services Manager.

3.10 DATA ANALYSIS

The quantitative data derived from the questionnaires were analysed in various phases such that data was reviewed for completeness and legibility, and data was then coded. The researcher assigned a code to each response, in keeping with confidentiality and anonymity and for capturing on computer. The raw data was captured on a spreadsheet and was analysed using Statistical Package for the Social Sciences (SPSS) version 22.0. The data were analysed with the assistance of a statistician from the Durban University of Technology. Data were, evaluated by

using Cronbach's Alpha and factor analysis. Factor analysis was effected as a means of data reduction. Factor analysis is also a typical statistical technique employed in surveys, in which the researcher wishes to represent a larger number of questions as components of a smaller number of hypothetical factors. By way of example, in this research in chapter 4, section D, within an evaluation about feedback and communication respondents were able to respond to three separate questions regarding feedback and communication. Each question, in isolation, would be an inadequate measure of the opinion on communication and feedback, but grouped as components of a single factor (communication) they may provide a better measure of communication and feedback. In this study factor analysis was used to reduce the number of questions into smaller components or dimensions. Items of questions that loaded similarly imply measurement along a similar factor. An examination of the content of items loading at or above 0.5 (and using the higher or highest loading in instances where items cross-loaded at greater than this value) effectively measured along the various components. A principle component analysis was used as the extraction method, and Varimax with Kaiser Normalization were employed as rotational methods. Kaiser normalization is an orthogonal rotation method that minimizes the number of variables that have high loadings on each factor. It simplifies the interpretation of factors. Factor analysis/loading show inter-correlations between variables. Such discussion will be effected in Chapter 4 under results.

3.11 RELIABILITY AND VALIDITY

The instrument employed in this study was designed by The Agency for Healthcare Research and Quality for the evaluation of the culture of patient safety. This tool has been used by thousands of hospitals nationally and internationally to measure the culture of safety and to identify measurements of improvement (AHRQ 2014). The Agency for Healthcare Research and Quality has a database in which 600 hospitals submitted data from 200,000 staff respondents on research on patient safety by using the tool Hospital Survey on Patient Safety Culture: 2009 (AHRQ 2014). Reliability for 'quantitative research focuses on accuracy stability and consistency of the instrument' (Polit and Beck 2012). The content validity of the questionnaire ensures that the questions cover the aspects of the subject to be

researched that there are no irrelevant questions. The questionnaire was subjected to a pilot study. No changes were made to the original questionnaire, that directed the study. A letter of approval was granted by the ethics committee to continue with the data collection.

3.12 ETHICAL CONSIDERATIONS

According to Polit and Beck (2012), one of the most fundamental ethical principles in research is that of beneficence; to minimize harm and maximize benefits. The researcher foresaw no risk to the participants and envisioned the outcome of the research to benefit healthcare. The International Conference of Nursing Ethics (ICNE) report states that the most important method of showing respect for persons is to respect their autonomy (Olsen 2003) and therefore the researcher respected and upheld the protection of human rights, such as self-determination, the right to privacy, the right to anonymity and confidentiality (Burns and Grove 2013:164).

Confidentiality according to the ICNE is a 'practical concern' in which researchers seek information that participants want to keep to themselves and participants will not reveal such information unless there is a promise that confidentiality is assured. Therefore, researchers have an obligation not only to the individual participants but also for future researchers of maintaining the credibility of assurance (Olsen 2003). All the questionnaires were assigned a code to maintain anonymity and obviate the possibility that responses could be linked to participants.

The researcher is also a registered nurse whose ethical scope of practice is governed by The South African Nursing Council; according to the Nursing Act 33 of 2005 she is expected to ensure confidentiality and security of written and verbal information acquired in her professional capacity. Written Permission was received from the following to carry out the study the Department of Health, the EThekweni Municipality, the CEO of the research hospital, and the IREC of the DUT. The pilot study and the main study were only undertaken after full ethical approval was granted, and written informed consent was obtained from the participants before the commencement of the study.

All records are retained by the researcher and will be disposed of according to DUT policy in September 2029 (i.e. after 15 years). The sample population were not coerced into taking part in the study and were advised that if at any point they wished to withdraw they were at liberty to do so without bias or repercussions.

3.13 CONCLUSION

In this chapter the detail of the method used to obtain data, and the data collecting instrument used in this study were discussed. The researcher further commented on the validity and reliability of the instrument. She has also provided an overview of the data analysis, citing examples outside of healthcare. Emphasis was placed on ethical considerations, to respect the confidentiality of the participants, and to maintain the credibility of the study. In the following chapter, the results of the study will be elaborated.

CHAPTER FOUR: RESULTS

4.1 INTRODUCTION

The previous chapter focused on the research methodology. This chapter presents the results obtained from the research questionnaire used in this study. The purpose of the quantitative descriptive study was an evaluation of the culture of patient safety in specific units in a public hospital in KwaZulu Natal. The data collected from the responses were analysed using SPSS version 22.0. The results will be presented as descriptive statistics in the form of bar graphs, cross tabulations, and other figures for the qualitative data that was collected. Inferential techniques include the use of correlations and chi-square test values which are interpreted using p-values ($p < 0.05$) were considered as significant.

4.2 THE SAMPLE RESPONSE

The questionnaire was the primary tool used to collect data and was distributed to healthcare professionals such as registered nurses, enrolled nurses, enrolled nursing assistants, doctors, pharmacists and hospital management. The study participants worked in the surgical, medical and maternity units. A total of 180 questionnaires were distributed in person by the researcher and 130 were returned, which gave an acceptable response rate for a quantitative study of 72%. This was consistent with Polit and Beck's (2012: 305) assertion that when questionnaires are personally distributed in a particular setting the researcher can achieve an acceptable response rate.

4.3 THE RESEARCH INSTRUMENT

A Likert scale questionnaire was used and respondents were expected to respond to the degree to which they agreed or disagreed with each question. Each section had scores related to each safety culture dimension ranging from a lowest score of 1 (=

strongly disagree) and a highest score of 5 (= strongly agree) or a score of 1 (= never) to a score of 5 (= always). A few of the questions were reverse worded, such as: Question 5, Section B Your Work area/unit. "Staff in this unit work longer hours than is best for patient care". A higher score was allocated to a positive response for a negative/reverse worded questionnaire such as strongly agree = 5. The research instrument consisted of 50 items, with a level of measurement at a scale, nominal or ordinal level. Scalar measurement provides a numeric score to place respondents on a continuum with respect to an attribute (Polit and Beck 2012:301), whereas nominal measurement provides for simple classification by characteristic (e.g. male category = 1 and female category = 2) (Polit and Beck 2012:735). Ordinal measurement refers to a ranking of phenomena along some dimension (e.g. the degree to which something is true) (Polit and Beck 2012:736). Reverse worded or negative worded questions used in research cited in an article on Tips on Reverse Worded Questions suggests that this type of wording can give a more balanced and complete opinion and promotes respondents answering more carefully which strengthens the responses (Hopper: 2013).

As outlined in detail in the preceding chapter, the questionnaire was divided into nine sections which measured various dimensions, as documented below:

- Section A: Biographical Details
- Section B: Work Area / Unit
- Section C: Your Supervisor / Manager
- Section D: Communication
- Section E: Frequency of Events Reported
- Section F: Your Hospital
- Section G: Number of Events Reported
- Section H: Patient Safety Grade
- Section I: Your Comments

In the analysis of these sections, and according to various measures, respective sections were further grouped into components according to the responses, whether at unit level or hospital level. The questions were grouped into dimensions (or items) at unit level viz. supervisors'/managers' expectations; actions promoting patient safety; organizational learning; continuous improvement; teamwork within units;

communication openness and feedback about errors; non-punitive response to errors; staffing etc. At hospital level, the dimensions were: hospital management support for patient safety; teamwork across units; hospital handoffs and transitions; and patient safety outcomes such as frequency of events reported; patient safety grade; number of events reported [Rockville *et al.* 2004]. A detailed discussion of these dimensions will be provided under each section.

4.4 STUDY RESPONDENTS

4.4.1 Gender and Age Distributions

Table 1. Gender and Age Characteristics of Sample

		Male	Female
Age (years)	20 – 29	3	23
	30 – 39	5	60
	40 – 49	3	27
	50 – 60	0	9
TOTAL		11	119

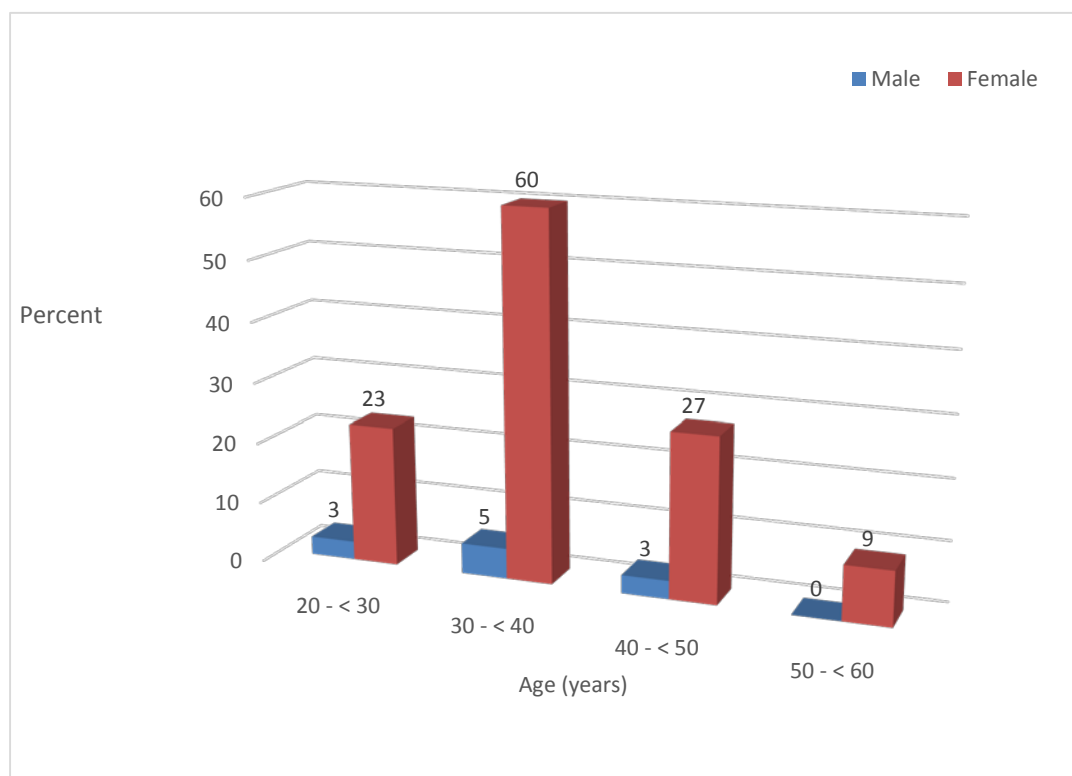


Figure 3: Gender and Age Characteristics of Sample

Table 1. above is depicted as such because of an overlap of values in the different classes, therefore this method was used. An analysis of this table shows the ratio of males to females is approximately 1:11 (8.5%: 91.5%). The majority of respondents, therefore, were female, and, furthermore were predominantly within the age category of 30 to <40, years (46.2%; n=60). It was noted that 3.8% (n=5) of the sample were males within the same age range. Fully 50% of respondents were within the age group of 30 to <40 years (n=65). The next most representative respondent group were within the age range of 40 to <50 years (23.1%; n=30), followed by respondents within the age group of 20 to <30 years (20%; n=26). The least representative respondent group was in the 50 and <60 year range (6.9%; n=9), which group included no males. The majority of respondents who were within the age group of 30 to <40 years would be assumed to have been exposed to current trends and new practices during their training. The researcher perceives this to be is an additional advantage of respondents within this group.

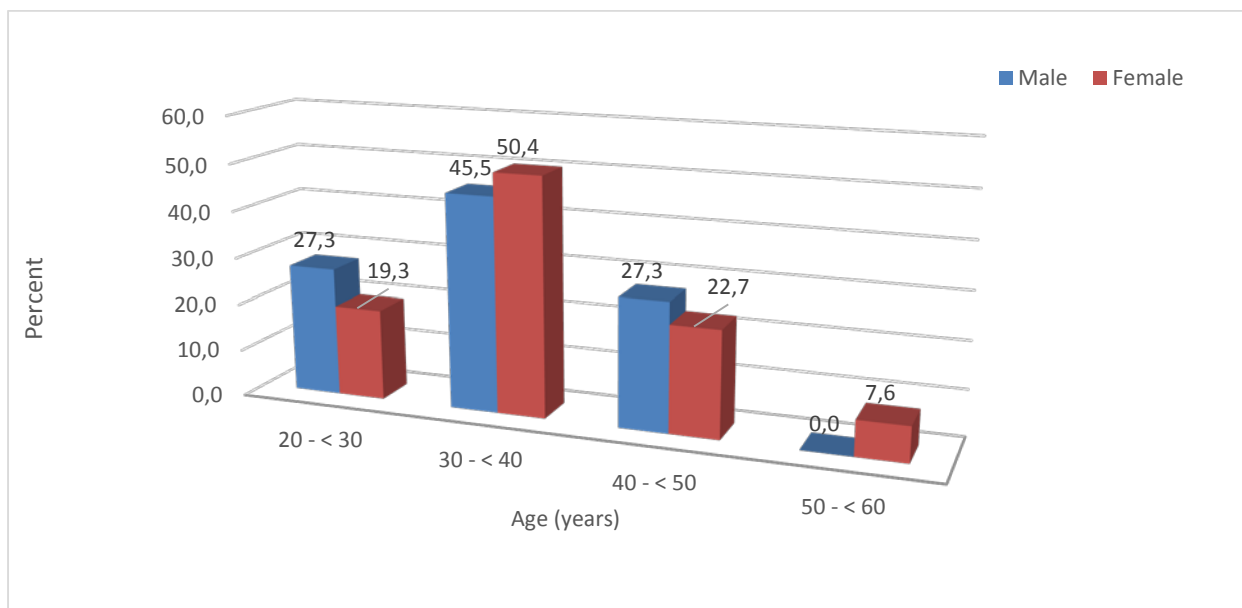


Figure 4: Gender and Age Distributions

As per **Figure 4**, above a percentage age distribution, by gender further indicates the strong pooling of respondents of both genders within the 30-<40 age range, and the relatively poor representation within the 50-<60 age range

4.4.2 Position and Nursing Category

Figure 5. below, indicates the roles and designations of the respondents, with specific indication of nursing category and non-nursing designation.

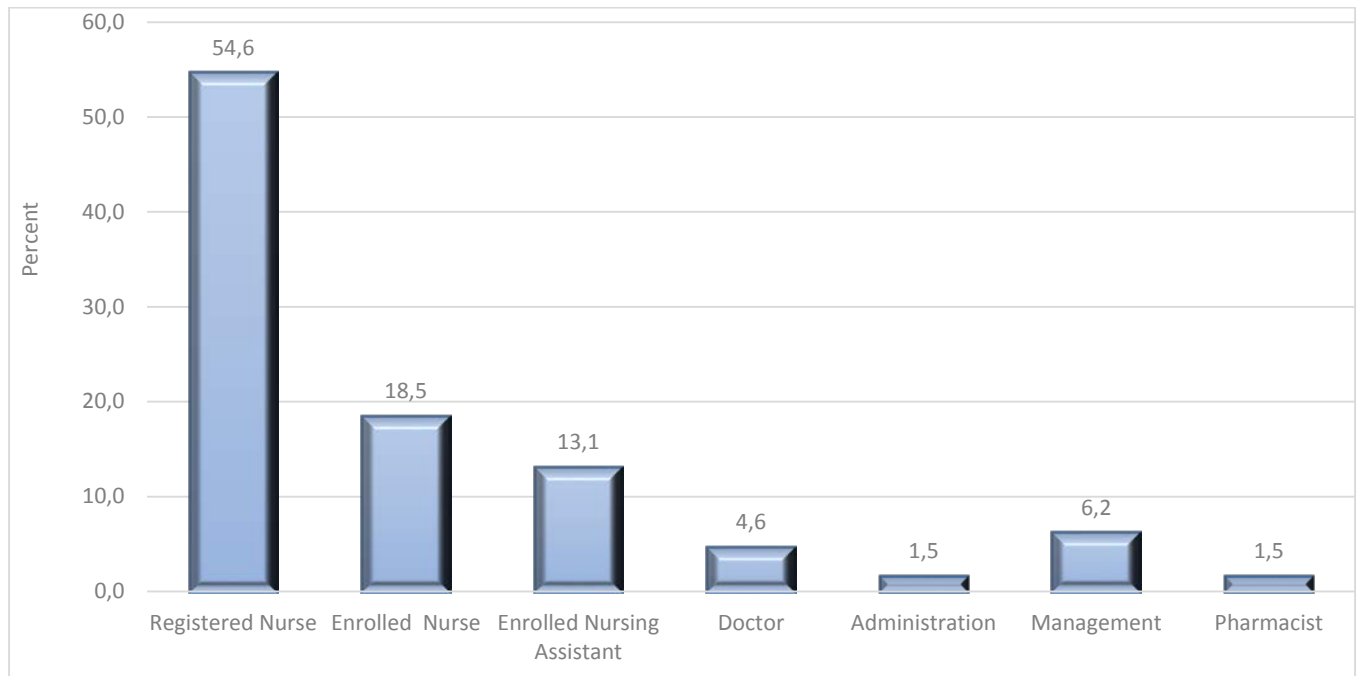
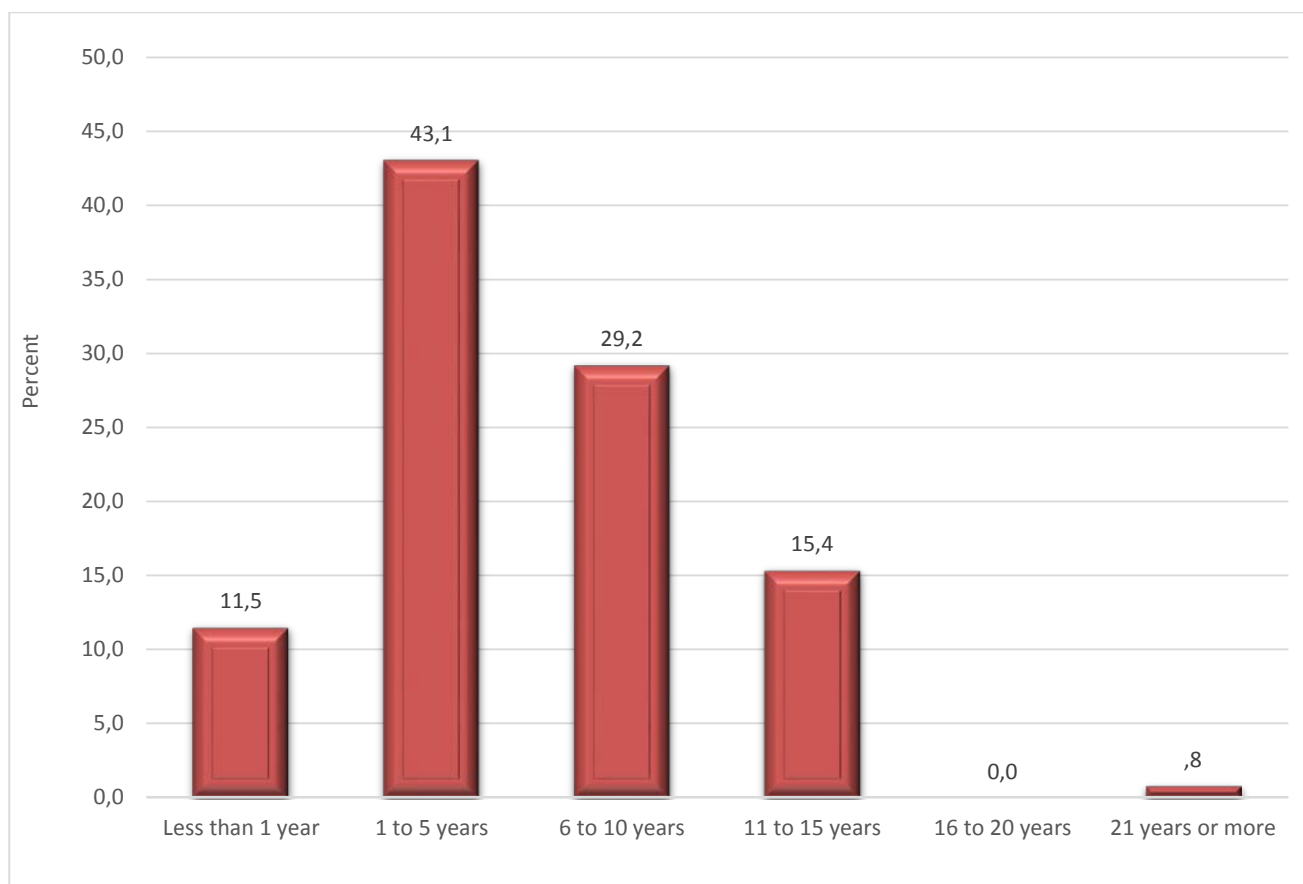


Figure 5: Percentage Sample by Role or Designation

As per **(Figure 5)** the majority of respondents were registered nurses, (54.6%; n=71), a nursing category that has within its scope decision-making, problem solving and independent work. This can be viewed as a strength within the context of this study, as they are the principal drivers of patient safety. The second highest percentage of respondents was that of the enrolled nurse (18.5%; n=24) who works under the supervision of a registered nurse, and the lowest percentage of respondents within the three categories of nurses was that of the enrolled nursing assistant at 13.1%. (n=17). Non-nursing staff represented a notable minority of the sample at 6.2% (n=8) for management, 4.6% (n=6) for doctors, and 1.5% (n=2) each for administrators and pharmacists. In combination, the various categories within the sample represent the healthcare professionals of the hospital that contribute to patient safety.

4.4.3 Period of Employment

Figure 6, below, indicates the period of employment of the sample.



As per **(Figure 6)** above, the majority of respondents (43.1%; n=56) indicated that they had been in employment for between 1 to 5 years, while 29.2% (n=38) were employed for between 6 and 10yrs, 15.4% (n=20) for between 11 to 15years, and 11.5% (n=15) for less than one year. Only one respondent (0.8%) worked for more than 21years. The length of the period of employment is useful, as it indicates that the majority of the respondents had been employed within the research setting for a period of time that would allow for reliable responses to the questions. This contention was supported (as will be noted later) in high reliability scores. In total, almost half of the respondents (45.4%) had been employed at the hospital for more than 6 years.

4.4.4 Hours of work per week

Figure 7 below indicates the number of hours that respondents worked per week.

