Nurse reported quality and safety of patient care and adverse events in medical and surgical units in selected private and public hospitals in the Free State and North West Provinces

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By

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Declaration

I declare that "NURSE REPORTED QUALITY AND SAFETY OF PATIENT CARE AND ADVERSE EVENTS IN MEDICAL AND SURGICAL UNITS IN SELECTED PRIVATE AND PUBLIC HOSPITALS IN THE FREE STATE AND NORTH WEST PROVINCES" is my own work and that all the resources have been indicated and acknowledged by means of complete reference.

______________________ ________________

Signature Date

J.W. Clase

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~ Aan Pappa en Mamma ~

Abstract

The dualistic South African health system is divided into a private and public health care sector. The core difference between these two sectors is that private hospitals are based on a business model with a profit motive, while public hospitals offer a free service, accessible to all citizens of South Africa and is nurse-driven.

The increased need towards higher quality health care is evident in the launching of the National Health Insurance system. The pilot of this system was activated in ten sub-districts in South Africa and will become the mechanism to enhance quality and safety of patient care in the private and public sectors. Registered nurses' reporting of quality and safety of patient care is an important factor in quality-related research and has been linked with international studies on quality of care. As the registered nurses are directly involved in all the facets of patient care, this population serves as a valuable contribution in the assessment of quality care. In this research quality of care refers to quality, patient safety and adverse events. Quality of care refers to the extent to which actual care is in conformity with the present criteria for good care. Patient safety is a parameter used to monitor and enhance quality. Through enhanced patient safety, adverse events can be prevented. Adverse events refer to all the incidents that can affect a patient during hospitalisation that is not due to the patient's illness, such as hospital acquired infections, medication safety and patient falls with injury.

This research aimed to explore and describe the nurse reported differences in quality of care, patient safety and adverse events in the adult medical and surgical units of private and public hospitals in the Free State and North West Provinces. This study was conducted within the RN4CAST research programme, an international consortium of fifteen countries working together towards the formulation of nurse workforce forecasting models.

A quantitative, correlational, explorative, descriptive and contextual design was followed. The population consisted of registered nurses employed for at least one year in the selected private and public hospitals in the two participating provinces. Private hospitals with more than 100 beds were included. The public hospitals had a level three status. An all-inclusive sampling was conducted (n=332) after participants gave informed consent. Data was collected through the completion of the National Nurse Survey that covered four sections of which quality of care, patient safety and adverse events was one. Field workers were utilised during data collection. Data capturing was conducted by means of EpiData 3.1. Secondary data analysis was utilised by means of SPSS 16.0. Descriptive statistics were extracted with

regard to the demographic status of the participants. The descriptive statistics were congruent with the demographic profile of nursing in South Africa. The inferential statistics included the difference in quality of care, patient safety and adverse events between the private and public hospitals in the selected provinces. Both the t-test based on the quality of care and patient safety as well as the Mann-Whitney test on adverse events indicated an insignificant difference between nurse reported quality of care, patient safety and adverse events between the private and public hospitals. Reliability and validity were assured and recommendations were formulated for nursing education, practice and research.

Key words: nurse reported quality of care, patient safety, adverse events, private hospitals, public hospitals.

Opsomming

Die dualistiese Suid-Afrikaanse gesondheidsisteem word verdeel in die private en publieke gesondheidssektore. Die kern verskil tussen hierdie twee sektore is dat private hospitale gebaseer is op 'n besigheidsmodel met 'n winsmotief. Publieke hospitale daarenteen verskaf gratis dienste, toeganklik vir alle Suid-Afrikaanse burgers en word gedryf deur verpleegkundiges.