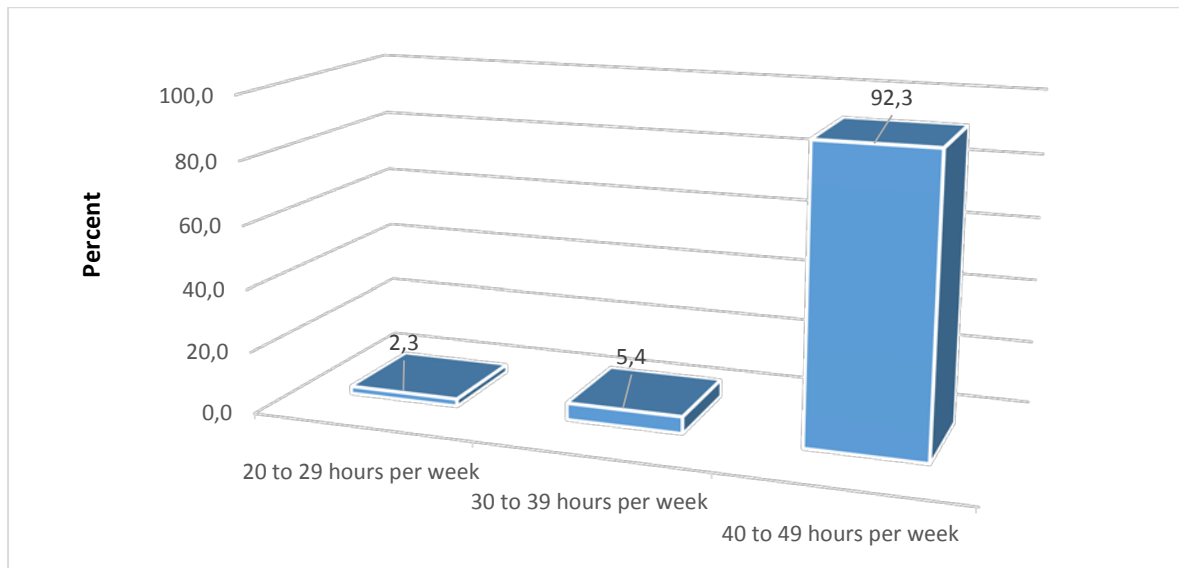


Figure 7: Hours of work per week

As per **(Figure 7)** above, the majority of respondents (92.3%; n=120) worked a 40 to 49 hour shift per week. The lowest number of hours was between, 20 to 29 hours (2.3%; n=3). Respondents that worked between 30 to 39 hours represented 5.4% of the total sample (n=7).

4.4.5 Contact and Interactions with patients

The table below indicates whether the respondents had direct interaction or contact with patients.

Table 2: Direct Interactions or contact with patients

	Direct contact	Percent
Yes	127	97.7
No	3	2.3
Total	130	100.0

As per **Table 2**, the majority of the respondents had direct contact with patients (97.7%; n= 127), with only 3 respondents having no direct interaction or contact with patients. This is consistent with the observation that the majority of respondents were registered nurses, who worked typically long hours and were experienced.

4.5 RELIABILITY STATISTICS OF MEASURING INSTRUMENT

The two most important aspects of precision are reliability and validity. Reliability is computed by taking several measurements on the same subjects. One of the most reliable statistics is Cronbach's alpha that evaluates internal consistency, or the extent to which different items in the instrument are measuring a critical attribute. The normal range is between 0.00 and +1.00. A reliability coefficient of 0.70 or higher is considered to be "acceptable", within a spectrum in which a higher value reflects increasing levels of internal consistency' (Polit and Beck 2012:333). Section A consisted of factual information and therefore was not subjected to internal consistency and reliability testing. Sections B to F were evaluated for internal consistency of the measuring instrument. A tabulation of findings in this regard is reflected below.

Table 3: The Cronbach's alpha score for all questionnaire items

		Number of Items	Cronbach's Alpha
Section B	Work Area / Unit	16 of 17	0.577
Section C	Supervisor / Manager	2 of 4	0.807
Section D	Communication	3 of 4	0.700
Section E	Frequency of Events Reported	3 of 3	0.802
Section F	Your Hospital Management Support	7 of 11	0.775

As per **Table 3**, the overall reliability score of each of sections C to F, exceeds or is equal to the recommended value of 0.70. This indicates a high (overall) degree of acceptable, consistent scoring for the research. Section B was noted to have a lower value, the most plausible explanations being that the respondents' interpretation of inter-correlations among some items was not strong, or may be seen as a result of the removal of section A, that would reduce the internal consistency by a small scale, as mentioned in Polit and Beck (2012). Below is an overview of the factor analysis and the different tests that the measuring instrument was subjected to in the further analysis of the results. To further add to the reliability of the tool a 'multilevel psychometric' testing was done to the measuring instrument, Agency for healthcare research and quality tool (AHRQ) wherein data from 331 United States hospitals were surveyed with 2267 hospital units and 50,513 respondents, the results were

acceptable and average of .42 at individual level, .50 at the unit level .56 at the hospital level (Sorra and Dyer 2010)

4.6 FACTOR ANALYSIS

Factor analysis is a statistical technique whose main goal is data reduction, as has been discussed under the Sections B, C, D, E, and F on data analysis in the preceding chapter. Factor analysis was conducted to establish whether the given number of measures do, in fact, measure the same thing and that these may then be combined to create a new variable, a factor score variable that reflects a score for each component of the factor within the overarching variable. The first phase of factor analysis is factor extraction: identifying items that are inter-correlated. These factors are usually interpreted, given names, and grouped for their inter-correlations (Polit and Beck 2012:377). In this study, factor analysis revealed themes or dimensions of the measuring instrument under which each question was able to be grouped and discussed. The second phase of factor analysis involves factor rotation, which further adds value to the interpretation of the factors and aligns items more distinctly to a particular factor (Polit and Beck 2012:377).

The Kaiser-Meyer-Olkin (KMO) Measure and Bartlett's Test of Sphericity was used in the study to identify the appropriateness of factor analysis and as measures of sampling adequacy. Appropriate factor analysis and sampling adequacy are indicated by a KMO score >0.50 and a Bartlett's Test score of <0.05 . In all instances, these conditions were found to be met.

Table 4: Kaiser-Meyer-Olkin Measure and Bartlett's Test of Sphericity scores

Section	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett's Test of Sphericity
B	0.691	0.000
C	0.500	0.000
D	0.673	0.000
E	0.719	0.000
F	0.821	0.000

From the results of **Table 4** certain sections were found to consist of more finely differentiated components. These are explained below in the rotated component matrices

4.7 ROTATED COMPONENT MATRIX RELATED TO SECTION B QUESTIONS

Table 5: Your Work Area or Unit / Rotated Component Matrix

Section B Questions	Components					
	1	2	3	4	5	6
People co-operate with one another in this unit			0.689			
We have enough staff to handle the workload						0.714
When a lot of work needs to be done quickly, we work together as a team to get the work done					0.635	
Staff in this unit work longer hours than is best for patient care				0.600		
In this unit, people treat each other with respect			0.809			
We work in "crisis mode" trying to do too much, too quickly				0.590		
We use more agency/temporary staff than is best for patient care				0.748		
Patient safety is never sacrificed to get more work done					0.817	
We have patient safety problems in this unit		0.466				
Our procedures and systems are effective at preventing errors from happening		0.842				
After we make changes to improve patient safety we evaluate the effectiveness		0.639				
Think about your hospital work area/unit We are actively trying to improve patient safety		0.768				
Staff feel that their mistakes are held against them	0.625					
Mistakes have led to positive changes in this unit						0.650
It is just by chance that more mistakes don't happen here	0.767					
When an event is reported it feels like the person is written up and not the problem	0.654					
Staff worry that mistakes they make are kept in their personnel files and can be used in their performance management	0.509					

As per **Table 5**, the questions above in the questionnaire pertained to the work area or unit, a discussion on the components follows:

4.7.1 Component 1: Non-punitive response to errors

This component deals with responses around non-punitive response to errors, in which it appears that staff feel that it is by chance that more mistakes do not happen (0.767), and that when an event is reported the focus is on the person and not the problem (0.654). They believe that mistakes are held against them (0.625) and can be used in their performance review (0.509). Although this component can be identified as an area for possible improvement, since responses indicate that there is an element of blame and punishment and there are patient safety problems in the unit (0.466). This may not be a reflection of some of the staff, as discussed below in component 2.

4.7.2 Component 2: Learning in the organisation and continuous improvement

This component deals with responses around learning in the organization and continuous improvement where it was found that staff feel that the procedures and systems are effective in preventing errors (0.842) and are actively trying to improve patient safety (0.768). Mistakes have led to positive change (0.650), and when changes are made they evaluate the effectiveness (0.639). This component can be identified as an area of strength for the organisation in which there is continuous improvement and learning taking place, and procedures and systems are in place to prevent errors. It can, however, be argued whether or not these systems are being implemented effectively as reflected by the responses in component 1

4.7.3 Component 3: Cooperation within the unit

This component deals with responses around cooperation within the unit where it was found that staff feel that they respect each other (0.809) and cooperate with one another (0.689). This component can be identified as an area of strength in the organization. It can be argued that because there is cooperation there is learning and continuous improvement in the unit (component 2)

4.7.4 Component 4: Staffing / and hours of work

This component deals with responses with staffing stability and hours of work in which it was found that staff feel that they do not use more agency/temporary staff than is best for patient care (0.748), and that they work in a crisis mode trying to do too much too quickly (0.590). They also work longer hours than is best for patient care (0.600). This component can be identified as an area for improvement since the responses reflect that the staff: patient ratio has an impact on a tendency to work in crisis mode. Longer working hours also contribute to fatigue and hence errors. Although fewer agency staff and temporary staff assists in a stable workforce, it does not prevent staff from working in a crisis mode and contributing to fatigue. As discussed in the components above, it was found that, in spite of these areas for improvement, efforts are made by staff to cooperate and learn from their mistakes.

4.7.5 Component 5: Teamwork within the unit

This component deals with responses around teamwork, in which was found that staff feel that patient safety is not sacrificed to get more work done (0.817) and that they work well as a team (0.636). These areas of strength are reflected in the previous components, teamwork and cooperation in the unit which contributes to patient safety.

4.7.6 Component 6: Workload and Mistakes

This component deals with responses that indicate that staff feel that they do not have enough staff to handle the workload (0.710) and that mistakes made in their unit led to positive changes (0.650). Component 6 echoes what has been observed in the other components that, although there are areas for improvement, efforts are being made by staff to contribute to patient safety.

Factor extraction was done for sections C, D, E, and F, as discussed below.

4.8 RESULTS BY SECTION

4.8.1 Section C: Your Supervisor or Manager:

Table 6: Your Supervisor or Manager: Rotated Component Matrix

Section C Questions	Components
	1
Your supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures	0.916
My supervisor/manager seriously considers staff suggestions for improving patient safety	0.916

Table 6, below represents a rotated component matrix, which used the extraction method, principal component analysis and revealed 1 components in Section C questions focusing on the supervisor/manager of the unit. A discussion on this component follows.

This component deals with responses where staff feel that the supervisor/ manager says a good word when she sees a job well done (0.916) and she considers staff suggestions (0.916). This can be a possible area of strength, where it is found that supervisors show appreciation and staff cooperate and work as a team, as is reviewed in responses in components in Section B.

4.8.2 Section D: Feedback and Communications

Table 7: Feedback and Communications Rotated Component Matrix

Section D Questions	Component
	1
We are given feedback about changes put into place based on event and reports	0.782
Staff will freely speak up if they see something that may negatively affect patient safety	0.805
We are informed about errors that happen in the unit	0.786

As per **Table 7**, this component deals with responses on communication and feedback where it was found that staff feel they can speak freely when they see something that may negatively affect patient safety (0.805) and are informed about errors that happen in the unit (0.786) as well as being given feedback about changes on events (0.782). Communication between supervisor and staff is a possible strength in the unit as mentioned in the previous component where the supervisor shows appreciation when a job is well done in the unit.

4.8.3 Section E Frequency of Events Reported

Table 8: Frequency of Events Reported: Rotated Component Matrix

Section E Questions	Component
	1
When a mistake is made, identified and corrected before affecting the patient how often is this reported?	0.856
When a mistake is made, that could harm the patient how often is this reported	0.861
When a mistake is made but has no potential to harm the patient, how often, is this reported?	0.852

As per **Table 8**, this component deals with frequency of events reported where staff feel they report mistakes that could harm the patient (0.861), and also identify, correct and report mistakes that do not affect the patient (0.856) and report mistakes that have no potential to harm the patient (0.852). Although this component can be viewed as an area of strength as from the responses mentioned, these responses can only be strengthened if there is transparency in the reporting of the number of events as will be discussed in Section G.

4.8.4 Section F: Your Hospital Management Support for Patient Safety

Table 9: Your Hospital Management Support for Patient Safety Rotated Component Matrix

Section F Questions	Component		
	1	2	3
Hospital management provides a work climate that promotes patient safety		0.809	
Hospital units do not coordinate well with each other			0.768
Things “fall between the cracks” when transferring patients from one unit to another			0.810
There is good cooperation among hospital units that need to work together		0.660	
Important patient safety information is often lost during shift changes	0.754		
It is often unpleasant to work with staff from other hospital units	0.641		
Problems often occur in the exchange of information across hospital units	0.763		
The actions of hospital management show that patient safety is a top priority		0.787	
Hospital management seems interested in patient safety only after an adverse event happens	0.541		
Hospital units work well together to provide the best and safe care to patients		0.656	
Shift changes become a problem for patients in the hospital	0.753		

With reference to the **Table 9**, it is noted that the variables that constituted Sections C, D and E loaded perfectly along 1 component. This implies that the statements that constituted these sections measured what was meant to be measured. Sections B and F split along 5 and 3 sub-themes respectively. This implies that respondents identified certain aspects of the themes/dimensions as belonging to other sub-themes.

4.8.4.1 Component 1: Hospital handovers and transfer of information

This component deals with hospital handovers and transfer of information where staff feel that there are no problems in the exchange of information across hospital units (0.763) and also shift changes are not a problem for the patient (0.753). They feel that patient safety information is not lost during shift change (0.754) and it is not unpleasant to work with staff from other units (0.641). They feel that hospital management shows interest in patient safety only after an event occurs (0.541). The statements in this component can be a possible strength for this study if hospital management actions are proactive rather than reactive reflected in the responses from the staff.

4.8.4.2 Component 2: Hospital Management Support for Patient Safety

This component deals with hospital management support for patient safety where staff feel strongly that hospital management provides a work climate that promotes patient safety (0.809) and the actions of hospital management show that patient safety is top priority (0.787). They also feel that hospital unit's work well together to provide the best and safe care to patients (0.656). This component is in contradiction to component 1 where some staff believe hospital management only acts after an incident occurs which is about (0.541).

4.8.4.3 Component 3: Teamwork Across hospital units

This component deals with teamwork across hospital units where staff feel that information does not "fall between the cracks" when transferring patients from one unit to another (0.810), and they feel that hospital units coordinate well with each other (0.768). This component can be a possible strength for the study as previously mentioned in section B wherein Teamwork within units was also a possible strength for the unit which can be summarised as Teamwork as a strong value in this study.

4.9 SECTION ANALYSIS

The section that follows analyses the scoring patterns of the respondents per variable per section. Where applicable, levels of disagreement (negative statements) were collapsed to show a single category of "Disagree". Strongly Agree and Agree were represented as

agree: Strongly Disagree and Disagree were combined as Disagree. A similar procedure was followed for the levels of agreement (positive statements). This is allowed due to the acceptable levels of reliability. The results are first presented using summarised percentages for the variables that constitute each section, according to units. The results are then further analysed according to the importance of the statements and In terms of the scoring patterns by the respondents each of the statements are categorized into dimensions and percentages indicated below.

4.9.1 Section B: Your Work Area / Unit

Respondents identified their primary work area or unit in the hospital as per the table below.

Table 10: Primary work area or Unit in the Hospital

	Frequency	Percent
Other units	58	44.6
Surgical	28	21.5
Medical Female	18	13.8
Many different hospital units	15	11.5
Medical Male	9	6.9
Pharmacy	2	1.5
Total	130	100.0

As per **Table 10**, on questions relating to the primary work area or unit in the hospital, the majority of the respondents were from other units (44.6%; n = 58). This included the maternity units. The surgical units constituted the second highest respondents (21.5%; n=28) and a similar response was noted from the medical units (20.7%; n=27). Respondents from 'many different units' totalled 11.5% (n=15), and 1.5% of respondents were from pharmacy (n=2).

Figure 8 below is a graphic representations of questions pertaining to the primary work area or unit in the hospital.

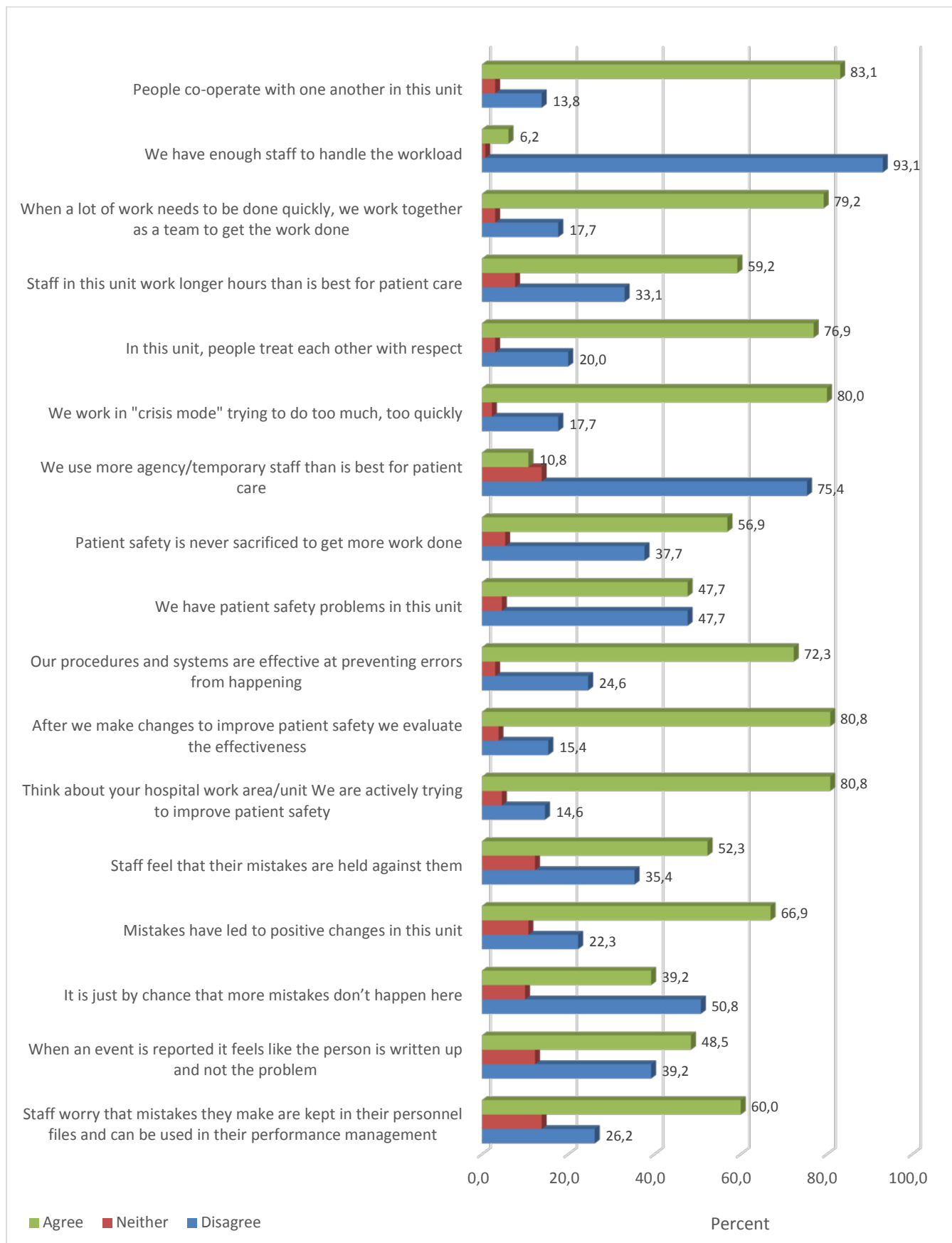


Figure 8: Primary work area or unit in the hospital

Within this section the responses to the following components were noted:

4.9.1.1 Teamwork within units

On questions relating to teamwork within units, staff feel that they work as a team when there is a lot of work to be done quickly (79.2%; n=103). They feel that there is good cooperation amongst them (83.1%; n= 108) and they respect each other (76.9%; n=100). These responses are very similar to previous responses in the components Teamwork within units and across units, where teamwork within units has been identified as an area of strength.

4.9.1.2 Staffing

On questions relating to staffing, staff do not feel that they have enough staff to handle the workload (93.1%; n=121) and they do not use more agency and temporary staff than is best for patient care (75.4%; n=98) They also feel that they work longer hours than are best for patient care (59.2%; n=77) and they work in "crisis mode" trying to do too much, too quickly (80.0%; n=107). As mentioned previously in component on staffing and hours of work these results are in keeping with areas for improvement in this study.

4.9.1.3 Learning in the organisation and continuous improvement

On questions relating to Learning in the organisation and continuous improvement staff feel that there is learning taking place in the organisation They feel that after changes are made to improve patient safety they evaluate the effectiveness(80.8%; n=105) and they are actively trying to improve patient safety 80.8 % and mistakes have led to positive changes in the unit 66.8%. This observation indicates an area of strength as indicated by the results.

4.9.1.4 Non-punitive Response to errors

On questions relating to non-punitive response to errors, 52% of staff feel that their mistakes are held against them (n=68). They also feel that when an event is reported it feels like they are written up and not the problem 48.5 % (n=51).They also feel that mistakes they make are kept in their personnel files and can be used in their performance management 60.0% (n= 78). This observation is possibly an area for improvement according to the responses

4.9.1.5 Overall Perceptions of Patient Safety

On questions relating to overall perceptions of Patient Safety Grade staff feel that their systems and procedures are effective at preventing errors from happening 72.3 %. (n=94)

and they do not sacrifice patient safety to get more work done 56.9%. [n=74] and they feel it is just by chance that more mistakes do not happen 39.2% [n=51]. We have patient safety problems in this unit 47.7%. Responses in this component can be a possible area for attention for statements such as it is just by chance that more mistakes do not happen and we have patient safety problems in this unit.

4.9.1.6 Test Statistics

It was noted that for most of the statements, there were distinct levels of either agreement or disagreement that in some instances the percentage agreement was very high compared to the percentage of disagreement and vice versa. A few statements have as many respondents who agreed as those who disagreed. The significance of the differences will be tested as per **[Appendix I]**. To determine whether the differences described above were significant, chi-square tests were done by variable. All p- values in which $p < 0.001$ were significant. Since all of the sig. values [p-values] are less than 0.05 [the level of significance was 0.05? it implies that the distributions were not even. That is, the differences between the levels of agreement per statement were significant. In some instances the percentage agreement was very high compared to the percentage of disagreement and vice versa.

4.9.2 Section C: Supervisor / Manager Expectations and actions promoting patient safety.

This section looks at supervisor and manager expectations and actions promoting patient safety indicates the level of agreement or disagreement about supervisor/manager.

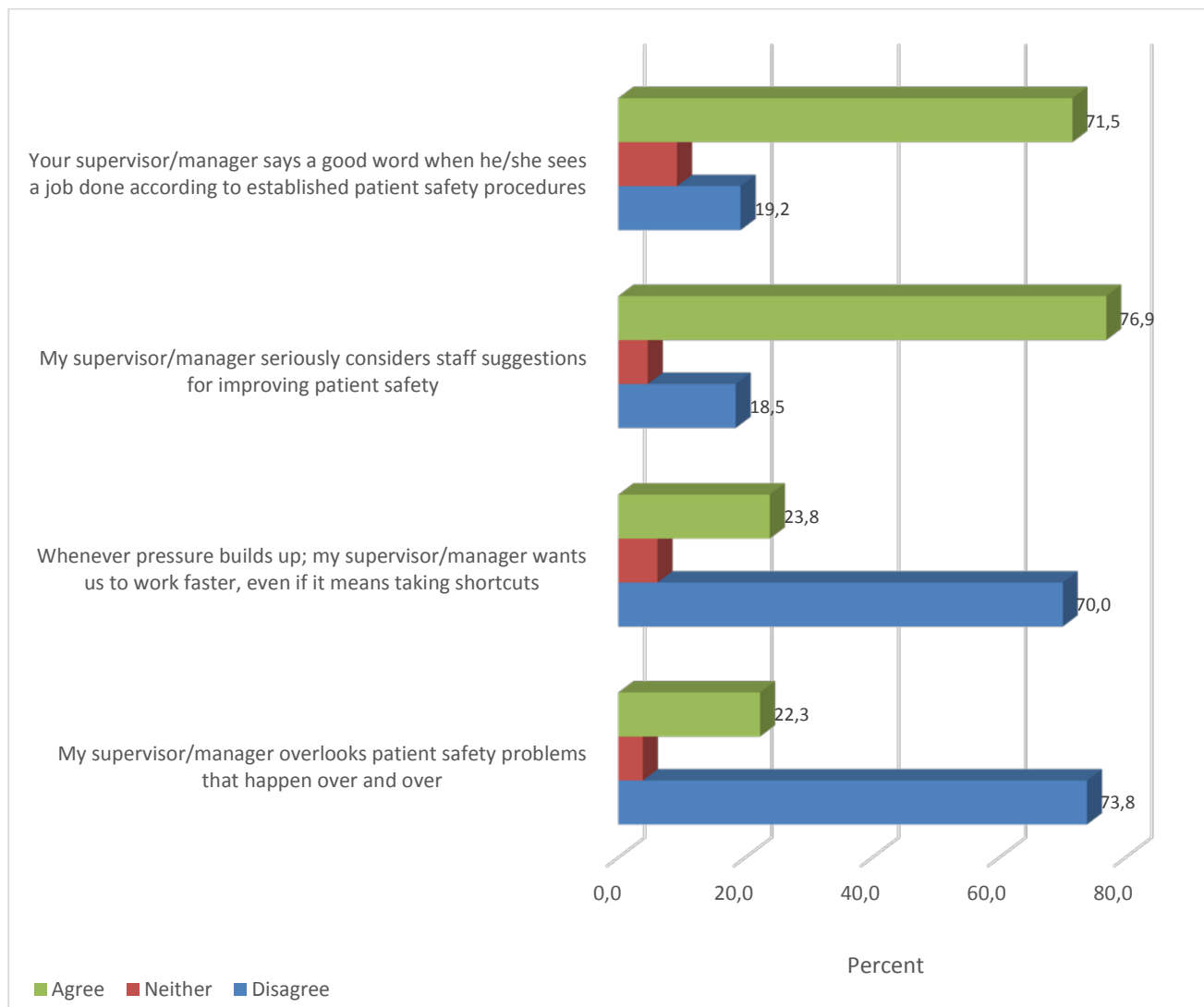


Figure 9: Supervisor / Manager Expectations and actions promoting patient safety.

As per **(Figure 9)**, on questions relating to Supervisor and manager expectations above and actions promoting patient safety. The first two statements show high levels of agreement whilst the latter two show high levels of disagreement. Staff feel that their supervisor says a good word when they work well (71.5 %; n=93), and they consider staff suggestions for improving patient safety (76.9%;n=100) Staff are not expected to work faster when pressure builds up, (70.0 %;n=91) and they do not overlook patient safety problems (73.8%;n=96) The responses from this component can be a possible strength for the unit judging from the responses.

4.9.2.1Test Statistics

It can be seen from the graph that the scoring patterns are very different. What this indicates is that the differences observed is statistically significant. Chi square results zero cells have a [0.0%] have an expected frequency of less than 5. The minimum expected

cell frequency is 43.3. The chi square test results are shown as all p values were significant [$p < 0.001$] below. Since all of the values are less than 0.05, it implies that the differences per option per statement is significant. This is reflected in the percentages in [Appendix J]

4.9.3 Section D: Communication Openness Feedback about Error

This section investigates, Communication Openness and Feedback about Error

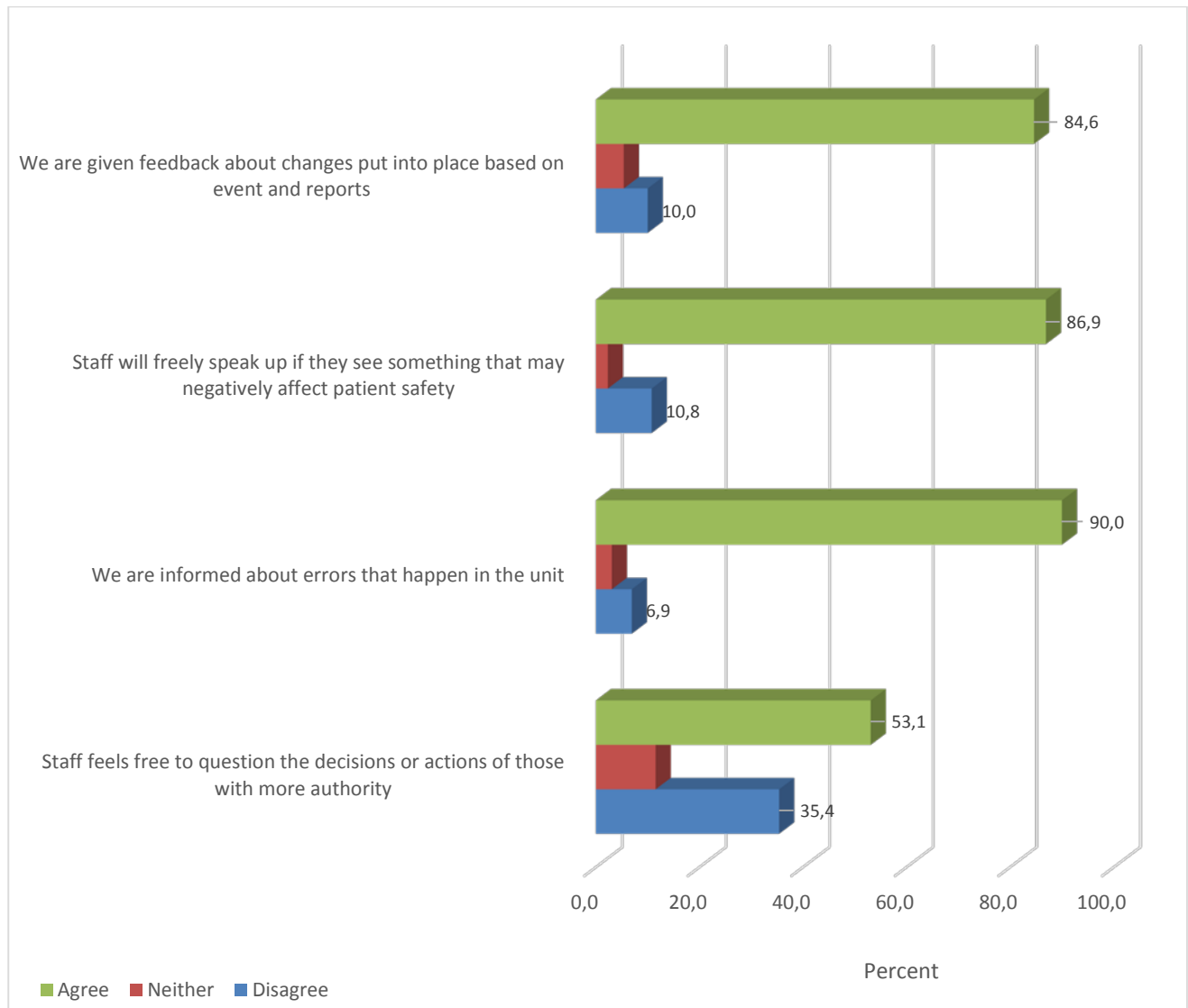


Figure 10: Communication Openness Feedback about Error

As per (Figure 10), on questions relating to Communication Openness and Feedback about Error, as above there are high levels of agreement with the first three statements. These relate to the freedom that staffs have relating to their opinions regarding errors that occur within the respective units. However, only about half of the respondents [53.1%]

indicated that this freedom was restricted when the decisions of those with higher authority is questioned. Staff feel that they are given feedback about changes put into place based on event and reports (84.6%; n=110) and they can speak up freely if they see something that may negatively affect patient safety (86.9; n=113). They are given feedback about errors that happen in the unit (90.0%; n=117) but (53.1%; n=69) staff feel free to question the decisions or actions of those with more authority. This component can be seen as a possible strength for this study as reflected by the responses.

4.9.3.1 Test Statistics

It can be seen from the graph that the scoring patterns are very different. What this indicates is that the differences observed is statistically significant. Chi square results zero cells have a [0.0%] have an expected frequency of less than 5. The minimum expected cell frequency is 43.3. The chi square test results are shown as all p values were significant [$p < 0.001$] below. Since all of the values are less than 0.05, it implies that the differences per option per statement are significant. This is reflected in the percentages in **[Appendix K]**

4.9.4 Section E: Frequency of Events Reported *[overleaf]*

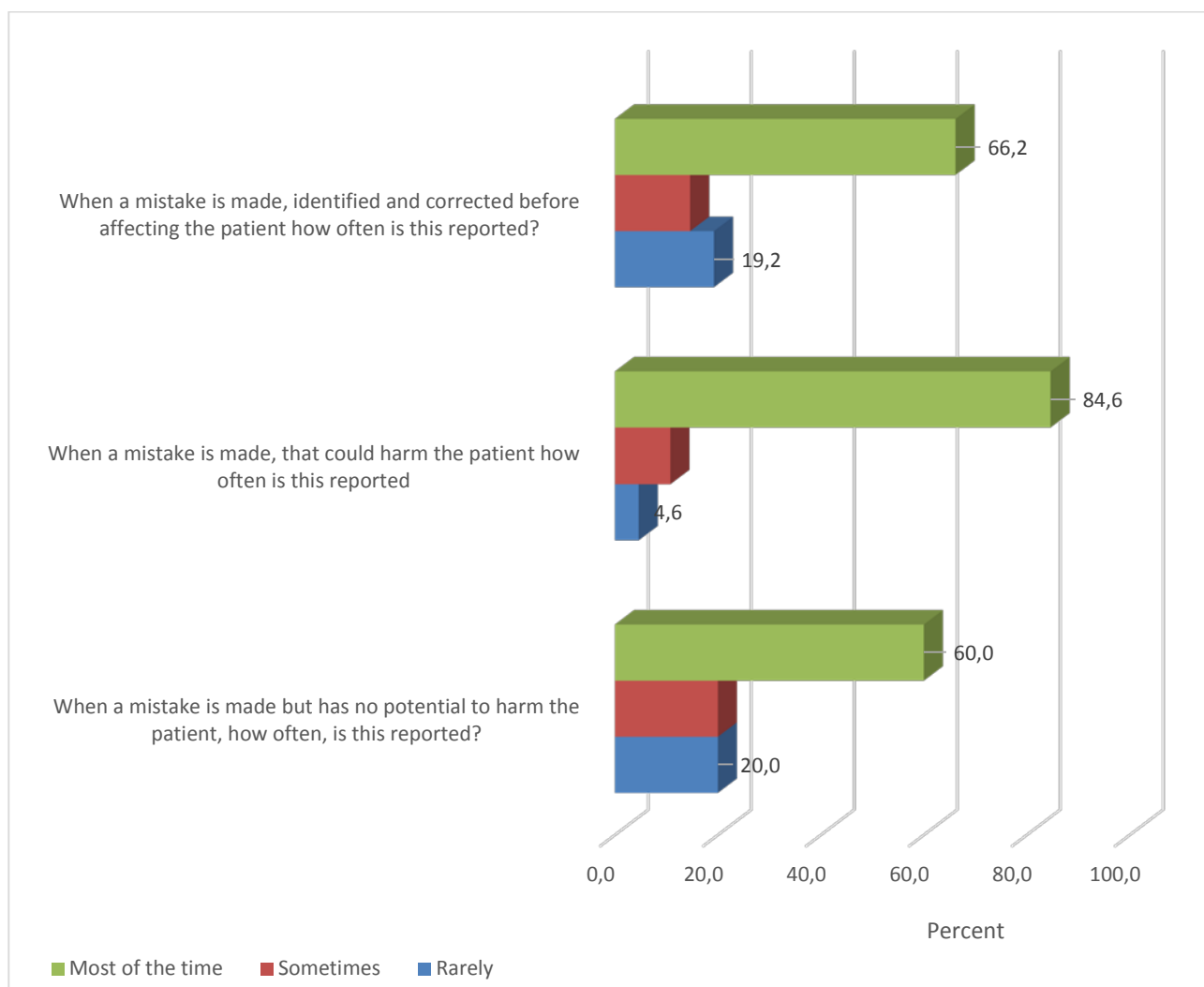


Figure 11: Frequency of Events Reported

As per **[Figure11]** on, questions relating to Frequency of Events Reported, as above staff take mistakes that have the potential to harm the patient seriously and report it [n= 111] 84.6%. They also report mistakes that have been identified and corrected [n= 86] 66.2% as well as mistakes that have no potential to harm the patient [n= 78] 60.0%. These responses are a possible strength for the study as mentioned previously in this chapter.

4.9.4.1 Test Statistics

It can be seen from the graph that the scoring patterns are very different. What this indicates is that the differences observed is statistically significant. Chi square results 0 cells [0.0%] have an expected frequency of less than 5. The minimum expected cell frequency is 43.3. The chi square test results are shown as all p values were significant [p< 0.001] below. Since all of the values are less than 0.05, it implies that the differences per option per statement are significant. This is reflected in the percentages in **[Appendix L]**

4.9.5 Section F: Hospital/ Management Support for Patient Safety

This section on Your Hospital / Management Support for Patient Safety identified components that grouped the statements together in keeping with components identified in the factor analysis and each of this is discussed under each component below in:

[FIGURE 12]

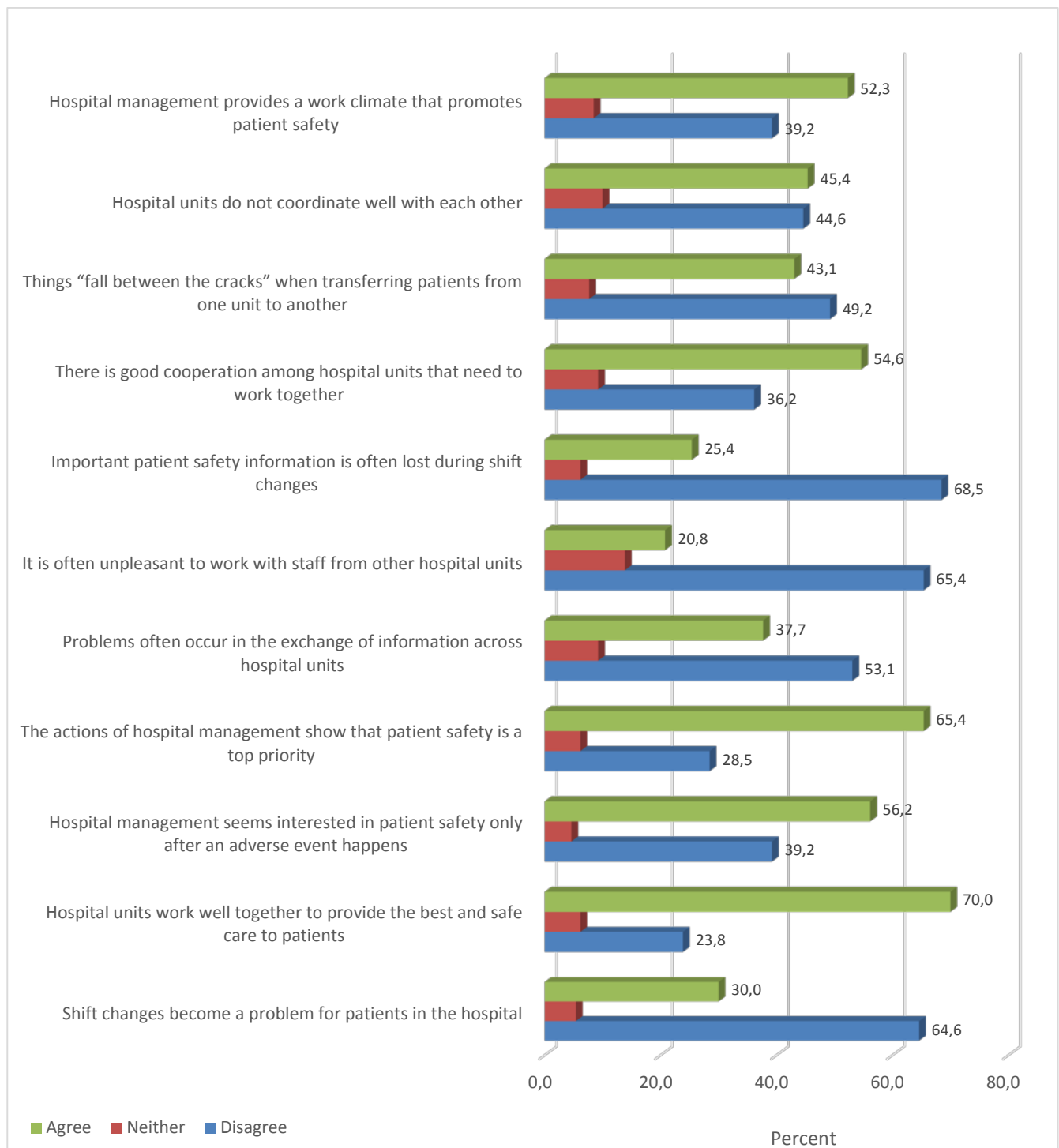


Figure 12: Hospital Management Support for Patient Safety

4.9.5.1 Hospital Management Support for Patient Safety

On the questions relating Hospital management support for patient safety, as above, staff feel that hospital management provides an environment that promotes patient safety (52.3 %; n=68). And patient safety was top priority for hospital management (65.4 %; n=85) they also feel that this only happens when an adverse event occurs (56.2%; n=72). Observation of these responses identify just above 50% of staff feel this way , there are a number of staff that disagree, this component can possibly be an area of attention.

4.9.5.2 Teamwork across hospital units

On the questions relating to Teamwork across hospital units, the statement, that hospital units do not coordinate well with each other (45.4%; n= 59), they cooperated with each other (54.6%; n=71) they did not feel that it was unpleasant to work with staff from other units (65.4%; n=85) and they worked well together to provide the best care for patients (70%; n=91). According to their responses although they do not coordinate well there is cooperation between the units and a possible area of strength in this study is that they work well together across units to provide the best care for patients.

4.9.5.3 Hospital handovers and transfer of information

On the questions relating to Hospital handovers and transfer of information, staff disagreed that information fell between the cracks when transferring patients from one unit to another (49.2%; n= 64) and disagreed that important information is often lost during handover from one unit to another (68.5%; n=89). And exchange of information during shift change is not a problem (53.1%; n= 69) and shift changes are not a problem for patients in the hospital (64.6%; n=84). Although all responses can be possible strength for this study information exchange during transfer and shift changes could be seen as an area for attention as responses were just above 50% or below.

4.9.5.4 Test Statistics

The chi-square tests on Hospital/ Management Support for Patient Safety were done to determine whether the differences described above were significant, chi-square tests were done by variable all p values were significant [$p < 0.001$]. The null hypothesis tested the claim that there were no differences in the scoring options per statement. All differences are significant. This is mainly due to the low “Neither” score across the research. The results are shown in [Appendix M].

4.9.6 Section G: Number of Events Reported

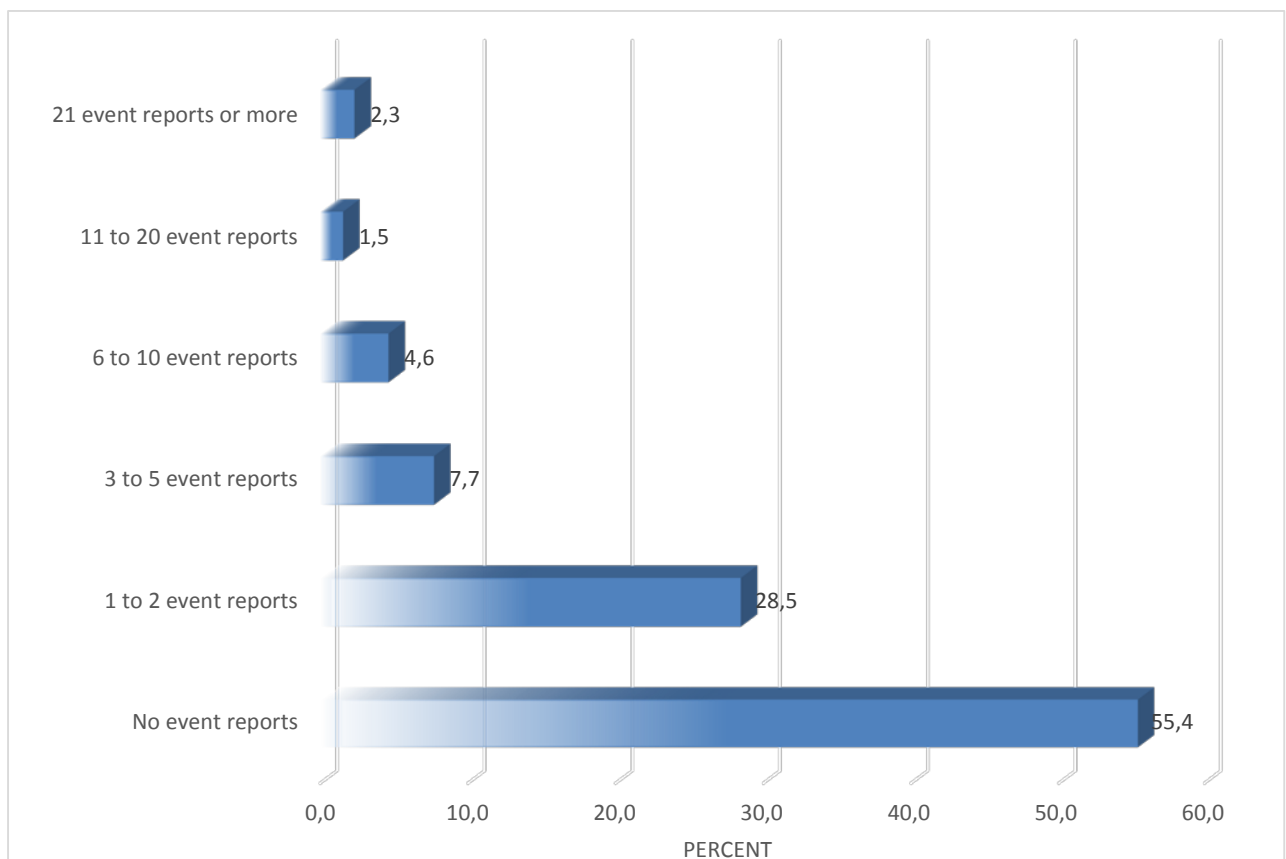


Figure 13: Number of events reported

On questions relating to the number of events reported over a period of 12 months, as above, the majority of respondents [55.4%] reported no events [n=72] and (2.3%;n=3) reported 21 events or more. Within these extremes, (28.5%; n= 37) reported on 1 to 2 events; (7.7%; n= 10) reported 3 to 5 events; (4.6%; n=6) reported 6 to 10; and (1.5%; n=2) reported 11 to 20 events. The observation that 55.4% did not report any events is suggestive of possible under-reporting of events and may indicate a possible area in need of attention although the frequency of reporting of events wherein whether a mistake is made, identified and corrected or has the potential to harm a patient is reported, can be identified as an area of possible strength. 50% responded that no events were reported this can be due to a consequence, where when errors are made and reported is used against them in their performance appraisal.