Daar is 'n toenemende behoefte vir verhoogde gehalte gesondheidsorg in Suid-Afrika soos bevestig deur die bekendstelling van die Nasionale Gesondheidsversekering stelsel. Daar is reeds 'n loodstudie vir hierdie stelsel geaktiveer in tien sub-distrikte in Suid-Afrika en dit dien as meganisme om gehalte en veilige pasiëntsorg in private en publieke hospitale te bewerkstellig. Geregistreerde verpleegkundiges se rapportering van gehalte en veilige pasiëntsorg is 'n belangrike faktor in gehalte-verwante navorsing, wat ook internasionaal nagevors word. Omdat geregistreerde verpleegkundiges direk betrokke is by alle aspekte van pasiëntsorg, word hierdie populasie se bydra as waardevol geag in die ondersoek na gehalte sorg. In hierdie navorsing verwys gehalte na gehalte sorg, pasiënt veiligheid en ongewenste insidente. Gehalte sorg word gedefinieer as die omvang waartoe ware sorg konformeer met die huidige kriteria van goeie sorg. Pasiënt veiligheid is die maatstaf wat gebruik word om gehalte te monitor en te verbeter. Deur verhoogde pasiënt veiligheid kan ongewenste insidente voorkom word. Ongewenste insidente verwys na alle insidente gedurende hospitalisasie wat die pasiënt benadeel en wat nie veroorsaak word deur die pasiënt se siekte nie, soos hospitaal-verworwe infeksies, medikasie veiligheid en insidente wanneer pasiënte val en beseer word.

Die doel van hierdie navorsing was om die verpleegkundiges se verslae rakende verskil in die gehalte van sorg, pasiënt veiligheid en ongewenste insidente in volwasse mediese en chirurgiese eenhede in private en publieke hospitale in die Vrystaat en Noordwes provinsies te ondersoek en te beskryf. Hierdie studie het binne die RN4CAST navorsingsprogram plaasgevind. Laasgenoemde is 'n internasionale konsortium van vyftien lande wat saamwerk om verpleegwerkerskorps vooruitskattingsmodelle te formuleer.

'n Kwantitatiewe, korrelasie, ondersoekende, beskrywende en kontekstuele ontwerp is gevolg. Die populasie het alle geregistreerde verpleegkundiges ingesluit wat vir minstens een jaar reeds werknemers is in die geselekteerde private en publieke hospitale in die twee

deelnemende provinsies. Private hospitale met meer as 100 beddens en publieke hospitale met ŉ vlak drie status is in die navorsing ingesluit. ŉ Alles-insluitende steekproef is gedoen (n=332) nadat deelnemers ingeligte toestemming verleen het. Data is ingesamel volgens die National Nurse Survey wat vier afdelings behels. Gehalte sorg, pasiënt veiligheid en ongewenste insidente was een van die vier afdelings. Veldwerkers het die data-insamelingsproses ondersteun. Data is ingesleutel op EpiData 3.1 en sekondêre data-analise is gedoen deur SPSS 16.0. Beskrywende statistiek rakende die demografiese status van die deelnemers was kongruent met die demografiese profiel van verpleegkundiges in Suid-Afrika. Die inferensiële statistieke het die korrelasie van gehalte sorg, pasiënt veiligheid en ongewenste insidente tussen private en publieke hospitale in die deelnemende provinsie ingesluit. Beide die t-toets met betrekking tot gehalte sorg en pasiënt veiligheid en die Mann-Whitney toets vir ongewenste insidente het geen betekenisvolle verskille tussen die verpleegkundige se rapportering van gehalte sorg, pasiënt veiligheid en ongewenste insidente uitgelig nie. Betroubaarheid en geldigheid is verseker. Aanbevelings is geformuleer vir verpleegonderrig, -praktyk en -navorsing.

Sleutelterme: verpleegkundige rapportering, gehalte sorg, pasiënt veiligheid, ongewenste insidente, privaat hospitale, publieke hospitale.

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Abbreviations

AHRQ	Agency for Healthcare Research and Quality
CEO	Chief Executive Officer
DDN	Deputy Director Nursing
DNA	Deoxyribonucleic acid
DoH	Department of Health
FCA	Family Caregiver Alliance
HASA	Hospital Association of South Africa
HIV/AIDS	Human Immunodeficiency Virus infection / Acquired Immunodeficiency Syndrome
ICN	International Council of Nurses
IOM	Institute of Medicine
JCAHO	Joint Commission on Accreditation on Health Care Organisations
MBI	Maslach Burnout Inventory
MDG	Millennium Developmental Goal
PES-NWI	Practice Environmental Scale of the Nurse Work Index
NCS	National Core Standards
NGO	Non-Governmental Organisation
NHI	National Health Insurance
NNS	National Nurse Survey
NSDA	Negotiated Service Delivery Agreement