4.9.6.1 Test Statistics

Chi square test on number of events reported a. 0 cells [0.0%] have expected frequencies less than 5. The minimum expected cell frequency is 21.7. There is no even spread of the frequency percentages across the number options. The chi square test result all p values were significant [$p < 0.001$] as reflected in [APPENDIX N].

4.9.7 Section H: Patient Safety Grade

Table11: Patient Safety Grade

	Excellent	Very Good	Acceptable	Poor	Failing
Please give your work area/unit in this hospital an overall grade on patient safety.	11.5%	31.5%	41.5%	12.3%	3.1%

Within Section H, as per **Table 11**, the perceptions of the respondents on the Overall patient safety grade the majority of the respondents rated their unit as Acceptable (41.5%,;n=54) Very Good (31.5% ;n=41) followed by Excellent (11.5% ;n=15) and poor (12.3% ;n=16) and failing (3, 1%;n=4).

4.9.8 Section I: General Comments

This section is a summary of the general comments made by the respondents. Multiple responses were allowed 46.9% commented and a significant number 53.7% did not comment. The comments will be discussed in the discussion section in Chapter 5.

4.10 HYPOTHESIS TESTING

The traditional approach to reporting a result requires a statement of statistical significance. A **p-value** is generated from a **test statistic**. A significant result is indicated with " $p < 0.05$ ", because the level of significance was chosen as 0.05. These values are highlighted with an *. The Chi square test was performed to determine whether there was

a statistically significant relationship between the variables [rows vs columns]. The null hypothesis states that there is no association between the two. The alternate hypothesis indicates that there is an association.

For example: The p-value between “Patient safety is never sacrificed to get more work done” and “How long have you worked in this hospital” is 0.030 [which is less than the significance value of 0.05]. This means that there is a significant relationship between the variables. That is, the number of years a respondent worked in a hospital does play a role in responding that, “Patient safety is never sacrificed to get more work done”. The direction of the scores can be obtained from the frequency tables in the appendix. [See excel sheet]. There are other values that have a * next to them. These are all significant. All values without an * [or p-values more than 0.05] do not have a significant relationship. Correlation calculations were done on the 8 sections and each of the sections were grouped into components as discussed above. Below is a detailed discussion of the correlation between variables.

4.11 CORRELATIONS BETWEEN VARIABLES

Bivariate correlation, is a test between two variables that was performed on the data to analyse the association between individual components. The results are included in the appendix as a correlation table (**see excel sheet APPENDIX O**). The results indicate the following patterns. Positive values indicate a directly proportional relationship between the variables and a negative value indicates an inverse relationship. All significant relationships are indicated by a * or **. For example, the correlation value between “When a lot of work needs to be done quickly, we work together as a team to get the work done” and “In this unit, people treat each other with respect” is [0.360 ;p=0.000]. This is a directly related proportionality. Respondents agree that the more respect they have for one another, the better they work as a team, and vice versa. Negative values imply an inverse relationship. That is, the variables have an opposite effect on each other. For example, the correlation value between “Staff feel that their mistakes are held against them” and “People co-operate with one another in this unit” is [-0.246; p=0.005]. This is an inversely related proportionality. Respondents agree that the more they co-operate with one another, the less likely they are to hold mistakes against each other, and vice versa.

4.11.1 Section B Your Work Area or Unit

A positive correlation was found between 'when a lot of work needs to be done quickly, we work together as a team to get the work done' and 'people co-operate with one another in this unit' [0.356; $p = 0.000$] which indicates that the capacity to perform under pressure is a clear function of the capacity to co-operate. This would suggest, further, that an unco-operative environment would decrease the efficiency of the unit. The positive correlation additionally found between 'people co-operate with each other in this unit' and people treat each other with respect [0.537; $p = 0.000$] suggests that mutual respect is an important component of a unit's capacity to work efficiently under pressure [0.360; $p = 0.000$].

A negative correlation was found between 'we work in a "crisis mode" trying to do too much, too quickly [-0.204; $p = 0.020$] and we have enough staff to handle the workload which suggests that adequate staffing influences the manner in which work is accomplished and impacts on the quality of care, in addition there is a positive correlation between we work in a "crisis mode" trying to do too much too quickly and when a lot of work needs to be done, we work together as a team to get the work done [0.192; $p = 0.29$] indicates that team work is an important aspect of the unit's ability to cope effectively in a crisis.

The following statements indicate a positive correlation between working in a crisis mode and staff in this unit work longer hours than is best for patient care [0.327; $p = 0.000$] suggests that working longer hours in a "crisis mode" impacts on the quality of care. A positive correlation is found between we use more agency/temporary staff than is best for patient care and staff in this unit work longer hours than is best for patient care [0.206; $p = 0.019$] suggests that acceptable hours of work and a more stable workforce is an important component of a unit's capacity to function efficiently. Collectively these statements indicate that a unit's capacity to function efficiently is possibly dependent on the capacity of the organisation to keep the norm of staff patient ratio, a stable workforce and acceptable hours of work.

A positive correlation exists between patient safety is never sacrificed to get more work done and people cooperate with one another in this unit [0.219; $p = 0.012$], which suggests that cooperative teamwork is an important component of a unit's ability to sustain patient safety, a further positive correlation exists between sacrificing patient safety and when a

lot of work needs to be done quickly, we work together as a team to get the work done [0.298; $p=0.001$] which suggests that teamwork is an important component of a unit's capacity to work efficiently under pressure, further a positive correlation exists between sacrificing patient safety and we work in a crisis mode doing too much too quickly [0.270; $p=0.002$] which indicates that patient safety remains critical even under pressure.

On this statement we have patient safety problems in this unit a positive correlation exists with the statement staff in this unit work longer hours than is best for patient care [0.319; $p = 0.000$] which signifies that the longer the hours of work the more susceptible the unit is to patient safety incidents it also suggests that longer working hours contributes to fatigue and greater incidents of patient safety. A further positive correlation exists between patient safety problems and working in a crisis mode trying to do too much too quickly [0.303; $p=0.000$] which indicates that the mode of work influences the patient safety incident rate additionally a positive correlation was found between 'patient safety problems in the unit' and we use more agency staff / temporary staff than is best for patient care [0.275; $p= 0.002$] which implies that the more stable the workforce the less likely there will be patient safety incidents.

A positive correlation exists between our procedures and systems are effective at preventing errors from happening in this unit, and people co-operate with one another in this unit [0.303; $p=0.000$], suggests that effective procedures and systems are important components of a unit's capacity to cooperate, and a further positive correlation exists between 'effective procedures and systems' and when a lot of work needs to be done quickly we work together as a team to get the work done [0.208; $p=0.018$] which indicates that effective procedures and systems are an important component for a unit's capacity to function as a team, in addition a positive correlation exists between 'effective procedures and systems' and in this unit people treat each other with respect [0.303; $p= 0.000$] which indicates that effective procedures and systems are an important component for a unit's capacity to show mutual respect for each other.

A positive correlation exists between after we make changes to improve patient safety we evaluate the effectiveness and people co-operate with one another in this unit [0.440; $p=0.000$], which suggests a unit's capacity to evaluate changes is an important component of a unit's capacity to co-operate, a further positive correlation is found between 'evaluation of effectiveness to change' and when a lot of work needs to be done quickly we work

together as a team to get the work done [0.224; $p=0.010$] indicates that a unit's capacity to evaluate change is an important component of teamwork, in addition a positive correlation exists between 'evaluation of effectiveness to change' and in this unit people treat each other with respect [0.356; $p=0.000$]. Indicates that a unit's capacity to evaluate change is an important component to gain mutual respect. A positive correlation exists between after we make changes to improve patient safety we evaluate the effectiveness and our procedures and systems are effective at preventing errors from happening [0.438; $p=0.000$], which indicates that a unit's capacity to evaluate change is an important component of a unit's capacity to prevent errors. Collectively these statements suggest that mutual respect, teamwork and good systems contribute to effective patient safety standards.

A positive correlation exists between in this work area/unit we are actively trying to improve patient safety and people cooperate with one another [0.368 $p=0.000$], which indicates that the capacity of a unit to work actively to improve patient safety is an important component for the unit's capacity to cooperate, a further correlation was found between 'actively trying to improve patient safety' and when a lot of work needs to be done quickly we work together as a team to get the work done [0.312; $p=0.000$]. suggests that the capacity of a unit to work actively to improve patient safety is an important component for the unit's capacity to work as a team in addition a positive correlation exists between 'we are actively trying to improve patient safety' and in this unit people treat each other with respect [0.435; $p=0.000$], suggests that mutual respect is an important component for the unit's capacity to work actively to improve patient safety additionally a positive correlation exists between 'we are actively trying to improve patient safety and our procedures and systems are effective at preventing errors from happening [0.544; $p=0.000$], which suggests that the more the unit's focus on actively improving patient safety the more effective the systems are in preventing errors. A positive correlation exists between in this work area/unit we are actively trying to improve patient safety and after we make changes to improve patient safety we evaluate the effectiveness [0.527; $p=0.000$] this perception exists in a unit where they are actively trying to improve patient safety possibly one of the methods is evaluating the effectiveness of change.

On the statement that 'staff feel that mistakes are held against them', the correlation tables suggest that this perception is more likely in an environment in which staff are required to work longer hours [0.327; $p=0.000$], and in a 'crisis mode', in which they are required to do

too much too quickly [0.260; $p=0.003$]. This perception is also a feature of units in which patient safety problems are already identified [0.324; $p=0.000$]. Conversely this perception was found to be less likely in an environment in which staff co-operate [-0.240; $p=0.005$], actively try to improve [-0.218; $p=0.013$], and in which changes are evaluated for efficiency [-0.221; $p=0.012$].

In the statement staff feel that mistakes have led to positive changes in this unit this perception is more likely in a unit where people cooperate with one another [0.313; $p=0.000$], treat each other with respect [0.253; $p=0.004$], their procedures and systems are effective at preventing errors from happening [0.198 $p=0.24$] and are actively trying to improve patient safety [0.347; $p=0.000$].

In this statement it is just by chance that more mistakes do not happen here it is a perception that this is less likely to exist in a unit when people co-operate with one another [-0.197; $p=0.024$], patient safety is never sacrificed to get more work done [-0.173 $p=0.049$] in addition 'it is just by chance that more mistakes don't happen' this perception is evident in an environment in which there are patient safety problems [0.186; $p=0.034$] staff feel that their mistakes are held against them [0.269; $p=0.002$].

A negative correlation exists between when an event is reported it feels like the person is written up and not the problem and people co-operate with one another [-0.237; $p=0.007$]. This perception is less likely to exist in an environment where people co-operate with one another and more in an environment where the focus is on people than the problem.

On the statement, 'when an event is reported it feels like the person is written up and not the problem' the correlation table suggests that this is more likely to happen in an environment where staff work longer hours [0.254; $p=0.003$]. In a "crisis mode" in which they are required to do too much too quickly [0.292; $p=0.001$], where patient safety problems have been identified [0.554; $p=0.000$] conversely this perception is less likely to exist after changes are made to improve patient safety and effectiveness is evaluated [-0.194; $p=0.027$]. and they we are actively trying to improve patient safety [-0.216; $p=0.014$] in addition the correlation table suggests that the perception of when an event is reported it feels like they are written up this perception exists in an environment where staff feel that their mistakes are held against them [0.473; $p=0.000$] and it is just by chance that more mistakes do not happen here [0.227; $p=0.009$].

There is a negative correlation that exists between staff worry that mistakes they make are kept in their personnel files and can be used in their performance management this perception is less likely to exist in a unit where there is enough staff to handle the workload [-0.181; $p=0.040$] more likely to exist in a unit where staff work longer hours [0.183; $p=0.037$] and patient safety problems exist are identified [0.260; $p=0.003$] in addition the correlation table suggests that staff worry that mistakes they make are kept in their personnel files this perception is more likely to exist in a unit where staff feel that their mistakes are held against them [0.327; $p=0.000$] and less likely in a unit where mistakes have led to positive changes [-0.181; $p=0.039$] This perception is more likely to be found in a unit where it is just by chance that more mistakes don't happen here [0.229; $p=0.009$]. and when an event is reported it feels like the person is written up and not the problem [0.372; $p=0.000$].

4.11.2 Section C: Supervisors /Managers expectations of patient safety

On the statement supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures the correlation table suggests this perception exists in an environment where people co-operate with one another [0.323; $p=0.000$] where staff work together as a team to accomplish tasks quickly [0.320; $p=0.000$] people treat each other with respect [0.330 ; $p=0.000$] in additionally supervisor managers say a good word in units where procedures and systems are effective at preventing errors [0.259 ; $p=0.003$] and changes to improve patient safety are evaluated for effectiveness [0.361; $p=0.000$] and staff are actively trying to improve patient safety [0.420; $p=0.000$]. Conversely this perception is less likely in an environment that staff feel that their mistakes are held against them [-0.174; $p=0.047$], and more likely to be found in a unit where mistakes have led to positive changes in this unit [0.399; $p=0.000$].

The statement supervisor/manager seriously considers staff suggestions for improving patient safety suggests according to the correlation table that this perception is found in units where people co-operate with one another [0.438; $p=0.000$] teamwork and working efficiently is prevalent [0.271; $p=0.002$] and mutual respect exists [0.345 ; $p=0.000$]. Additionally according to the correlation table staff perception is that supervisor/manager seriously considers staff suggestions in an environment where patient safety is never sacrificed to get more work done [0.203; $p=0.021$] and procedures and systems are effective at preventing errors from happening [0.307 ; $p=0.000$] changes to improve patient

safety are evaluated for effectiveness [0.314 ;p=0.000] additionally supervisor/manager seriously considers staff suggestions in a unit that is actively trying to improve patient safety [0.366; p=0.000], where mistakes have led to positive changes [0.355;p=0.000] and a good word is said when a job is done according to established patient safety procedures [0.645; p=0.000].

A negative correlation was found between whenever pressure builds up; my supervisor/manager wants us to work faster, even if it means taking shortcuts and people co-operate with one another in this unit [-0.259; p=.003] which suggests that this perception is less likely in an environment where staff cooperate, and more likely in a unit where staff work longer hours than is best for patient care [0.364; p=0.000]. Additional positive correlations exist between 'whenever pressure builds up; my supervisor/manager wants us to work faster', and we work in "crisis mode" trying to do too much, too quickly [0.210; p= 0.017], which suggests this perception exists in units where staff work in a crisis mode whenever under pressure, a further positive correlation exists between 'whenever pressure builds up; my supervisor/manager wants us to work faster' and we have patient safety problems in this unit [0.312; p=0.000]. This perception is found in an environment that has identified patient safety problems and changes made to improve patient safety are evaluated for effectiveness. [-0.229; p= 0.009].

According to the correlation table the statement 'whenever pressure builds up; my supervisor/manager wants us to work faster', this perception will be less likely to exist in a unit that is actively trying to improve patient safety [-0.309; p= 0.000] and more likely to be found in a unit where staff feel that their mistakes are held against them [0.446; p=0.000] and mistakes have led to positive changes in this unit [0.216; p=0.014]. Additionally the statement 'whenever pressure builds up; my supervisor/manager wants us to work faster', this perception is more likely to exist in a unit where when an event is reported it feels like the person is written up and not the problem [0.366; p= 0.000]. And less likely to be found where the supervisor/manager says a good word when a job is done according to established patient safety procedures [-0; 282 p=0.001] and more likely to exist in a unit where the supervisor/manager seriously considers staff suggestions for improving patient safety [-0.373; p=0.000].

On the statement my supervisor/manager overlooks patient safety problems that happen over and over this perception is more likely found in an environment where staff work

longer hours than is best for patient care [0.304; $p=0.000$] and less likely in an environment where patient safety is never sacrificed to get more work done [-0.224; $p=0.011$] and procedures and systems are effective at preventing errors [-0.184; $p=0.036$] and in a unit where staff are actively trying to improve patient safety [-0.231; $p=0.008$]. This perception is less likely to exist in an environment where the supervisor/manager seriously considers staff suggestions for improving patient safety [-0.295; $p=0.001$] and more likely in an environment where when pressure builds up; the supervisor/manager wants staff to work faster, even if it means taking shortcuts [0.368; $p=0.000$].

4.11.3 Section D: Communication and Feedback

The statement that we are given feedback about changes put into place based on event and reports the perception of the staff is that it exists in units where people co-operate with one another [0.235; $p=0.007$], when a lot of work needs to be done quickly, they work together as a team [0.381; $p=0.000$] patient safety is never sacrificed to get more work done [0.265; $p=0.002$]. Further procedures and systems are effective at preventing errors [0.391; $p=0.000$] changes to improve patient safety are evaluated for effectiveness [0.461; $p=0.000$]. The correlation table suggests that feedback is given about changes in units that are actively trying to improve patient safety [0.417; $p=0.000$]. Where the supervisor/manager says a good word when a job is done according to established patient safety procedures [0.351; $p=0.000$] the supervisor/manager seriously considers staff suggestions for improving patient safety [0.394; $p=0.000$]. Conversely this feedback is less likely in units where the supervisor/manager overlooks patient safety problems that happen over and over [-0.255; $p=0.003$].

Staff will freely speak up if they see something that may negatively affect patient safety [0.316; $p=0.000$] this perception of staff will be found in an environment where patient safety is never sacrificed to get more work done [0.256; $p=.003$] the procedures and systems are effective in preventing errors [0.265; $p=.0002$] and changes to improve patient safety are evaluated for effectiveness [0.249; $p=.004$] and in a unit where they are actively trying to improve patient safety [0.325; $p=0.000$] mistakes have led to positive changes [0.216; $p=0.014$].

'Staff will speak freely' is found in a unit where the supervisor/manager says a good word when a job is done according to established patient safety procedures [0.225; $p=0.010$]

and when staff suggestions are seriously considered for improving patient safety [0.183; $p=0.038$]. Conversely this freedom will not exist when the supervisor/manager overlooks patient safety problems that happen over and over [-0.197; $p=0.024$] this freedom of speech will exist in a unit when they are given feedback about changes put into place based on event and reports [0.480; $p=0.000$].

A positive correlation was found between we are informed about errors that happen in the unit and when a lot of work needs to be done quickly, we work together as a team to get the work done [0.292; $p=.001$]., which indicates that communication and feedback is an important component for the capacity to work as a team under pressure. A positive correlation additional found between we are informed about errors and we work in "crisis mode" trying to do too much, too quickly [0.181; $p=0.039$] which suggest that communication and feedback is an important component for the capacity to work efficiently under pressure a further positive correlation exists between feedback and communication and patient safety is never sacrificed to get more work done [0.175; $p=0.046$], which indicates that the more effective communication is the less likely that patient safety will be sacrificed and more effective will the procedures and systems be in preventing errors from happening [0.255; $p=0.003$] and evaluating the effectiveness of change to improve patient safety. [0.234; $p=0.007$]. A positive correlation is found between communication and feedback and we are actively trying to improve patient safety [0.293; $p=0.001$], which suggests the more effective the communication and feedback constant efforts are being made to improve patient safety further positive correlations exist between communication feedback which suggests that in an environment where there is effective communication and feedback the more likely the supervisor/manager says a good word when a job is done according to established patient safety procedures [0.262; $p=0.003$]. Feedback is given about changes put into place based on event and reports [0.512; $p=0.000$] staff will freely speak up if they see something that may negatively affect patient safety [0.539; $p=0.000$].

On the statement staff feels free to question the decisions or actions of those with more authority this perception is found in an environment where people co-operate with one another [0.289; $p=0.001$] staff have the capacity to work as a team under pressure [0.196; $p=0.025$] treat each other with respect [0.193; $p=0.028$]. Evaluate changes for effectiveness [0.232; $p=0.008$], conversely this perception is less likely to exist in an environment where staff feel that their mistakes are held against them [-0.278; $p=0.001$]

when an event is reported it feels like the person is written up and not the problem [-0.215; $p=0.014$], this perception is more likely in an environment where mistakes have led to positive changes [0.307; $p=0.000$], in addition the correlation table suggests in the statement staff feels free to question the decisions or actions of those with more authority that this perception is found in units where the supervisor/manager says a good word when a job is done according to established patient safety procedures [0.229; $p=0.009$] the supervisor/manager seriously considers staff suggestions for improving patient safety [0.176; $p=0.045$], where staff will freely speak if they see something that may negatively affect patient safety [0.303; $p=0.000$]. and they are informed about errors that happen in the unit [0.173; $p=0.049$].

4.11.4 Section E: Frequency of Events Reported

On the statement when a mistake is made, identified and corrected before affecting the patient how often is this reported, the correlation table suggests that this is more likely in an environment where they have the capacity to work and under pressure [0.186; $p=0.035$], where they are given feedback about changes put into place based on event and reports [0.323; $p=0.000$] staff will freely speak if they see something that may negatively affect patient safety [0.234; $p=0.007$]. They are informed about errors that happen in the unit [0.232; $p=0.008$].

On the statement when a mistake is made, that could harm the patient how often is this reported the correlation table suggests that this is more likely in an environment where they have the capacity to work as a team under pressure [0.215; $p=0.014$] and where the procedures and systems are effective at preventing errors [0.179; $p=0.042$] and changes to improve patient safety are evaluated for effectiveness [0.194; $p=0.027$] they are actively trying to improve patient safety [0.194; $p=0.027$] feedback is given about changes put into place based on event and reports [0.209; $p=0.017$], and staff will freely speak if they see something that may negatively affect patient safety [0.234; $p=0.007$].

On the statement when a mistake is made but has no potential to harm the patient, how often, is this reported, the correlation table suggests that this is more likely in an environment where they have the capacity to work as a team under pressure [0.205; $p=0.019$] patient safety is never sacrificed to get more work done [0.191; $p=0.030$]. Staff will freely speak if they see something that may negatively affect patient safety [0.230;

p=0.009] and they are informed about errors that happen in the unit [0.0187; p=0.033]. And when a mistake is made, identified and corrected before affecting the patient is reported [0.555; p=0.000] and when a mistake is made, that could harm the patient is reported? [0.577; p=0.000].

4.11.5 Section F: Hospital Management support and communication

On the statement hospital management provides a work climate that promotes patient safety the correlation table suggests that this perception is found in an environment where people co-operate with one another [0.343; p=0.00] the procedures and systems are effective at preventing errors from happening [0.293; p=0.001] changes to improve patient safety are evaluated for effectiveness [0.357; p=0.000].

In addition on the statement hospital management provides a work climate that promotes patient safety the correlation table suggests that this perception is found in an environment where staff are actively trying to improve patient safety [0.459 ;p=0.000] ,where mistakes have led to positive changes in this unit [0.384; p=0.000]. Conversely this perception is less likely in a unit where staff feel that their mistakes are held against them [-0.272; p=0.002]. When an event is reported it feels like the person is written up and not the problem [-0.315; p= 0.000] patient safety problems have been identified in the unit [-0.216; p=0.014]

Further on the statement hospital management provides a work climate that promotes patient safety the correlation table suggests that this perception is found in an environment where the supervisor/manager says a good word when a job is done according to established patient safety procedures [0.332; p=0.000] and the supervisor/manager seriously considers staff suggestions for improving patient safety [0.250; p=0.004] conversely this perception does not exist in an environment in which whenever pressure builds up; the supervisor/manager wants staff to work faster, even if it means taking shortcuts [-0.329; p=0.000] , and where supervisor/manager overlooks patient safety problems that happen over and over [-0.179; p=0.041].

Additionally the statement hospital management provides a work climate that promotes patient safety is evident in an environment where feedback is given about changes put into place based on event and reports [0.254; p=0.004], staff will freely speak up if they see

something that may negatively affect patient safety [0.219; $p=0.012$], they are informed about errors that happen in the unit [0.185; $p=0.035$] and staff feels free to question the decisions or actions of those with more authority [0.248; $p=0.004$] when a mistake is made, identified and corrected before affecting the patient is reported. [0.182; $p=0.038$], when a mistake is made, that could harm the patient is reported [0.219; $p=0.012$].

On the statement hospital units do not coordinate well with each other the correlation table suggests this perception is less likely to exist in units where people cooperate with one other [-0.277; $p=0.001$], treat each other with respect [-0.277; $p=0.001$], and more likely to be found in units where staff work in "crisis mode" [0.179; $p=0.042$] this perception is more likely found in units where patient safety problems have been identified [0.184; $p=0.036$] and less likely to exist in a unit where changes that are made to improve patient safety are evaluated for effectiveness [-0.250; $p=0.000$] and where staff are actively trying to improve patient safety [-0.200; $p=0.023$]. In addition on the statement hospital units do not coordinate well with each other the correlation table suggests this perception is more likely to exist in units where staff feel that their mistakes are held against them [0.234; $p=0.007$] and when an event is reported it feels like the person is written up and not the problem [0.254; $p=0.004$], and less likely to be found in units where the supervisor/manager says a good word when a job is done according to established patient safety procedures [-0.284; $p=0.001$] and in units where the supervisor/manager seriously considers staff suggestions for improving patient safety [-0.216; $p=0.014$] and more likely to exist in units where when pressure builds up; the supervisor/manager wants staff to work faster, even if it means taking shortcuts [0.228; $p=0.009$] and in units that do not coordinate well with each, this perception is less likely to exist in units where staff feel free to question the decisions or actions of those with more authority [0.228; $p=0.010$].

A positive correlation exists between things "fall between the cracks" when transferring patients from one unit to another and In this unit, people treat each other with respect [0.235; $p=0.007$] which indicates that mutual respect is an important component for transfer of patients in addition on the statement things "fall between the cracks" when transferring patients from one unit to another this perception is less likely to occur in an environment where changes are evaluated for effectiveness [-0.232; $p=0.008$] staff are actively trying to improve patient safety [-0.197; $p=0.025$] this perception is more likely in units where staff feel that their mistakes are held against them [0.190; $p=0.030$]. and when an event is reported it feels like the person is written up and not the problem [0.185; $p=0.035$]

conversely this perception will not be found in units where staff feel free to question the decisions or actions of those with more authority [-0.186; $p=0.034$] and when a mistake is made, identified and corrected before affecting the patient is reported [-0.207; $p=0.018$] this perception is more likely to be found in units that do not coordinate well with each other [0.452; $p=0.000$].

A positive correlation is found between good cooperation among hospital units that need to work together and people co-operate with one another in this unit [0.328; $p=0.000$], this suggests that the capacity of staff to cooperate in their units is an important component of co-operation between hospital units. This perception of staff is found in units where when a lot of work needs to be done quickly, they work as a team [0.215; $p=.014$]. And there is mutual respect [0.299; $p=0.001$] procedures and systems are effective at preventing errors [0.240; $p=0.006$] and changes are evaluated for effectiveness [0.280; $p=0.001$]. In addition the perception of good cooperation among hospital units is found to exist in units where they are actively trying to improve patient safety [0.361; $p=0.000$] and mistakes have led to positive changes [0.275; $p=.002$]. where the supervisor/manager says a good word when a job is done according to established patient safety procedures [0.442; $p=0.000$] the supervisor/manager seriously considers staff suggestions for improving patient safety [0.305; $p=0.000$].

Conversely the perception of good cooperation between hospital units is less likely to be found in an environment where when pressure builds up; the supervisor/manager wants staff to work faster, even if it means taking shortcuts [-0.204; $p=0.020$] in addition this perception is more likely to exist in an environment where feedback is given about changes put into place based on event and reports [0.355; $p=0.000$] and staff will freely speak if they see something that may negatively affect patient safety [0.260 $p=0.003$], they are informed about errors that happen in the unit [0.202; $p=0.021$]. In addition the perception of good cooperation among hospital units is found to exist in units where staff feel free to question the decisions or actions of those with more authority [0.370; $p=0.000$], and in units where when a mistake is made, that could harm the patient is reported [0.180; $p=0.041$], when a mistake is made but has no potential to harm the patient, is reported [0.199; $p=0.023$]. Conversely this statement is less likely to exist in an environment where hospital units do not coordinate well with each other [-0.345; $p=0.000$], things “fall between the cracks” when transferring patients from one unit to another [-0.299; $p=0.001$].

On the statement Important patient safety information is often lost during shift changes this perception is less likely in an environment where people co-operate with one another [-0.291; p=0.001], and more likely in an environment that has identified patient safety problems [0.218; p=0.013] this perception is also less likely in a unit where changes are evaluated for their effectiveness [-0.372; p=0.000]. and staff are actively trying to improve patient safety [-0.326; p=0.000] Additionally on the statement Important patient safety information is often lost during shift changes this perception is more likely to be found in an environment where staff feel that their mistakes are held against them [0.211; p=0.016] and when an event is reported it feels like the person is written up and not the problem [0.243; p=0.005], and less likely to be found in a unit where the supervisor/manager says a good word when a job is done according to established patient safety procedures [-0.275; p=0.002], where the supervisor/manager seriously considers staff suggestions for improving patient safety [-0.190; p=0.30]. Further the statement important patient safety information is often lost during shift changes, this perception is more likely in an environment where when pressure builds up supervisor/manager wants staff to work faster, even if it means taking shortcuts [0.257; p=0.003] and less likely in an environment where staff feel free to question the decisions or actions of those with more authority [-0.0; 198 p=0.024]. Additionally 'important patient safety information is often lost during shift changes this perception from staff is less likely to be found in an environment where when a mistake is made, that could harm the patient is reported [-0.0.180; p=0.040], and when a mistake is made but has no potential to harm the patient is reported [0-0.160; p= 0.068] further to that this perception is more likely in hospital units that do not coordinate well with each other [0.236; p= 0.007]. And in units where things "fall between the cracks" when transferring patients from one unit to another [0.299; p= 0.001].and less likely to be found where there is good cooperation among hospital units that need to work together [-0.270; p=.002].

On this statement It is often unpleasant to work with staff from other hospital units the correlation table indicates that this perception from staff is found in an environment that has identified patient safety problems [0.196; p=0.026] and less likely to exist in an environment where the procedures and systems are effective at preventing errors from happening [-0.258; p=.003]. And they are actively trying to improve patient safety [-0.355; p=0.000] this perception is found in an environment where staff feel that their mistakes are held against them [0.213; p=0.015], and when an event is reported it feels like the person is written up and not the problem [0.272; p=0.002]. This statement that It is often

unpleasant to work with staff from other hospital units the correlation table indicates that this perception from staff is less likely to be found in an environment where the supervisor/manager says a good word when a job is done according to established patient safety procedures [-0.196; p=.026]. and more likely to be found in an environment where when pressure builds up; the supervisor/manager wants staff to work faster, even if it means taking shortcuts [0.271; p=0.002] and less likely to be found in an environment that is where staff are given feedback about changes put into place based on event and reports [-0.243; p=.008]. This statement that It is often unpleasant to work with staff from other hospital units is less likely to be found in an environment where when a mistake is made, identified and corrected before affecting the patient is reported [-0.251; p=.004], and when a mistake is made, that could harm the patient is reported [-0.196; p=0.026]. in addition when a mistake is made but has no potential to harm the patient, is reported [-0.289; p=0.001] This statement that It is often unpleasant to work with staff from other hospital units this perception from staff exists in hospital units that do not coordinate well with each other [0.243; p=0.005] and things “fall between the cracks” when transferring patients from one unit to another [0.221; p=0.011] and less likely to be found in an environment where there is good cooperation among hospital units that need to work together [-0.238; p=0.006] and more likely exists in units where Important patient safety information is often lost during shift changes [0.386; p=0.000].

On the statement that problems often occur in the exchange of information across hospital units the correlation table suggests that this perception from staff is less likely to be found in a unit where people co-operate with one another [-0.364; p=0.000] and when a lot of work needs to be done quickly, they work together as a team [-0.197; p=0.024]. they have mutual respect [-0.232; p=0.008], additionally this perception will be less likely to exist where changes to improve patient safety are evaluated for effectiveness [-0.343; p=0.000]. staff are actively trying to improve patient safety [-0.340; p=0.000]. Conversely this perception is more likely to exist in units where staff feel that their mistakes are held against them [0.290; p=0.001] and it is just by chance that more mistakes don't happen [0.177; p=0.044] and additionally when an event is reported it feels like the person is written up and not the problem [0.278; p=0.001]. Further the statement ‘problems occur in the exchange of information’ the correlation table suggests that this perception is less likely in a unit where the supervisor/manager says a good word when a job is done according to established patient safety procedures [-0.286; p=.001] and the supervisor/manager seriously considers staff suggestions for improving patient safety [-0.186; p=0.034], this

perception is more likely to exist in units where when pressure builds up; the supervisor/manager wants staff to work faster, even if it means taking shortcuts [0.324; $p=0.000$], and where the supervisor/manager overlooks patient safety problems that happen over and over [0.255; $p=0.003$]. Additionally the statement ‘problems occur in the exchange of information’ the correlation table suggests that this perception is less likely in a unit where staff feel free to question the decisions or actions of those with more authority [-0.197; $p=0.025$] and more likely to exist in hospital units that do not coordinate well with each other [0.237; $p=0.007$] and things “fall between the cracks” when transferring patients from one unit to another [0.337; $p=0.000$] in addition the correlation table suggests that this perception is less likely in a unit where there is good cooperation [-0.283; $p=0.001$] and more likely in units where important patient safety information is lost during shift changes [0.538; $p=0.000$], and is unpleasant to work with staff from other hospital units [0.461; $p=0.000$].

On the statement the actions of hospital management show that patient safety is top priority the correlation table suggests that this perception is likely to be found in units where people co-operate with one another [0.211; $p=0.016$] and show mutual respect [0.248; $p=0.004$] additionally this perception exists in units where the procedures and systems are effective at preventing errors [0.285; $p=0.000$] and changes are evaluated for effectiveness [0.344; $p=0.000$]. Further the actions of hospital management show that patient safety is top priority according to the correlation table indicates that this perception is likely to be found in units that are actively trying to improve patient safety [0.446; $p=0.000$] and where mistakes have led to positive changes in this unit [0.244; $p=0.005$]. Conversely this perception is less likely to exist in units where when an event is reported it feels like the person is written up and not the problem [-0.202; $p=0.021$] additionally this perception is more likely in units where the supervisor/manager says a good word when a job is done according to established patient safety procedures [0.393; $p=0.000$] Further a negative correlation exists between the “actions of hospital management show that patient safety is top priority” which is less likely in an environment where when pressure builds up; the supervisor/manager wants staff to work faster, even if it means taking shortcuts [-0.292; $p=0.001$] more likely to exist in units where staff are given feedback about changes put into place based on event and reports [0.275; $p=0.002$]. Will speak freely if they see something that may negatively affect patient safety [0.212; $p=0.015$] and are informed about errors [0.199; $p=0.023$]. In addition patient safety being top priority for management may exist in units where when a mistake is made, identified and corrected

before affecting the patient is reported [0.326; $p=0.000$] when a mistake is made, that could harm the patient is reported [0.285; $p=0.001$], when a mistake is made but has no potential to harm the patient, is reported [0.302; $p=0.000$], this perception is less likely to exist in hospital units that do not coordinate well with each other [-0.368; $p=0.000$] and things “fall between the cracks” when transferring patients from one unit to another [-0.229; $p=0.009$] and more likely to be found in units where there is good cooperation [0.427; $p=0.000$] and less likely to exist in units where important patient safety information is often lost during shift changes [-0.237; $p=0.007$], is unpleasant to work with staff from other hospital units [-0.197; $p=0.025$] additionally problems often occur in the exchange of information across hospital units [-0.327; $p=0.000$].

On the statement hospital management seems interested in patient safety only after an adverse event happens this perception from staff is less likely to be found in units where people co-operate with one another [-0.267; $p=0.002$] and where staff are actively trying to improve patient safety [-0.239; $p=0.00$] and mistakes have led to positive changes [-0.175; $p=0.047$], the supervisor/manager says a good word when a job is done according to established patient safety procedures [-0.268; $p= 0.002$]. Additionally this statement ‘hospital management seems interested in patient safety only after an adverse event happens’ this perception from staff is less likely to be found in units where feedback is given about changes put into place based on event and reports [-0.194; $p=0.027$] and in units when a mistake is made, identified and corrected before affecting the patient is reported [-0.261; $p=0.000$], when a mistake is made, that could harm the patient is reported [-0.304; $p=0.000$] and there is good cooperation among hospital units that need to work together [-0.354 ; $p=0.000$],and further in units where the actions of hospital management show that patient safety is top priority [-0.459; $p=0.000$] . Conversely this perception from staff is more likely to be found in units where they work in "crisis mode" trying to do too much, too quickly [0.325; $p= 0.000$]. and patient safety problems have been identified [0.496; $p= 0.000$] although this perception is less likely to be found in units that evaluate changes for effectiveness[-0.324; $p=0.000$] additionally the perception that hospital management seems interested in patient safety is more likely found in units where the staff feel that their mistakes are held against them [0.298; $p=0.001$], and when an event is reported it feels like the person is written up and not the problem [0.311; $p=0.000$] additionally when pressure builds up; the supervisor/manager wants staff to work faster, even if it means taking shortcuts [0.389 ; $p=0.000$], and important patient safety information is often lost during shift changes [0.366; $p= 0.000$] and further it is often unpleasant to

work with staff from other hospital units [0.445 ;p=0.000] and problems often occur in the exchange of information across hospital units [0.455; p=0.000].

Hospital units work well together to provide the best and safe care to patients this perception is evident in units when there is a lot of work to be done quickly they work together as a team [0.288; p=0.001]. This perception exists in units where procedures and systems are effective at preventing errors [0.319; p=0.000]. and when changes are made to improve patient safety it is evaluated for effectiveness [0.249; p=0.000], additionally mistakes have led to positive changes in this unit [0.270; p=0.002] Conversely this perception is less likely to be found in units where staff feel that their mistakes are held against them [-0.218; p=0.013], staff worry that mistakes they make are kept in their personnel files and can be used in their performance management [-0.195; p=0.026], and things “fall between the cracks” when transferring patients from one unit to another [-0.291;p=0.001] important patient safety information is lost during shift changes [-286; p=0.001]. Additionally this perception is more likely to be found in units where the supervisor/manager says a good word when a job is done according to established patient safety procedures [0.336; p= 0.000] and supervisor/manager seriously considers staff suggestions for improving patient safety [0.250; p=0.000] where feedback is given about changes put into place based on event and reports [0.386; p=0.000]. Staff will freely speak up if they see something that may negatively affect patient safety [0.323; p= 0.000]. We are informed about errors that happen in the unit [0.276; p=0.001]. Staff feels free to question the decisions or actions of those with more authority [0.329; p= 0.000]. Additionally this perception is found in an environment where when a mistake is made, identified and corrected before affecting the patient is reported [0.246 ;p= 0.005] and when a mistake is made, that could harm the patient is reported [0.201; p=0.022]. When a mistake is made but has no potential to harm the patient, is reported [0.243; p=0.005].

Further hospital units work well together to provide the best and safe care to patients this perception is less likely to be found in an environment where hospital units do not coordinate well with each other [-0.342; p=0.000] and more likely to be found in an environment where there is good cooperation among hospital units that need to work together [0.527; p= 0.000].and the actions of hospital management show that patient safety is top priority [0.456; p=0.000]. Conversely this perception is less likely in an environment where it is often unpleasant to work with staff from other hospital units [-0.320; p= 0.000].and problems often occur in the exchange of information across hospital units

[-0.258; p=0.003] in addition hospital management seems interested in patient safety only after an adverse event happens [-0.249; p=0.004].

On the statement shift changes become a problem for patients in the hospital the correlation table suggests that this perception is less likely in an environment where people co-operate with one another [-0.338; p= 0.000] where patient safety is never sacrificed to get more work done [-0.187 ;p=0.033] and changes to improve patient safety are evaluated for effectiveness [-0.268 ;p=0.002] feedback is given about changes put into place based on event and reports [-0.221 ;p= 0.011] and they are informed about errors that happen in the unit [-0.178; p=0.043] additionally they are actively trying to improve patient safety [-0.199; p=0.023].Further to that the statement shift changes become a problem for patients in the hospital the correlation table suggests that this perception is less likely in an environment where when a mistake is made, identified and corrected before affecting the patient is reported [-0.189; p= 0.032] and when a mistake is made, that could harm the patient is reported [-0.283; p= 0.001] and the actions of hospital management show that patient safety is top priority [-0.229; p=0.009] and there is good cooperation among hospital units [0.344 p= 0.000] and hospital units work well together to provide the best and safe care to patients [-0.186 p= 0.034].

Further on the statement shift changes become a problem for patients in the hospital the correlation table suggests that this perception is more likely in an environment in which staff are required to handle the workload [0.190; p=0.030] and more agency/temporary staff than is best for patient care [0.191; p=0.029] and patient safety problems are identified in the unit [0.260; p=0.003],and staff feel that their mistakes are held against them [0.273; p=0.002] additionally it is just by chance that more mistakes don't happen [0.218; p=0.013] and whenever pressure builds up; they are expected to work faster, even if it means taking shortcuts [0.322 ;p= 0.000] and things "fall between the cracks" when transferring patients from one unit to another [0.225; p= 0.010]. Additionally shift changes become a problem for patients in the hospital the correlation table suggests that this perception is more likely in an environment in which important patient safety information is often lost during shift changes [0.475; p= 0.000] and it is often unpleasant to work with staff from other hospital units [0.335; p=0.000]. Problems often occur in the exchange of information across hospital units [0.446; p=0.000] hospital management seems interested in patient safety only after an adverse event happens [0.316; p= 0.000].

4.11.6 Section G: Frequency of events reported

A negative correlation exists between the statements in the past 12 months, how many event reports have you filled out and submitted, and we have enough staff to handle the workload [-0.249; $p=0.004$] which indicates the task of completing patient incident reports is dependent on the patient staff ratio and a further positive correlation exists between frequency of events reported and working in a "crisis mode" trying to do too much, too quickly [0.217; $p=0.013$]. Indicates that working in a crisis mode impacts on the number of events reported. Collectively these statements indicate that adequate staff will improve incident reporting.

4.11.7 Section H: Overall Perceptions of Patient Safety

The correlation table suggests that a negative correlation was found between overall grade on patient safety, and when a lot of work needs to be done quickly, we work together as a team to get the work done [-0.192 ; $p=0.028$] which suggests that the overall patient safety grade will improve if there is more of teamwork and additionally if patient safety problems are identified [0.226; $p=0.010$] and if procedures and systems are effective at preventing errors [-0.291; $p=0.001$], and changes are evaluated for effectiveness [-0.287; $p=0.001$], and staff are actively trying to improve patient safety [-0.461; $p=0.000$]. Less likely that mistakes will be held against them [0.221; $p=0.012$].

Additionally a negative correlation [-0.236; $p=0.007$] which suggests that the more they learn from the mistakes the more improvement to overall patient safety grade and less likely that when an event is reported it feels like the person is written up and not the problem [0.195; $p=0.026$].

More of these negative correlations exist between work area and statements such as your supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures [-0.283; $p=0.001$], my supervisor/manager seriously considers staff suggestions for improving patient safety [-0.201; $p=0.022$] these statements indicate that the more there is praise and recognition there is less likely for mistakes as staff will excel in a motivated environment and in addition there are positive correlations between work area and statements such as whenever pressure builds up; my supervisor/manager wants us to work faster, even if it means taking shortcuts [0.237;

p=0.007]. This also suggests that in an environment where there is appreciation staff less likely for staff to work under pressure.

Other negative correlations exist between work area and we are given feedback about changes put into place based on event and reports [-0.274; p= 0.002] and staff will freely speak up if they see something that may negatively affect patient safety [-0.199; p=0.023], we are informed about errors that happen in the unit [-0.230; p=0.009] Staff feels free to question the decisions or actions of those with more authority [-0.202; p=0.021]. The perceptions of staff are that in an environment where there is open and free communication and transparency and effective feedback there is less likely for negative patient safety incidents to occur.

The negative correlation that exists between work area and the following statements when a mistake is made, identified and corrected before affecting the patient how often is this reported [-0.277; p=0.001] when a mistake is made, that could harm the patient how often is this reported [-0.306; p=.006] suggests that in an environment that has effective communication and feedback less of blame for mistakes the incidence of reporting will improve. Other positive correlations exist between work area and hospital units suggests that the more coordinated the work area [0.264; p=0.002] the more cooperation there will be between units [-0.368; p=0.000].

A positive correlation exists between work area and the following statements it is evident that a pleasant hospital environment [0.225; p= 0.10], is conducive for transfer of important patient safety information during shift changes [0.202; p=0.021]. And across hospital units [0.215; p=0.014] conversely this is less likely when there is a negative correlation between work area and actions of hospital management show that patient safety is a top priority [0.514; p=0.000] and interest is shown by hospital management only after an adverse event happens [0.329; p=0.000], conversely it is the perception that hospital units work well together to provide the best and safe care to patients [-0.411; p=0.000] and shift changes do not have a negative impact on patient safety [0.223; p=0.011]. All of the components are significantly related to patient safety grade such as cooperation between unit's teamwork, communication and feedback, management support for patient safety.