NWU	North-West University
RN	Registered Nurse
RNAO	Registered Nurses Association of Ontario
RN4CAST	Registered Nurse Forecast
SANC	South African Nursing Council
SPSS	Statistical Package for the Social Sciences
TB	Tuberculosis
US	United States
USA	United States of America
WHO	World Health Organisation
ZAR	South African Rand

Chapter 1. Overview of Research Study

1.1 Introduction

This study forms part of an international collaborative research program, the Nurse Forecasting in Europe (RN4CAST), which aims to develop human resource forecast models in nursing (Sermeus, 2008). In this chapter attention is granted to the background and problem statement, as well as the research methodology. The chapter also includes an overview of the ethical considerations and strategies to enhance validity and reliability.

This study is embedded in the RN4CAST global research project, which received research funding from the European Union's Seventh Framework Program (Sermeus, 2008). It forms part of an international collaborative research program "Quality and safety of patient care and adverse events in selected private and public hospitals in the North West and Free State Provinces", which aims to develop innovative workforce forecasting models by considering not only volumes, but quality of nursing staff, as well as quality of patient care. The RN4CAST global research project was the largest nurse workforce study ever conducted in Europe. This research project includes a consortium of 15 partners in 11 European countries from which 3 partners are outside of Europe, namely China, South Africa and North America.

1.2 Background

The South African health care system is best understood from a dualistic perspective (Matshidze, 2012). This dualistic perspective presents challenges of inequity (Mkhize, 2009) as one part is a private health care sector operated for profit and the other a public health care sector rendering services free of charge. Although expenditure in the private sector outweighs that of the public sector, the majority of South African citizens utilise the public health sector. The result is an over-serviced private sector and over-burdened public sector (Mkhize, 2009).

Nurse reported quality of care, safety and adverse events in this study is set against the background of this dualistic health care system, with a directive historical position. The South African health care sector has come a long way since the fall of Apartheid in 1994. By 2009, 250 hospitals had been revitalised and 18 new hospitals had been built, of which three (3) are academic hospitals (Mkhize, 2009). The initiation of the South African Hospital Revitalisation

Programme facilitated the improvement of hospital equipment, management, infrastructure and the quality of care in general (Mkhize, 2009).

The revitalisation of South African health systems is complex. According to Schedule 4 (A and B) of the South African Constitution, health services need concurrent national and provincial legislative competence (Makhube, 2012) in a health care system that is the most inequitable in the world (Janecka, 2009). This inequality and the need for South Africa's health care system to meet the Millennium Developmental Goals (MDGs) led to the formulation of the Health 10 Point Plan by the 2009-2014 Medium-Term Strategic Framework (Makhube, 2012). In 2000 South Africa's health care systems were ranked 175th out of 191 countries with regard to health care expenditure. Despite economic attempts to enhance accessibility to public health care facilities, the gap between private and public facilities increased (Janecka, 2009). In 2011 South Africa spent 33 billion US dollars on health care (World Health Organisation [WHO], 2011:53). From 2005/2006 to 2010/2011 approximately 56% of the total health financial expenses where channelled to the private sector and 41% to the public health care sector (Makhube, 2012). Among other things the National Health Insurance (NHI) system is presented as a possible mechanism to ensure equal access to quality health care in South Africa. It implies the redistribution and sharing of resources between the private and public health care sectors (Janecka, 2009).

Equal access to quality health care is necessary when health is essential to the well-being of South Africans that need to overcome the effects of social disadvantage (Makhube, 2012). There is an increased abyss between private and public health care sectors, as well as the rich and the poor and an increased demand on public health facilities. Already in 2005, Okorafor, 2007 . reported on the growing concern from various analysts regarding both access to public health care services, as well as the quality of care rendered by these services (Okorafor, 2007). The South African government's focus to increase the quality of care in public health care services is evident in the Health 10 Point Plan established in 2011, aiming to improve accessibility health services and quality of care among other outcomes (Makhube, 2012). According to Makhube (2012) there is insufficient evidence of quality in public health care services after investing approximately 4 billion ZAR per annum. Harrison (2009) reports that policy makers had to demonstrate rapid improvement in the quality of care and service delivery indicators such as waiting time and patient satisfaction in South African health care services in general.