CHAPTER FIVE: DISCUSSION

5.1 INTRODUCTION

The previous chapter presented the results of the study, the findings of a quantitative research study evaluating the culture of patient safety in a public hospital. The instrument measured different aspects of patient safety culture as single items and within respective sections. The use of factor analysis reduced the data into components such as teamwork within and across units, communication openness and feedback, supervisor /management support, hospital management support, frequency of events reported, staffing and non-punitive response to errors, and hospital handover of information.

This chapter identifies the areas of strength within the study, as well as areas for improvement. The conclusions of this study are further linked, in terms of similarities and differences, to observations made in the United States of America and countries across the continent. In addition it seeks to address the research question of how safety cultures may be inculcated into organizational cultures to ensure commitment to safety and a just culture of no blame-no shame, through evaluation of the objectives of the study which sought to establish the current status of the culture of patient safety in a public hospital, to evaluate nurses and doctors and other health professionals responses to the culture of patient safety in the said organization, to explore leadership support to patient safety culture, and to explore the effectiveness of communication and teamwork within units.

5.2 THE STUDY METHODS

With reference to Chapter 4, the response rate was 72%, the majority of respondents were registered nurses, a category of nursing staff that within their scope of practice make decisions and solve problems regarding patient safety, and they are the principal drivers of patient safety, in view of high response rate within this category, probably showed more interest in the study. They were also the largest sample size.

5.3 DISCUSSION OF RESULTS

The results of this study was compared to a 2013 report on patient safety culture conducted as a cross sectional survey across three countries, the Netherlands , Taiwan and The United States of America using The agency for healthcare research quality (AHRQ) tool to assess the culture of patient safety. Hospitals that undertook the study 45 in Netherlands with 3779 respondents, 622 in USA with 196,462 respondents 74 in Taiwan with 10146 respondents (Wagner *et al.* 2013). Another comparison was made with the US hospitals using the same tool, a more recent patient safety user comparative database report (2014) which displays results from 653 US hospitals with 405,281 respondents, and the purpose of the report was to compare results of hospitals, to facilitate learning and improvement, to identify strengths and areas for improvement, and to identify trends (Rockville 2014). These comparison were made due to the most recent results available using the AHRQ tool in addition comparing results of hospitals from different continents is essential as South Africa is a developing country, in the review of literature gaps were identified in the healthcare system of South Africa such as limited resources, poor infrastructures, and patient safety being under researched due to a lack of resources and with a result, lack of patient safety data. By contrast in the review of literature The United States is a developed country, with rich resources and patient safety has been researched over decades, this reflects that the USA has a more developed safety culture and has a safer healthcare system (Wagner *et al.* 2013). Similarly the hospitals selected for the comparative study for hospitals across countries, had similar characteristics to that of the US “came from different parts of the world has a well-developed healthcare system, similar educated professional groups and a focus on improving patient safety, and used the same AHRQ safety culture questionnaire”. (Wagner *et al.* 2013). Below is a discussion of the results and comparisons where applicable.

5.3.1 BIOGRAPHICAL DATA, HOURS OF WORK, WORK AREA

The highest response rate came from the category of registered nurses [n = 71] 54.6%, this category was also the largest sample size of the study. The registered nurses work as team leaders and they are the largest number employed in the maternity units, and ‘their scope of practice’ allows them to make decisions and solve problem. Majority of patient safety incidents are investigated by registered nurses and reports are completed or reviewed by them. The largest number of respondents were females in the age group

between 30 and 40 [n=65] i.e. a more mature workforce, and they worked 40 to 49 hours per week [n=120] 92.3 %. This represents long hours spent with patients and more opportunities to evaluate the culture of patient safety. Interest was shown by doctors and pharmacist as 100% of the sample size responses were received from participants in these categories. The response from the category of other units were high as well predominately maternity units where the highest category of registered nurses are employed, [n=58] 44.6%.

5.3.2. COMPONENTS OF STRENGTH FOR THE STUDY:

The AHRQ questionnaire recognized 'patient safety strengths' as 75% of the respondents answered "Strongly Agree / Agree "Always, most of the time" for positively worded questions, similarly 75% of respondents disagreed for those negatively worded /reverse worded questions. In addition areas of improvement suggested by AHRQ using the questionnaire is 50% or below that "answered negatively or neither to positively worded questions". They also recommended that each "hospital use strengths using a higher or lower cutoff percentage" (Rockville 2004). For this study the highest percentage positive responses were considered as an area of strength, lowest percentage positive responses were considered as an area for improvement.

The following are components of strength for this study:

5.3.2.1 TEAMWORK WITHIN UNITS

The percentage positive response as reflected in the results for teamwork within units is recognized as an area of strength for this study, the level at which 'staff cooperate, and respect each other and work together as a team'. The results for the statements below, were compared to the USA study on Hospital Survey on Patient Safety Culture 2014 User Comparative Database that used the AHRQ tool for the survey (Rockville et al 2014).

Table 12: Teamwork within units

Statements	RSA	USA
People cooperate with one another in the unit	83.1%,	86%.
When a lot of work needs to be done quickly we work together as a team to get the work done.	79.2%,	86%
In this unit people treat each other with respect.	76.9%,	80%

The study findings for the statement, 'People cooperate with one another in the unit' this study found (83.1%), which is very close to the findings described in the US study (86 %). Similarly, for the statement, 'in this unit people treat each other with respect', this study found (76.9%), level of agreement which is close to the findings described in the US study (80%), in addition for the statement 'when a lot of work needs to be done quickly we work together as a team to get the work done' this study found (79.2%) agreement, close to the findings described in the US study (86%). The study findings for teamwork within units for this study were very similar to that of USA a developed country , which is a strongpoint in this study considering that South Africa faces many challenges in its healthcare system as a developing country as discussed above.

The average findings for items for the component, teamwork within units for this study was (79.7%), these results were compared to a 2013 comparative report for hospitals across countries such as Netherlands, Taiwan, USA (Wagner *et al.* 2013).

Table 13: Average for Teamwork within units

Statement	RSA	Netherlands	Taiwan	USA
Teamwork within units for this study	79.7%.	85%,	81%	79%

The study findings for the component, teamwork within units for this study (79.7%),very close to the findings described in the USA study (79%) by contrast lower than the findings described in the study in Netherlands (85%), (Taiwan 81%), for hospitals across countries (Wagner *et al.* 2013). The average findings for this study were also close to the findings for hospitals across countries, this is considered strength for this study, as the chosen hospitals had similarities in their infrastructure, to that of the US.

5.3.2.2 LEARNING IN THE ORGANISATION AND CONTINUOUS IMPROVEMENT

The percentage positive response as reflected in the results, 'learning in the organisation and continuous improvement' and is recognized as an area of strength for this study. The level at which 'staff are actively trying to improve patient safety' and 'mistakes have led to positive changes' and 'changes are evaluated for effectiveness'. The results for these statements were compared to the USA study on Hospital Survey on Patient Safety Culture 2014 User Comparative Database that used the AHRQ tool for the survey, (Rockville *et. al.* 2014).

Table 14: Learning in the organisation and continuous improvement

Statement	RSA	USA
We are actively trying to improve patient safety	80.0%	84%
When changes are made they evaluate their effectiveness	80.8%,	71%.
Mistakes have led to positive change	66.8%	64%

The study findings for the statement, 'actively trying to improve patient safety', was (80.0%), which is very close to the findings of the US study (84%). Similarly, for the statement, 'mistakes have led to positive change' this study found (66.8%) agreement, as compared to the (64%) found in the US study. By contrast, for the statement, 'when changes are made they evaluate their effectiveness', this study found a notably higher level of agreement (80.8%) that was described in the US study (71%). The study findings for this study for learning in the organisation and continuous improvement were very similar to that of USA, in the face of the challenges that face South African healthcare system teamwork within units is a strongpoint in this study.

The average findings for items for the component, 'learning in the organisation and continuous improvement' (75.6%) these results were compared to a 2013 comparative report for hospitals across countries such as Netherlands, Taiwan, USA. (Wagner *et al.* 2013).

Table 15: Average for Learning in the organisation and continuous improvement

Statement	RSA	Netherlands	Taiwan	USA
Learning in the organisation and continuous improvement	75.6 %	47.0%	80.0%	71. %

The average study findings for the component ‘Learning in the organisation and continuous improvement’ this study found (75.5%) which is very close to the findings described in the US study (71%) and the Taiwan study (80.0%.) and notably higher level of agreement than the findings described in the Netherlands study (47.0%) (Wagner *et al.* 2013). The average findings for this study were also close to the findings for hospitals across countries, this is considered strength for this study as the chosen hospitals had similarities in their infrastructure.

5.3.2.3 COMMUNICATION OPENNESS AND FEEDBACK ABOUT ERROR

The percentage positive response as reflected in the results for ‘Communication Openness and Feedback about Error’ is recognised as an area of strength for this study, the level at which staff were in agreement that they were ‘informed about errors that happen in the unit’ and are given feedback based on events and reports. They speak freely if they see something that may negatively affect patient safety in contrast a lower percent were free to question those in authority. These results were compared to the USA study on Hospital Survey on Patient Safety Culture 2014 User Comparative Database that used the AHRQ tool for the survey (Rockville *et al.* 2014).

Table 16: Communication Openness and Feedback about Error

Statement	RSA	USA
We are given feedback about changes put in place based on events and reports	84.6%	59%
We are informed about errors that happen in the unit	90.0%	67%
Staff will freely speak up if they see something that may negatively affect patient safety	86.9%	76%
Staff feel free to questions the actions of those with more authority	53.1%	48%

“The study findings for the statement, ‘staff agreed that they were given feedback based on events and reports (84.6%) which is notably higher than the findings of the US study (59%). Similarly, for the statement, ‘they are informed about errors that happen in the unit’ in this study found (90.0%) agreement, which is notably higher than the findings described in the US study (67) %. In addition ‘staff will freely speak up if they see something that may negatively affect patient safety’ this study found (86.9%) in agreement which is notably higher than the findings described in the US study (76%). By contrast, for the statement, ‘Staff feel free to questions the actions of those with more authority’, this study found a higher level of agreement (53.1%) than described in the US study (48%). These findings are strength for this study in comparison to the US study there are certain areas for improvement for the statement ‘staff feel free to questions the actions of those with more authority’. Not much can be learned from this comparison the findings are similar.

The average findings for items for the component, communication Openness and Feedback about Error (78.6 %) found in this study, these results were compared to a 2013 comparative report for hospitals across countries such as Netherlands, Taiwan, and USA. (Wagner *et al.* 2013).

Table 17: Average for Communication Openness and Feedback about Error

Statement	RSA	Netherlands	Taiwan	USA
Communication Openness and Feedback about Error	78.6%	52.0	44.0	63.0

The average study findings for the component ‘Communication Openness and Feedback about Error (78.6%) which is notably higher than the findings described in the USA study (63.0%) the Taiwan study (44.0 %.) Netherlands study (52.0) (Wagner *et al.* 2013). The average findings for this study were close to the findings for hospitals across countries, this is considered a strength for this study as the chosen hospitals had similarities in their infrastructure.

5.3.2.4 SUPERVISORS AND MANAGERS ACTIONS PROMOTING PATIENT SAFETY

The percentage positive response as reflected in the results for Supervisors and managers actions promoting patient safety is recognised as an area of strength for this study. The level at which ‘the supervisor considers staff suggestion’, ‘says a good word when a job is done

well', 'does not overlook patient safety problems'. 'does not expect them to work faster and take shortcuts even when pressure builds up'. The results for these statements were compared to the USA study on Hospital Survey on Patient Safety Culture 2014 User Comparative Database that used the AHRQ tool for the survey, (Rockville *et. al* 2014).

Table 18: Supervisors and managers actions promoting patient safety

Statement	RSA	USA
The supervisor/manager says a good word when a job is done according to established patient safety procedure	71.5%	75 %
Supervisor /manager seriously considers staff suggestions	76.9%	77 %
Whenever pressure builds up; the supervisor/manager wants them to work faster, even if it means taking shortcuts.	70.0%	75%
Supervisor/manager overlooks patient safety problems that happen over and over.	73.8%	77%,

The study findings for the statement 'the supervisor/manager says a good word when a job is done according to established patient safety procedure' (71.5%) were in agreement for this study which is very close to the findings described in the US study (75 %), Similarly for the statements 'the supervisor seriously considers staff suggestions' (76.9 %) were in agreement in this study which is very close to the findings described in the US study (77 %). By contrast for the statements 'whenever pressure builds up; the supervisor/manager wants them to work faster even if it means taking shortcuts' (70.0%) were in disagreement in this study ,which is close to the findings described in the US study (75%). Similarly for the statement 'supervisor/manager overlooks patient safety problems that happen over and over' (73.8%) were in disagreement in this study which is very close to the findings of the US study (77%,) (Rockville *et. al* 2014). The study findings for this study for 'learning in the organisation and continuous improvement' were very similar to that of USA, in the face of the challenges that face South African healthcare system, 'teamwork within units' is a strongpoint in this study.

The average findings for items for the component, 'supervisors and managers actions promoting patient safety' (73%) found in this study, these results were compared to a 2013 comparative report for hospitals across countries such as Netherlands, Taiwan, and USA. (Wagner *et al.* 2013).

Table 19: Supervisors and managers actions promoting patient safety

Statement	RSA	Netherlands	Taiwan	USA
Supervisors and managers actions promoting patient safety	73%	63 %	65 %	75%

The study findings for this component, ‘supervisors and managers actions promoting patient safety’ (73%) the level of agreement for this study, similar to the study described in the USA (75%) and notably higher than the findings described in the Taiwan study (65 %,) and the Netherlands study (63 %). The study findings for ‘teamwork within units’ for this study were very similar to that of USA, which is a strongpoint in this study considering the challenges that face the healthcare system in South Africa.

5.3.3 AREAS REQUIRING IMPROVEMENT

An identified area for improvement according to AHRQ is an area that has lowest percentage positive responses (Rockville *et al.* 2014). For this study the lowest 50 % percentage positive responses were considered as an area for improvement. The following are components identified areas for improvement for this study.

5.3.3.1 Teamwork across hospital units

The percentage positive response as reflected in the results for ‘teamwork across hospital’ units is recognized as an area for improvement for this study, although not for all statements a large percentage agreed that ‘hospital unit’s work well together to provide the best and safe care to patients’, ‘it is often unpleasant to work with staff from other hospital units’. ‘There is good cooperation among hospital units that need to work together’. Almost half the staff agreed ‘hospital units do not coordinate well with each other’. The results for these statements were compared to the USA study on Hospital Survey on Patient Safety Culture 2014 User Comparative Database that used the AHRQ tool for the survey, (Rockville *et al.* 2014).

Table 20 Teamwork across hospital units

Statement	RSA	USA
Hospital units do not coordinate well with each other agreed	44.6 %	48%
There is good cooperation among hospital units that need to work together agreed	54.6%	62%
It is often unpleasant to work with staff from other hospital units	65.4 %	62 %
Hospital unit's work well together to provide the best and safe care to patient's agreed	70.0 %	71%

The study findings for the statement, 'hospital units do not coordinate well with each other' the level of agreement this study found (44.6 %) which is very close to the findings of the US study (48%), these findings are an area of improvement for both this study and the US study. For the statement, 'it is often unpleasant to work with staff from other hospital units' the level of disagreement this study found (65.4 %) which is very close to the findings of the US study (62 %), Further for the statement, 'hospital unit's work well together to provide the best and safe care to patient's' the level of agreement for this study found, (70.0 %) which is very close to the findings described in the US study (71%). All of the findings for these statements are strongpoints for this study by contrast for the statement 'hospitals units do not coordinate well with each other is an area for improvement for this study as well as the US study'. In addition for the statement 'there is good cooperation among hospital units that need to work together' the level of agreement, this study found (54.6%) although the level of agreement was higher; there is still a lot to be learned for this study in this item, which is also lower than described in the US study (62%).

The average findings for items for the component, Teamwork across hospital units (58%) found in this study, these results were compared to a 2013 comparative report for hospitals across countries such as Netherlands, Taiwan, and USA. [Wagner *et al.* 2013].

Table 21: Average for Teamwork across hospital units

Statement	RSA	Netherlands	Taiwan	USA
Teamwork across hospital units	58.6 %	28%	56%	57%

The average study findings for this component, 'teamwork across hospital units' (58.6 %), for this study, similar to the study described in the USA (57%) study and the Taiwan study

(56%) and notably higher than the findings described in the Netherlands study (28%). Not much can be learned for ‘teamwork across hospital units’ from the comparing hospitals in this study as all of these items are possible areas of improvements.

5.3.3.2 STAFFING

The percentage positive response as reflected in the results for staffing is recognized as an area for improvement for this study, responses reflect that ‘they use less agency staff than temporary staff that is best for patient care’, in addition ‘their hours of work are appropriate for best care to patient’. By contrast the responses suggest that ‘they do not have enough staff to handle the workload’ and ‘they disagreed that they work in a crisis mode trying to do too much too quickly’. The results for these statements, were compared to the USA study on Hospital Survey on Patient Safety Culture 2014 User Comparative Database that used the AHRQ tool for the survey, [Rockville *et. al* 2014].

Table 22: Staffing

Statement	RSA	USA
We have enough staff to handle the workload.	6.2%	54%
We work in a crisis mode doing too much too quickly	17.7%	50%
We use more agency staff than temporary staff that is best for patient care	75.4%	66%
Staff in this unit work longer hours than is best for patient care	33.1%	52%

The study findings for the statement, ‘we have enough staff to handle the workload’ for this study found (6.2%), which is notably lower level of agreement than described in the US study (54%), for the statement, ‘we use more agency staff than temporary staff that is best for patient care’, this study found (75.4%) which is notably higher than the level of disagreement described in the US study (66%). Similarly for the statement, ‘staff work in a crisis mode doing too much too quickly’ the level of disagreement (17.7%) which is notably lower than level of disagreement described in the US study (50%). In addition for the statement ‘staff in this unit work longer hours than is best for patient care’ this study found the level of disagreement (33.1%) which is notably lower than the level of disagreement described in the US study 52%. The question on staffing is a critical area of improvement for this study as only 6.2% agreed compared to the US study, although they did not agree

that ‘they work in a crisis mode’ and ‘work longer hours than is best for patient care’. Although the findings from the US study were above 50% a certain degree of learning can occur for this study from the US study.

The average findings for items for the component, Staffing (33.1%) found in this study, these results were compared to a 2013 comparative report for hospitals across countries such as Netherlands, Taiwan, and USA. (Wagner *et al.* 2013).

Table 23: Average for Staffing

Statement	RSA	Netherlands	Taiwan	USA
Staffing	33.1%	59.0%	40 %	55%

The average findings for this component, ‘staffing’ for this study (33.1%) notably lower than in comparison to findings in hospitals across countries such as Netherlands study (59.0%) Taiwan study (40.0%) and US 55% study (Wagner *et al.* 2013). The findings for this study on ‘staffing’ is an area for improvement and not much can be learned from the comparison from the countries across continents as staffing seems to be a global problem.

5.3.3.3 NON-PUNITIVE RESPONSE TO ERRORS

The percentage positive response as reflected in the results for ‘non-punitive response to errors’ is recognized as an area for improvement for this study. ‘Staff feel that their mistakes are held against them’ and ‘when an event is reported they are written up and not the problem’, ‘they worry that mistakes they make are kept in their personnel files and will be used in their performance appraisal’. The results for these statements were compared to the USA study on Hospital Survey on Patient Safety Culture 2014 User Comparative Database that used the AHRQ tool for the survey (Rockville *et. al* 2014).

Table 24: Non-punitive response to errors

Statement	RSA	USA
Staff feel that their mistakes are held against them	52.3%	50%
When an event is reported it feels like the person is written up and not the problem	48.5%	48%
Staff worry that mistakes they make are kept in their personnel files and can be used in their performance appraisal,	60.0%	35%

“The study findings for the statement, ‘Staff feel that their mistakes are held against them’ was (52%), which is very close to the findings of the US study (50%). Similarly, for the statement, ‘when an event is reported it feels like the person is written up and not the problem’ this study found (48.5%), similar to the findings described in the US study (48%). By contrast, for the statement, ‘staff worry that mistakes they make are kept in their personnel files and can be used in their performance appraisal’, this study found a notably higher level of agreement (60.0%) than that was described in the US study (35%), (Rockville *et al.* 2014). The similar findings for ‘staff feel that mistakes are held against them’ and ‘when an event is reported they are written up’ with this study and the US study not much can be learned from this comparison as hospitals in both these countries need improvement although the US study findings for ‘mistakes are kept in their personnel files’ the level of agreement was much lower some lessons can be learned from them for this item.

The average findings for items for the component, ‘non-punitive response to errors’ (53.5 %) found in this study, these results were compared to a 2013 comparative report for hospitals across countries such as Netherlands, Taiwan, and USA (Wagner *et al.* 2013).

Table 25: Average for Non-punitive response to errors

Statement	RSA	Netherlands	Taiwan	USA
Non-punitive response to errors	53.6 %	66%	31%	44%

The average findings for this component, ‘non-punitive response to errors’, for this study is (53.6%) notably lower than described in the Netherlands study (66%) by contrast higher than described in the USA study (44%) and the Taiwan study (31%) (Wagner *et al.* 2013). The average findings for this component ‘non-punitive response to errors’ the Netherlands

findings were markedly higher than the other countries an area for improvement in this study, Taiwan, US not much can be learned from this comparison as study findings in both these countries are a possible area of improvement.

5.3.3.4 FREQUENCY OF EVENTS REPORTED

The percentage positive response as reflected in the results for 'frequency of events reported' is recognized as a possible area for improvement for this study. The 'staff agree that they report mistakes when they are identified, corrected before affecting the patient'. 'They report mistakes that could harm the patient' and 'mistakes that do not have the potential to harm the patient'. The results for these statements, were compared to the USA study on Hospital Survey on Patient Safety Culture 2014 User Comparative Database that used the AHRQ tool for the survey, (Rockville *et. al* 2014).

Table 26: Frequency of events reported

Statement	RSA	USA
When a mistake is made, identified and corrected before affecting the patient it is reported,	66.2%	60%
When a mistake is made , that could harm the patient how often is this reported	84.6%	75%.
When a mistake that has no potential to harm the patient, is how often is this reported,,	60.0%	62%

The study findings for the statement, 'when a mistake is made, identified and corrected before affecting the patient is reported' (66.2%), the level of agreement for this study which is close to the findings described in the US study (60%). Similarly for the statement 'when a mistake that has no potential to harm the patient is reported', for this study (60.6%), which is close to the findings described in the US study (62%). By contrast, for the statement, 'when a mistake is made, that could harm the patient is reported', this study found a higher level of agreement (84.6%) than that was described in the US study (75%) (Rockville *et. al* 2014). Although 'when a mistake is made that could harm the patient is reported' is a strongpoint for this study and the US study, the findings for the other items were similar therefore not much can be learned from this comparison.

The average findings for items for the component, ‘non-punitive response to errors’ (70.2 %) found in this study, these results were compared to a 2013 comparative report for hospitals across countries such as Netherlands, Taiwan, and USA. (Wagner *et al.* 2013).

Table 27: Average for Frequency of events reported

Statement	RSA	Netherlands	Taiwan	USA
Frequency of events reported	70.2 %	36%	31%	60%

The average findings for the component , ‘frequency of events reported’, (70.2 %) the level of agreement was higher than described in the USA study (60%), by contrast notably higher than the level of agreement described in the Netherlands study (36%) Taiwan study (31%). In view of the results above the average for ‘frequency of events reported’ in this study (70.2%) which is notably higher level of agreement. Although by contrast to (55.4%) did not report any events over a period of 12 months. All of the study findings require improvement not much can be learned from this comparison.

5.3.3.5 HOSPITAL MANAGEMENT SUPPORT FOR PATIENT SAFETY

The percentage positive response as reflected in the results for ‘hospital management support for patient safety’ is recognized as a possible area for improvement for this study, ‘staff agreed that hospital management provides a work climate that promotes patient safety’ and the ‘actions of hospital management show that patient safety is a top priority’ although ‘hospital management seems interested in patient safety only after an adverse event occurs’. The results for the statements, were compared to the USA study on Hospital Survey on Patient Safety Culture 2014 User Comparative Database that used the AHRQ tool for the survey (Rockville *et. al* 2014).

Table 28: Hospital management support for patient safety

Statement	RSA	USA
Hospital management provides a work climate that promotes patient safety,	52.3%	81%
The actions of hospital management show that patient safety is a top priority	65.4%	75%.
Hospital management seems interested in patient safety only after an adverse event happens	56.2%	61%

The study findings for the statement, 'that hospital management provides a work climate that promotes patient safety', (52.3%), for this study which is notably lower than the level of agreement described in the findings of the US study (81%). Similarly, for the statement, 'hospital management seems interested in patient safety only after an adverse event happens' in this study (56.2%) close to the level of agreement as described in the US study (61%). In addition for the statement, 'the actions of hospital management show that patient safety is a top priority', (65.4%) in this study which is lower than the findings described in the US study (75%). The item level findings for this study was much lower than the US study an area of improvement for this study although lessons can be learned from the US hospitals on items 'hospital management provides a work climate that promotes patient safety and their actions show that patient safety is top priority'.

The average findings for items for the component, 'hospital management support for patient safety' (57.9%), these results were compared to a 2013 comparative report for hospitals across countries such as Netherlands, Taiwan, and USA (Wagner *et al.* 2013).

Table 29: Average for Hospital management support for patient safety

Statement	RSA	Netherlands	Taiwan	USA
Hospital management support for patient safety	57.9%	31%	60 %	70 %

The average study findings for the component, 'hospital management support for patient safety', (57.9%) for this study which was close to the level of agreement described in the Taiwan study (60 %), which is notably higher level of agreement described in Netherlands study (31%) . By contrast for this component for this study the level of agreement was

notably lower than findings described in the USA (70 %), lessons can be learned from the US hospitals not much can be learned from Taiwan and Netherlands hospitals as this is an area for possible improvement for these countries.

5.3.3.6 HANDOVER AND TRANSFER OF INFORMATION BETWEEN HOSPITAL UNITS

The percentage positive response as reflected in the results for the component 'handover and transfer of information between hospital units' is recognized as a possible area of strength for this study, as a lower percentage of positive responses were received for statements 'shift changes become a problem for patients in the hospital' and 'important patient safety information is often lost during shift changes' 'problems are often occur in the exchange of information across hospital units'. 'Things "fall between the cracks" when transferring patients from one unit to another disagreed'. The results for the statements below, were compared to the USA study on Hospital Survey on Patient Safety Culture 2014 User Comparative Database that used the AHRQ tool for the survey (Rockville *et al.* 2014).

Table 30: Handover and transfer of information between hospital units

Statement	RSA	USA
Shift changes become a problem for patients in the hospital	64.6.0%	47%
Problems often occur in the exchange of information across hospital units.	53.1%	46%
Important patient safety information is often lost during shift changes	68.5%	53%
Things "fall between the cracks" when transferring patients from one unit to another	49.2%	43%

The study findings for the statement, 'shift changes become a problem for patients in the hospital', (64.6.0%) found in this study which is notably higher level of disagreement than was described in the US study (47%). Similarly, for the statement, 'important patient safety information is often lost during shift changes' (68.5%) found in this study which is notably higher level of disagreement than was described in the US study (53%), in addition, for the statement , 'problems often occur in the exchange of information across hospital units' (53.1%) found in this study which is notably higher level of disagreement than was

described in the US study (46%), similarly for the statement, ‘things “fall between the cracks when transferring patients from one unit to another’ (49.2%) found in this study which is higher level of disagreement than was described in the US study (43.1 %). These comparisons showed higher levels of disagreement than the US study which may seem as an area of strength although the statement ‘things fall between the cracks when transferring patients’ almost half of the respondents agreed and disagreed can be seen as an area of improvement in this study and all the items in the US study, not much lessons can be learned from these comparison.

The average findings for items for the component, ‘handover and transfer of information between hospital units’ (58.8%), these results were compared to a 2013 comparative report for hospitals across countries such as Netherlands, Taiwan, and USA. [Wagner *et al.* 2013].

Table 31: Average for Handover and transfer of information between hospital units

Statement	RSA	Netherlands	Taiwan	USA
Handover and transfer of information between hospital units	58.8%	42 %	43%,	44%

The average study findings for the component, ‘handover and transfer of information between hospital units’, the level of agreement was 58.8% which was notably higher than the level of agreement described for hospitals across countries Netherlands study (42 %) Taiwan study (43 %), USA study (44%). The average study findings is an area for improvement for this study as well as the countries across continents, not much lessons can be learned from this comparison.

5.3.3.7 OVERALL PERCEPTIONS OF HOSPITAL

The percentage positive response as reflected in the results for ‘overall perceptions of Hospital’ is recognized as a possible area for improvement for this study, More staff disagreed that ‘it is just by chance that more mistakes don’t happen here’ and that, ‘patient safety is never sacrificed to get more work done’, although almost the same percentage agreed and disagreed that ‘they have patient safety problems in this unit’. ‘Their procedures and systems are effective at preventing errors from happening’. The results for the statements below, were compared to the USA study on Hospital Survey on Patient

Safety Culture 2014 User Comparative Database that used the AHRQ tool for the survey, (Rockville *et. al* 2014)

Table 32: Overall perceptions of Hospital

Statement	RSA	USA
It is just by chance that more mistakes don't happen here	50.8%	62%
Patient safety is never sacrificed to get more work done,	56.9%	64%.
We have patient safety problems in this unit	47.7%	65%
Our procedures and systems are effective at preventing errors from happening.	72.3%	73%

The study findings for the statement, 'it is just by chance that more mistakes don't happen here' (50.8%) found in this study, which is lower level of disagreement than the findings described in the US study (62%). Similarly, for the statement. 'we have patient safety problems in this unit' (47.7%) found in this study which is notably lower level of disagreement than the findings described in the US study (65%). By contrast for the statement 'patient safety is never sacrificed to get more work done', (56.9%) found in this study which is notably a lower level of agreement than the findings described in the US study (65%). In addition for the statement, 'our procedures and systems are effective at preventing errors from happening', and (72.3%) level of agreement found in this study very similar to the findings described in the US study (73%). The items above suggests that the findings are similar in the levels of agreement and disagreement except that in this study (47.7%) felt that there are patient safety problems lower than the US, which is an area of improvement for this study lessons can be learnt for this item although not much lessons can be learned from the rest of the items from the US hospitals.

The average findings for items for the component, 'overall perceptions of Hospital (56.9%) these results were compared to a 2013 comparative report for hospitals across countries such as Netherlands, Taiwan, and USA (Wagner *et al.* 2013).

Table 33: Average for Overall perceptions of Hospital

Statement	RSA	Netherlands	Taiwan	USA
Overall perceptions of Hospital	56.9%	49%	52,	64%

The average study findings for the component, 'overall perceptions of hospital' (56.9%) found in this study which is very close to the findings of the hospitals across countries described in the Taiwan study (52 %), lower level of agreement than described in the USA study (64%) higher than described in the Netherlands study (49%) (Wagner *et al.* 2013). Similar findings for this study and for Taiwan and countries across continent therefore an area for improvement for this study and hospitals across continents.

5.3.3.8 OVERALL PATIENT SAFETY GRADE

The 'overall patient safety grade' was (41.7%), no comparisons found for this study for patient safety grade, by contrast the 'overall perceptions of hospital' for this study is notably higher (56.9%). This is an area for improvement in this study.

5.3.3.9 NUMBER OF EVENTS REPORTED

'Frequency of events reported' is an area for improvement in this study which findings are similar to the (55.4%) did not report any events over a period of 12 months. 'Non punitive response to errors where staff felt that the events are used against them in their performance appraisal' can impact on events reporting.

5.4 COMMENTS ABOUT PATIENT SAFETY, ERROR, OR EVENT REPORTING IN YOUR HOSPITAL.

This section on comments gave the respondent an opportunity to give open ended responses to patient safety, comments were captured against the code of each respondent on an excel spreadsheet. Common themes emerged such as shortage of staff, shortage of equipment.

5.4.1 STAFF SHORTAGES

Some respondents felt that 'shortage of staff leads to increased workloads, burnout, increased absenteeism, patient safety is likely to be compromised, and mistakes can be made due to fatigue' and 'when incidents occur staff are pressurized to write statements and this is due to shortage of staff'. They felt that 'hospital management should provide more experienced and skilled staff, to render good quality patient care'. Further 'the

capacity of the ward is increases with no increase of staff, it is not possible to give the best possible care when there are 3 staff to 28 patients'. In the face of these challenges 'patient safety is prioritized despite staff shortages' and they 'try their best to give quality patient care by ensuring patient safety". The declining workforce of nurses is a global problem and a tendency that occurs in most developing countries such as South Africa either they are seeking more opportunities elsewhere or there is an increase in diseases which adds to the load of the nurses. The nurse patient ratios are calculated according to the acuity levels of the patients which is more defined in the private sector in South Africa than the public sector. It is vital that the nurse–patient ratio is measured to prevent the increased workload and improve quality of care and job satisfaction (Joubert 2009).

5.4.2 LACK OF EQUIPMENT

Some respondents felt that 'patient safety is not a priority for hospital management because of important patient safety equipment is lacking such as cot beds, cribs, stretchers cot rails, trolleys and call bells, or the equipment is faulty such as cot beds, which has faulty brakes, faulty side rails, transferring stretcher trolley, has faulty brakes, they felt that these equipment should be condemned and replaced'. A precondition to patient safety is safety equipment.

5.5 CONCLUSION

`The study findings from a developing country such as South Africa was compared to the study findings from a developed countries such as the USA and countries in transition such as Netherlands and Taiwan, bearing in mind the precincts that face a developing country the following highlights emerged from the comparison 'teamwork within units' was identified as an area of strength for this study, USA study and for hospitals across countries. 'Learning in the organisation and continuous improvement' identified as a strength for this study, USA study and Taiwan by contrast an area of improvement for The Netherlands study. 'Communication openness and feedback' was identified as area of strength for this study although higher level of agreement than the US studies an area for improvement in the Netherland study and Taiwan study. 'Supervisors and managers actions promoting patient safety' was identified as an area of strength for this study, as

well as USA study, the level of agreement higher than the Netherlands study and Taiwan study.

‘Teamwork across hospital units’ was identified as an area of improvement for this study as well as for The USA study, the Netherlands study and Taiwan. ‘Staffing’ was identified as an area of improvement for this study although there was a much lower level of agreement in comparison to The USA study, the Netherlands study and Taiwan study. The responses under comments for this study reinforces the results obtained in this study for the question ‘we have enough staff to handle the workload’. ‘Non-punitive response to errors’ as an area of improvement for this study the Netherlands study and Taiwan study. ‘Frequency of events reported’ is as an area of improvement for this study the Netherlands study and Taiwan study, by contrast the level of agreement was much higher for this in comparison to The USA study, the Netherlands study and Taiwan although in this more than half the respondents did not report any incidents in a period of 12 months. ‘Hospital management support for patient safety’ as an area of improvement for this study, The USA, The Netherlands study and Taiwan study, ‘Handover and transfer of information between hospital units’ as an area of improvement for this study, The USA, the Netherlands study and Taiwan study, ‘Overall perceptions of Hospital’ as an area of improvement for this study, The USA, the Netherlands study and Taiwan study. For this study majority of respondents gave their unit an acceptable for ‘patient safety grade’ in their unit this is an area of improvement for this study. In view of all these findings. The researcher is aware of the limitation of comparing the data of a single hospital in Kwazulu – Natal locally to that of international hospitals it is of interest to make such comparisons.

“Care coordination is under the control of leaders and managers who have to make the structural changes and gain the trust of the staff when organizational structure factors support the care process and enable teamwork, nurses are more satisfied with their jobs and patients receive a higher quality of care” (Hughes 2008:5).

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

In this study the researcher aimed to evaluate the culture of patient safety and the factors that contribute and influence patient safety in a public hospital by using a predesigned questionnaire by The Agency For Healthcare Research and quality, and in so doing was able to compare the results of data derived from hospitals in Europe and the United States to that of a hospital on the African Continent. This study delved into existing patient safety cultures in the organization and included responses from healthcare workers and revealed existing good patient safety cultures nested within the units. The results of the study has been presented in Chapter 4 and their relationship to international data has been discussed in Chapter 5

6.2 CONCLUSIONS

6.2.1 The Objectives of the study

The first objective of the study was to establish the current status of the culture of patient safety in a public hospital in KwaZulu-Nata. The strong points of patient safety culture that exists in this environment at unit level, they work as a team, they respect each other and they cooperate with each other. In this environment there is learning and continuous improvement as they actively try to improve patient safety and mistakes have led to positive changes and changes are evaluated for their effectiveness. This positive safety culture environment exists because supervisors praise them when a job is done well and they consider staff suggestions for improvements in patient safety .When workload increases they are supported by their supervisors and not expected to work faster and take shortcuts, and supervisors pay attention to patient safety problems in their units. This positive environment exists because feedback is given about events, and errors that happen in the unit and changes put in place and they feel free to speak freely if they see something that may negatively affect patient safety. Although in this environment just more than half the respondents will question those in authority. In this environment mistakes that

could harm a patient are taken seriously and reported and mistakes that are identified and corrected and mistakes that have the potential to harm a patient are reported by contrast in this environment more than half of the respondents reported no events over a period of 12months.

In this environment at hospital level, 'for teamwork across units' more than half the units 'do not coordinate well with each although they cooperate with each other' and more 'units find it pleasant to work with each other and provide best and safe care to patients'. In this environment 'they work in a crisis mode trying to cope with the workload because the staff patient ratio is inadequate', and 'they work long hours which has an impact on patient safety despite staff shortages they do not use agency or temporary staff'. Notwithstanding the challenges of the 'staffing' norm 'they do not sacrifice patient safety instead they work as a team to get more work done'. In this environment 'staff feel mistakes are held against them and when an event is reported they are written up and not the problem and incident reports are kept in their personnel files and used against them in their performance appraisal'. This 'non -punitive environment where blaming and shaming' exists is perhaps the reason more than half the respondents did not 'report any event over a period of 12 months'. In this hospital environment, 'hospital management support and create an environment that promotes patient safety', and 'they consider patient safety as top priority' although the perception exists 'that management shows interest in patient safety only after an adverse event happens'. In this hospital environment more 'staff perceive that things do not fall between the cracks when transferring patients from one unit to another more staff perceive that no problems are experienced on handover of information from one unit to another and shift changes are not a problem for patients in the hospital'. In this environment 'the supervisor praises staff when a job is done well and listens to their suggestions, regarding patient safety and when work pressure increases does not expect them to work faster or take shortcuts, and overlook patient safety problems'.

In this environment staff emphatically agreed that there is a 'shortage of staff to handle the workload, and they work in a crisis mode doing too much too quickly and they work longer hours than is best for patient care, although they use less agency and temporary staff than is best for patient care'. The environment the staff worked in was 'graded as acceptable' and in this environment 'they do not sacrifice patient safety to get more work done and it is not by chance that more mistakes do not occur because they have effective procedures and systems to prevent errors'.

The second objective was to evaluate nurses' and doctors' responses to the culture of patient safety and to explore teamwork and leadership support towards patient safety. The majority of the sample consisted of nurses, of all categories, and from the results majority of respondents were registered nurses. By contrast, the sample size of doctors was smaller. This may be seen to be a possible limitation of the study.

Leadership support at unit level was identified as an area of strength, in which 'supervisors considered staff suggestions and said a good word when a job was done well, teamwork was supported, and communication and feedback were strengthened, although the responses nevertheless indicated that hospital management support was an area for improvement, where hospital management appeared to be interested in patient safety only after an adverse event occurs'.

The third objective was to explore the effectiveness of 'communication and teamwork' within units in terms of the culture of patient safety. 'Communication and feedback' was identified as a possible strength within the unit as previously discussed and a predictor of a strong positive culture although 'communication openness' required improvement that 'staff were not so free to question authority except that they will speak freely if they see something that may negatively affect patient safety'. 'Teamwork within the units' was identified as an area of strength as discussed previously in chapter 5.

In light of these findings, the researcher sought to answer the question of whether, and by what means, a safety culture can be inculcated into organizational cultures, in order to ensure the commitment to safety and a just culture of no blame-no shame. Arriving at this answer can be complex. The results of this study, in the researcher's view, are closely aligned to the model of error reduction used in this study. As is described in the model, the path towards 'error reduction is complex and circular in its course'. At the outset the model describes the 'blunt end' of leadership support, which allows for a good patient safety culture to exist, encourages 'bidirectional communication' at every level, and sets good 'healthcare systems, policies and procedures' and reporting of incidents, and creates an environment of 'non-punitive response to errors' especially differentiating between 'acceptable and unacceptable' behavior. The critical importance of all these factors was identified within this study and discussed in previous chapters. At the 'sharp end', the model describes 'safe transactions by clinician's, such as medication prescription and administration, and setting a system of mindfulness and being alert at each level' as active

means of ensuring patient safety. Similarly, this study found mindfulness and attention to detail to be critical components of safe patient handling and management. It can be argued that in the systemic mindfulness model communication should flow “bidirectional” that the leaders “blunt end” need to support the “sharp end” nurses. Adequate staffing budgeting for purchasing of equipment and policy formulation lies in the hands of leaders, although the respondent felt that supervisors and hospital management supported patient safety, some respondents felt that hospital management supports patient safety only if an error occurs. Responses also show that a culture of blaming and shaming exists which further compromises communication and transparency which leads to reduction in the events reported. In addition nurses to make certain of safety in administration of medication, effective patients risk assessments, appropriate monitoring and observations, evaluations to reduce the risk to patient safety.

Doctors to ensure safe medication prescriptions and pharmacists to ensure safety in medication dispensing. The pathway to patient safety begins with effective leadership a safe culture and good healthcare systems.

According to the Donabedian Framework organisational structures need to support the delivery of care for high quality patient outcomes (Hughes 2008). From the observations of the respondents, the lack and the shortage of skilled staff impacts on the quality of care and in addition faulty equipment and the lack of equipment also compromises the quality of care and places the patients at risk of being safe. Despite these difficulties teamwork, supervisor support, and continuous learning could have contributed to patient safety although this is not conclusive as the number of events reported was an area for improvement in this study in addition non – punitive response as an area for improvement can be a contributory cause to the poor events reporting. That when the structures are not in place the process is difficult and the outcomes are ineffective. Shortage of staff, faulty equipment contributes to poor quality of care delivery which increase the risk to the patient.

6.2.2 LIMITATIONS FOR THIS RESEARCH

The results and analysis of this study should be measured within its precincts by the following:

6.2.2.1 The study was ‘restricted to’ specific units and these findings are therefore

not necessarily a reflection of the responses of the total population of the hospital.

6.2.2.2 The doctor's responses to patient safety could be skewed 'as a result of the small sample size'

6.2.2.3 The response rate may have been adversely affected by restriction of access of the safety box to the PRO's office. The responses of night-duty staff, in particular, may be under-represented in consequence.

6.3 RECOMMENDATIONS FOR FUTURE RESEARCH

The researcher recommends that future research into patient safety within the South African hospital context take cognizance of the following observations arising from the implementation of this study:

6.3.2.1. Further research on patient safety ought to be undertaken across hospitals with a bigger sample size, which ought, also, to include more doctors and pharmacists.

6.3.2.2. The researcher would suggest that in future patient safety research, the broadest range of units should be researched in a hospital, rather than a few hand-selected units.

6.3.2.3 Within respective units it is further recommended that all categories of staff, including orderlies, provide basic nursing care, clean environment, and porters duties, should be included in the sample to ensure sufficient scope of issues

6.3.2.4 In addition more directed research should be undertaken to investigate those elements of patient safety having highest incidence rates, with a view to identifying root cause analysis, such as mortality rates in the maternity units, medication incidents and hospital acquired infection rates.

This study provides a preliminary insight into current practices within a South African context. The researcher recommends that the study be viewed as a springboard for future research within the area of patient safety, as a means of sustaining identified good practice

and developing and adopting new practices in the interest of increased patient safety within hospital contexts.'

The study opened a window to look into patient safety in a public hospital setting. Although the findings within this study may not be considered to be conclusive, it is the researcher's sincere wish that this study may serve as a springboard to future research, as a means of sustaining best practices and developing and adopting new practices in the interest of patient safety. It is hoped that the shared journey of patient safety is a trusted one both for patients and healthcare workers, and that healthcare workers, through research, may become critical thinkers and careful clinicians.

"A pebble, patient safety, was thrown into the pond of healthcare decades ago by Greek philosophers, the Western world, and Florence Nightingale, creating a rippling effect globally, and in its concentric circles lie learning from others, continuous improvement, safe practitioners, safe patients. And the ripple continues and the circles become bigger."

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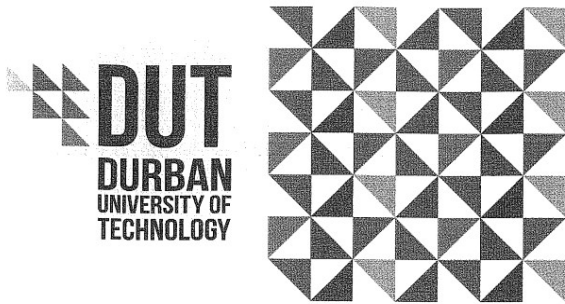
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APPENDIX A



Institutional Research Ethics Committee
Faculty of Health Sciences
Room MS 49, Mansfield School Site
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P O Box 1334, Durban, South Africa, 4001

Tel: 031 373 2900
Fax: 031 373 2407
Email: lavishad@dut.ac.za
http://www.dut.ac.za/research/institutional_research_ethics

www.dut.ac.za

23 October 2013

IREC Reference Number: REC 59/13

Mrs V Govender
1 Arbenhome Crescent
Arena Park
Chatsworth
Durban

Dear Mrs Govender

An evaluation of patient safety culture as a critical element of healthcare in a public hospital in Durban, KwaZulu Natal

I am pleased to inform you that Full Approval has been granted to your proposal REC 59/13.

The Proposal has been allocated the following Ethical Clearance number IREC 085/13. Please use this number in all communication with this office.

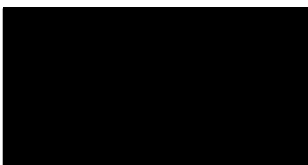
Approval has been granted for a period of one year, before the expiry of which you are required to apply for safety monitoring and annual recertification. Please use the Safety Monitoring and Annual Recertification Report form which can be found in the Standard Operating Procedures [SOP's] of the IREC. This form must be submitted to the IREC at least 3 months before the ethics approval for the study expires.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the IREC according to the IREC SOP's. In addition, you will be responsible to ensure gatekeeper permission.

Please note that any deviations from the approved proposal require the approval of the IREC as outlined in the IREC SOP's.

Please note that you may continue with validity testing and piloting of the questionnaire. Research on the proposed project may not proceed until IREC reviews and approves the final questionnaire. If there are no changes to the questionnaire kindly notify IREC in writing.

Yours Sincerely



Prof J K Adam
Chairperson: IREC

APPENDIX B



health

Department:
Health
PROVINCE OF KWAZULU-NATAL

Health Research & Knowledge Management sub-component

10 – 103 Natalia Building, 330 Langalibalele Street
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Fax.: 033 – 394 3782

Email.: hrkm@kznhealth.gov.za
www.kznhealth.gov.za

Reference : HRKM328 /13

Enquiries: Mrs G Khumalo

Telephone : 033 – 395 3189

11 December 2013

Dear Ms V Govender

Subject: Approval of a Research Proposal

1. The research proposal titled '**An evaluation of patient safety culture as a critical element of healthcare in a public hospital in Durban, KwaZulu-Natal**' was reviewed by the KwaZulu-Natal Department of Health.

The proposal is hereby **approved** for research to be undertaken at **Mahatma Gandhi Hospital**.

2. You are requested to take note of the following:
 - a. Make the necessary arrangement with the identified facility before commencing with your research project.
 - b. Provide an interim progress report and final report (electronic and hard copies) when your research is complete.
3. Your final report must be posted to **HEALTH RESEARCH AND KNOWLEDGE MANAGEMENT, 10-102, PRIVATE BAG X9051, PIETERMARITZBURG, 3200** and e-mail an electronic copy to hrkm@kznhealth.gov.za

For any additional information please contact Mrs G Khumalo on 033-395 3189.

Yours Sincerely

Dr. E Lutge

Chairperson, KwaZulu-Natal Health Research Committee

Date: 19/12/2013

APPENDIX C



health

Department:
Health
PROVINCE OF KWAZULU-NATAL

Postal Address: Private Bag X54318 Durban 4000
ss: 83 Jan Smuts Highway, Mayville, Durban 4001
Tel. 031 2405308: Fax. 031 2405500
Email. nan.hoosain@kznhealth.gov.za
www.kznhealth.gov.za

Enquiries: Ms Jabu Hlazo
Tel: 031 240 5303
Date: 5 December 2013

Attention: Mrs. V. Govender

E-mail : gonum@dut.ac.za

REQUEST TO CONDUCT RESEARCH:

"An evaluation of patient safety culture as a critical element of healthcare in a public hospital in Durban, KwaZulu-Natal."

Support is hereby granted to conduct research on the above topic.

Please note the following:

1. Please ensure that you adhere to all the policies, procedures, protocols and guidelines of the Department of Health with regard to this research.
2. This research will only commence once this office has received confirmation from the Provincial Health Research Committee in the KZN Department of Health.
3. Please ensure that this office is informed before you commence your research.
4. The District Office will not provide any resources for this research.
5. You will be expected to provide feedback on your findings to the District Office.



For The District Manager
EThekweni Health District
Telephone: 031 2405303
Fax: 031 2405500
Email: jabulisiwe.hlazo@kznhealth.gov.za

uMnyango Wezempilo . Departement van Gesondheid

Fighting Disease, Fighting Poverty, Giving Hope

APPENDIX D



health

Department:
Health

PROVINCE OF KWAZULU-NATAL

MAHATMA GANDHI MEMORIAL HOSPITAL

Postal Address: Private Bag X 13, Mount Edgecombe, 4300

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Email: nancy.bridgemohun@kznhealth.gov.za

www.kznhealth.gov.za

Enquiries: Dr. C. Persad

Telephone: 031 502 1719 Ext 2012

10 January 2014

**MRS V. GOVENDER
CLINICAL INSTRUCTOR
NURSING DEPARTMENT
DURBAN UNIVERSITY OF TECHNOLOGY**

**RE: PERMISSION TO CONDUCT RESEARCH: AN EVALUATION OF PATIENT SAFETY
CULTURES AS A CRITICAL ELEMENT IF HEALTHCARE IN A PUBLIC HOSPITAL IN
DURBAN KWAZULU NATAL**

I wish to inform you that permission is hereby granted for you to conduct the above mentioned research at Mahatma Gandhi Memorial Hospital provided:

1. Ethics approval is submitted
2. Authority is obtained from the Department of Health: Kwazulu-Natal

Kindly forward the above documents to my office. You may not commence your study until these documents have been forwarded.

Yours faithfully,

[Redacted Signature]

**DR. C. PERSAD
CLINICAL MANAGER
MAHATMA GANDHI MEMORIAL HOSPITAL**

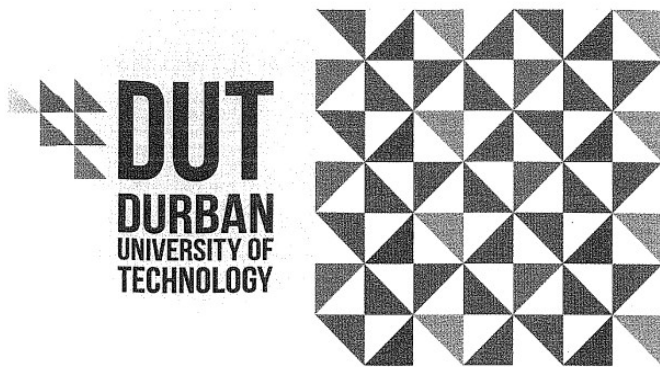
TO PHARMACY:

THE ABOVE DOCUMENTS WAS RECEIVED
FROM MRS GOVENDER.

[Redacted Signature]

7/08/2014

APPENDIX E



Institutional Research Ethics Committee

Faculty of Health Sciences
Room MS 49, Mansfield School Site
Gate 8, Ritson Campus
Durban University of Technology

P O Box 1334, Durban, South Africa, 4001

Tel: 031 373 2900

Fax: 031 373 2407

Email: lavishad@dut.ac.za

http://www.dut.ac.za/research/institutional_research_ethics

www.dut.ac.za

6 October 2014

Mrs V Govender
1 Arbenhome Crescent
Arena Park
Chatsworth
Durban

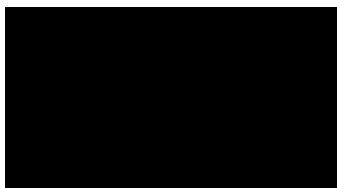
Dear Mrs Govender

Application for Amendment of Approved Research Proposal

An Evaluation of the culture of patient safety as a critical element of Healthcare in a public hospital in Durban, KwaZulu-Natal

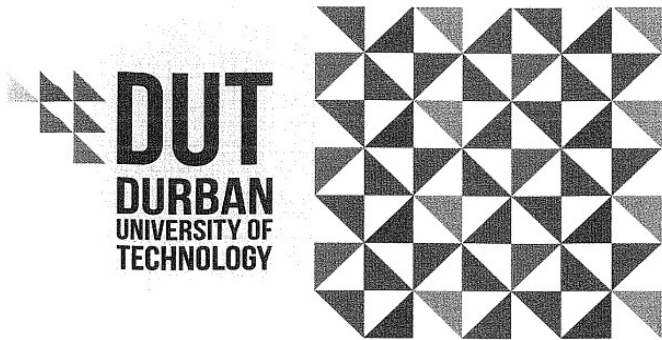
I am pleased to inform you that your application for amendment to the title and study setting of your research proposal have been Approved.

Yours Sincerely



Prof J K Adam
Chairperson: IREC

APPENDIX F



Institutional Research Ethics Committee

Faculty of Health Sciences
Room MS 49, Mansfield School Site
Gate 8, Ritson Campus
Durban University of Technology

P O Box 1334, Durban, South Africa, 4001

Tel: 031 373 2900

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http://www.dut.ac.za/research/institutional_research_ethics

www.dut.ac.za

26 May 2014

IREC Reference Number: **REC 59/13**

Mrs V Govender
1 Arbenhome Crescent
Arena Park
Chatsworth
Durban

Dear Mrs Govender

An evaluation of patient safety culture as a critical element of healthcare in a public hospital in Durban, KwaZulu-Natal

The Institutional Research Ethics Committee acknowledges receipt of your notification regarding the piloting of your data collection tool.

Please note that you may now proceed with research on the proposed project.

Yours Sincerely



Prof J K Adam
Chairperson: IREC

APPENDIX G



LETTER OF INFORMATION

Dear Participant

My name is Mrs.Vathanayagie Govender (Gonum) I am a student at Durban University of Technology undertaking research studies under the supervision of Dr Ashley Hilton Adrian Ross. My research project is entitled. "An evaluation of the culture of patient safety as a critical element of healthcare in a public hospital in Durban Kwazulu – Natal ". The study has received full approval from the ethics committee of Durban University of Technology. Consent has been obtained from the CEO of the hospital, and the Department of Health to undertake the study.

The purpose of the study is to evaluate the culture of patient safety in your hospital. Patient safety has been prioritized by the National Consultation on Quality of Health Services in South Africa and is one of the core standards for improvement. It is our hope that the study will assist in identifying best practices that exist and assist in patient safety improvements if required. There are no identified risks to you if you participate in the study. Your participation will be completely voluntary, should you decide not to participate in the study or if you are ill you may withdraw, there will be no bias or consequence to yourself. You can also be asked to withdraw from the study if the rules have not been adhered to. You will receive no compensation for participating in the study. There will be no costs to you.

The researcher will be able to write publications that can be beneficial in improving patient safety.

If you consent to participate in the study you will be given a research questionnaire that has been prepared by The Agency for Healthcare Research and Quality. The questionnaire has been used for patient safety research in a number of hospitals nationally and internationally. The questionnaire will take 15 minutes to complete. The completed questionnaire can be deposited by you in a safe box that will be placed at the offices of the Public Relations Officer . The key to the box will be kept by the researcher. The questionnaire will have a code and will be anonymous it will not be linked to you all information will be confidential.

The results of the research will be discussed at a quality assurance meeting at the end of the study. The data collected from this research will be kept under lock for 15 years and thereafter the documents will be shredded according to the policy of The Durban University of Technology.

If you require further information regarding the research or the results of the study you can contact the researcher whose details are listed below.

If you wish further information regarding your rights as a research participant, or any complaints you may have regarding the research please contact the following

The Institutional Research Ethics administrator on 031 373 2900. Complaints can be reported to the DVC: TIP, Prof F. Otieno on 031 373 2382 or dvctip@dut.ac.za.

Persons to Contact in the Event of Any Problems or Queries:

Dr Ashley Hilton Adrian Ross (Supervisor)	Tel No	0313732542 (W)
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Mrs Vathanayagie Go vender (Researcher)	Tel No	0782860905
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CONSENT

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, _____ (name of researcher), about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: _____,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, and age, will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

Full Name of Participant Date Time Signature / Right Thumbprint

I, _____ (name of researcher) herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Full Name of Researcher Date Signature

Full Name of Witness (If applicable) Date Signature

Full Name of Legal Guardian (If applicable) Date Signature

APPENDIX H

Hospital Questionnaire on Patient Safety

Instructions

This questionnaire asks for your opinions about patient safety issues, medical error, and event reporting in your hospital and will take about 10 to 15 minutes to complete.

If you do not wish to answer a question, or if a question does not apply to you, you may leave your answer blank.

An “ **event** “ is defined as any type of error , or mistake or incident or deviation regardless of whether or not it results in harm

Patient safety is defined as the avoidance and prevention of patient injuries or adverse events resulting from the processes of healthcare delivery

The information below will help in the analysis of the survey results.

Tick the appropriate box

Section A:	Biographical Details
1. Male	<input type="checkbox"/>
2. Female	<input type="checkbox"/>
3. Age in years	<input type="checkbox"/>

Section A: cont.	4.) What is your staff position in this hospital? Select ONE answer that best describes your staff position.
1. Registered Nurse <input type="checkbox"/>	5 .Doctor <input type="checkbox"/>
2. Enrolled Nurse <input type="checkbox"/>	6. Administration <input type="checkbox"/>
3. Enrolled Nursing Assistant <input type="checkbox"/>	7. Management <input type="checkbox"/>
4. Care Giver <input type="checkbox"/>	8. Pharmacist <input type="checkbox"/>
5.) How long have you worked in this hospital?	
1. Less than 1 year <input type="checkbox"/>	2. 11 to 15 years <input type="checkbox"/>
2. 1 to 5 years <input type="checkbox"/>	4. 16 to 20 years <input type="checkbox"/>
3. 6 to 10 years <input type="checkbox"/>	6. 21 years or more <input type="checkbox"/>

Section cont.	A:	6). Typically, how many hours per week do you work in this hospital?	
1. Less than 20 hours per week <input type="checkbox"/> 2. 20 to 29 hours per week <input type="checkbox"/>		3. 30 to 39 hours per week <input type="checkbox"/> 4. 40 to 49 hours per week <input type="checkbox"/>	
7). In your staff position, do you typically have direct interaction or contact with patients?			
1. YES, I typically have direct interaction or contact with patients.		<input type="checkbox"/>	
2. NO, I typically do NOT have direct interaction or contact with patients.		<input type="checkbox"/>	

Section B:	In this questionnaire think of your “unit” as the work area, department, or clinical area of the hospital where you spend most of your work time or provide most of your clinical services				
Your work area/Unit					
1). What is your primary work area or unit in this hospital? Select ONE answer.					
1. Many different hospital unit	<input type="checkbox"/>	4. Surgical	<input type="checkbox"/>		
2. Medical Male	<input type="checkbox"/>	5. Pharmacy	<input type="checkbox"/>		
3. Medical Female	<input type="checkbox"/>	6. Other units	<input type="checkbox"/>		
Please indicate your agreement or disagreement with the following statements about your work area/unit. Think about your hospital work area/unit					
Tick the appropriate column	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
2). People co-operate with one another in this unit	1	2	3	4	5
3). We have enough staff to handle the workload.	1	2	3	4	5
4). When a lot of work needs to be done quickly, we work together as a team to get the work done.	1	2	3	4	5
5). Staff in this unit work longer hours than is best for patient care	1	2	3	4	5

6). In this unit, people treat each other with respect		1	2	3	4	5
Section B: Your work area/Unit	Please indicate your agreement or disagreement with the following statements about your work area/unit. Think about your hospital work area/unit					
Tick the appropriate column	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	
7). We work in "crisis mode" trying to do too much, too quickly	1	2	3	4	5	
8). We use more agency/temporary staff than is best for patient care	1	2	3	4	5	
9). Patient safety is never sacrificed to get more work done	1	2	3	4	5	
10). We have patient safety problems in this unit	1	2	3	4	5	
11). Our procedures and systems are effective at preventing errors from happening.	1	2	3	4	5	
12). After we make changes to improve patient safety we evaluate the effectiveness	1	2	3	4	5	
13). Think about your hospital work area/unit. We are actively trying to improve patient safety.	1	2	3	4	5	
14). Staff feel that their mistakes are held against them.	1	2	3	4	5	
15). Mistakes have led to positive changes in this unit.	1	2	3	4	5	
16). It is just by chance that more mistakes don't happen here.	1	2	3	4	5	
17). When an event is reported it feels like the person is written up and not the problem	1	2	3	4	5	

18.) Staff worry that mistakes they make are kept in their personnel files and can be used in their performance management.	1	2	3	4	5
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Section C: Your Supervisor/Manager	Please indicate your agreement or disagreement with the following statements about your immediate supervisor/manager or person to whom you directly report.				
Tick the appropriate column	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1). Your supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures.	1	2	3	4	5
2). My supervisor/manager seriously considers staff suggestions for improving patient safety.	1	2	3	4	5
3).Whenever pressure builds up; my supervisor/manager wants us to work faster, even if it means taking shortcuts.	1	2	3	4	5
4).My supervisor/manager overlooks patient safety problems that happen over and over	1	2	3	4	5

SECTION D Communications	Reflect on your hospital work area/unit with regards to safety incidents.				
Tick the appropriate column	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1). We are given feedback about changes put into place based on event and reports.	1	2	3	4	5
2). Staff will freely speak up if they see something that may negatively affect patient safety.....	1	2	3	4	5
3). We are informed about errors that happen in the unit.	1	2	3	4	5
4). Staff feels free to question the decisions or actions of those with more authority.	1	2	3	4	5

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SECTION E Frequency of Events Reported	In your hospital work area/unit, when the following mistakes happen, how often are they reported ?				
Tick the appropriate column	<u>Never</u>	<u>Rarely</u>	<u>Sometimes</u>	<u>Most of the time</u>	<u>Always</u>
1). When a mistake is made, identified and corrected before affecting the patient how often is this reported?	1	2	3	4	5
2). When a mistake is made, that could harm the patient how often is this reported	1	2	3	4	5
3). When a mistake is made but has no potential to harm the patient, how often, is this reported?	1	2	3	4	5

SECTION F Your Hospital	Please indicate your agreement or disagreement with the following statements about your hospital. Think about your hospital.				
Tick the appropriate column	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1) Hospital management provides a work climate that promotes patient safety.	1	2	3	4	5
2). Hospital units do not coordinate well with each other	1	2	3	4	5
3). Things “fall between the cracks” when transferring patients from one unit to another.	1	2	3	4	5
4). There is good cooperation among hospital units that need to work together.	1	2	3	4	5

SECTION F CONTINUED	Please indicate your agreement or disagreement with the following statements about your hospital. Think about your hospital.
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Tick the appropriate column	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
5). Important patient safety information is often lost during shift changes.	1	2	3	4	5
6). It is often unpleasant to work with staff from other hospital units.	1	2	3	4	5
7). Problems often occur in the exchange of information across hospital units	1	2	3	4	5
8). The actions of hospital management show that patient safety is a top priority.	1	2	3	4	5
9). Hospital management seems interested in patient safety only after an adverse event happens	1	2	3	4	5
10). Hospital units work well together to provide the best and safe care to patients...	1	2	3	4	5
11). Shift changes become a problem for patients in the hospital.	1	2	3	4	5

Section G : Number of Events Reported	1).In the past 12 months, how many event reports have you filled out and submitted?	
1. No event reports <input type="checkbox"/>	4. 6 to 10 event reports <input type="checkbox"/>	
2. 1 to 2 event reports <input type="checkbox"/>	5.11 to 20 event reports <input type="checkbox"/>	
3. 3 to 5 event reports <input type="checkbox"/>	6. 21 event reports or more <input type="checkbox"/>	

SECTION H. Patient Safety Grade.	Please give your work area/unit in this hospital an overall grade on patient safety.	
1. Excellent <input type="checkbox"/>	4. Poor <input type="checkbox"/>	
2. Very Good <input type="checkbox"/>	5. Failing <input type="checkbox"/>	
3. Acceptable <input type="checkbox"/>		

SECTION I: Your Comments

Please feel free to write any comments about patient safety, error, or event reporting in your hospital.

.....

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.....

.....

Thank you for completing this questionnaire

Adapted from Agency for Healthcare Research and Quality (2007) AHRQ Patient Safety Network.
Hospital Survey on Patient Safety Culture.

APPENDIX I TEST STATISTICS:

PRIMARY WORK AREA OR UNIT IN THE HOSPITAL

	Chi-Square	df	Asymp. Sig.
People co-operate with one another in this unit	147.015	2	.000
We have enough staff to handle the workload	209.369	2	.000
When a lot of work needs to be done quickly, we work together as a team to get the work done	127.4	2	.000
Staff in this unit work longer hours than is best for patient care	51.8	2	.000
In this unit, people treat each other with respect	116.738	2	.000
We work in "crisis mode" trying to do too much, too quickly	132.015	2	.000
We use more agency/temporary staff than is best for patient care	103.631	2	.000
Patient safety is never sacrificed to get more work done	52.908	2	.000
We have patient safety problems in this unit	48.246	2	.000
Our procedures and systems are effective at preventing errors from happening	97.908	2	.000
After we make changes to improve patient safety we evaluate the effectiveness	134.231	2	.000
Think about your hospital work area/unit We are actively trying to improve patient safety	133.585	2	.000
Staff feel that their mistakes are held against them	31.446	2	.000
Mistakes have led to positive changes in this unit	68.6	2	.000
It is just by chance that more mistakes don't happen here	34.446	2	.000
When an event is reported it feels like the person is written up and not the problem	27.523	2	.000
Staff worry that mistakes they make are kept in their personnel files and can be used in their performance management	44.554	2	.000

APPENDIX J TEST STATISTICS:

Supervisor / Manager Expectations and actions promoting patient safety.

	Your supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures	My supervisor/manager seriously considers staff suggestions for improving patient safety	Whenever pressure builds up; my supervisor/manager wants us to work faster, even if it means taking shortcuts	My supervisor/manager overlooks patient safety problems that happen over and over
Chi-Square	87.338 ^a	114.892 ^a	84.754 ^a	102.662 ^a
df	2	2	2	2
Asymp. Sig.	.000	.000	.000	.000

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 43.3.

APPENDIX K TEST STATISTICS

Chi square results of communication with regards to safety incidents:

The chi square results are shown below.

Test Statistics				
	We are given feedback about changes put into place based on event and reports	Staff will freely speak up if they see something that may negatively affect patient safety	We are informed about errors that happen in the unit	Staff feels free to question the decisions or actions of those with more authority
Chi-Square	154.262 ^a	169.400 ^a	188.138 ^a	33.892 ^a
df	2	2	2	2
Asymp. Sig.	.000	.000	.000	.000

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 43.3.

APPENDIX L Chi square results Indicates frequency of events reported

The chi square tests for differences of significance are shown below.

Test Statistics			
	When a mistake is made, identified and corrected before affecting the patient how often is this reported?	When a mistake is made, that could harm the patient how often is this reported	When a mistake is made but has no potential to harm the patient, how often, is this reported?
Chi-Square	63.431 ^a	154.585 ^a	41.600 ^a
df	2	2	2
Asymp. Sig.	.000	.000	.000

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 43.3.

.APPENDIX M

The chi-square tests are shown below.

	Chi-Square	df	Asymp. Sig.
Hospital management provides a work climate that promotes patient safety	39.523	2	.000
Hospital units do not coordinate well with each other	31.862	2	.000
Things “fall between the cracks” when transferring patients from one unit to another	39.2	2	.000
There is good cooperation among hospital units that need to work together	40.631	2	.000
Important patient safety information is often lost during shift changes	79.4	2	.000
It is often unpleasant to work with staff from other hospital units	61.031	2	.000
Problems often occur in the exchange of information across hospital units	38.6	2	.000
The actions of hospital management show that patient safety is a top priority	69.8	2	.000
Hospital management seems interested in patient safety only after an adverse event happens	53.831	2	.000
Hospital units work well together to provide the best and safe care to patients	84.754	2	.000
Shift changes become a problem for patients in the hospital	69.062	2	.000

APPENDIX N Number of events reported

The chi square test result is shown below.

Test Statistics	
	In the past 12 months, how many event reports have you filled out and submitted?
Chi-Square	179.323 ^a
df	5
Asymp. Sig.	.000

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 21.7.