Despite major changes in South Africa's health care systems there is a call towards enhanced quality in general. From an international perspective Coetzee (2012) confirms the lack in

hospital quality care in general. In South Africa, Mkhize (2009) reports that there is increased political and public support for the National Health Insurance (NHI) as a mechanism to enhance access to high quality health care services for all. The proposed NHI intends to ensure that all South African citizens and legal residents will benefit from health care financing on an equitable and sustainable basis. The NHI aims to provide coverage to the whole population and minimise the burden carried by individuals of paying directly out of the pocket for health care services. This model of health care services to the total population is well accepted and widely promoted by the WHO. South Africa is in the process of introducing an innovative system of health care financing with far-reaching consequences on the health of South Africans. The NHI will ensure that everyone has access to appropriate, efficient and quality health services. It will be phased in over a period of 14 years and is intended to bring about reform that will improve service provision. This will promote equity and efficiency so as to ensure that all South Africans have access to affordable and quality health care services regardless to their socio-economic status (DoH, 2011b).

In South Africa programmes have been initiated to manage hospital related adverse events as a mechanism to enhance patient safety and quality care. Both patient safety and the reporting of adverse events are complex and challenging and conducted within a culture of blame and denial (Mkhize, 2009). The Free State, one of the nine Provinces in South Africa, launched an adverse event management system (Mkhize, 2009) referred to as the "Just Culture" and is improving the level of incident reporting significantly.

Quality in health systems in general is understood against the background of the combination of patient safety and reporting of adverse events. Quality health care is the overall reference that entails both patient safety and adverse events (Mitchell, 2008). According to Mkhize (Mkhize, 2009), patient safety entails a collection, classification and analysis system of incidents that surface during the utilisation of health care services. A reporting system is then utilised to improve patient safety by reducing and preventing adverse events. According to Mediclinic (Mediclinic International, 2011), one of the largest private hospital groups in South Africa, adverse events in return is viewed as any event that harms a patient during the period of hospital care. Nurses are the first in line to increase patient safety and to decrease or prevent adverse events (Mitchell, 2008). The focus of patient safety within health care delivery entails firstly to prevent errors, secondly to deliberately learn from errors that occurred and thirdly, to develop a culture of safety, which includes the multi-disciplinary team, the patient(s) and the organisation (Mitchell, 2008). The complex team approach in patient safety is confirmed by Stone *et al.,(2004)* who states that the financial impact of adverse events is

posed on the patient and significant others, the health care provider and the insurer (Stone *et al.*, 2004).

Increased quality of care through patient safety is an international and national focus. In 2002 the World Health Organisation Assembly launched the WHA55.18. This was a resolution urging countries to pay optimal attention to patient safety (Mkhize, 2009). The WHO became the main role player to strengthen quality and safety in health services globally (WHO, 2009b). In South Africa the public health care sector's quality of health care services has deteriorated or remained poor (Bennett *et al.*, 2008). Furthermore, upgrading the public health care sector's quality in general requires a multi-faceted approach including facility based accreditation and monitoring and programme based monitoring and quality improvement (Harrison, 2009). Simultaneously, the private industry is proud of its highly skilled nursing workforce and is committed to providing high quality nursing care (Von Dietze, 2001). Although significant improvements have been made from 1994 in the scope of health care services and access in general, South African citizens complain of the following factors that sketch a picture of a lack of quality, namely complaints of poor patient safety, lack of security of staff and patients; long waiting times, poor staff attitudes, poor infection control and insufficient stock (DoH, 2011a). There is a renewed emphasis within the government of South Africa on ensuring improved outcomes through the "Negotiated Service Delivery Agreement", a performance management system with concrete roles for all stakeholders and regular obligatory monitoring. Furthermore the South African Department of Health reported that patients identified that quality and patient safety are two areas in need of upgrade (DoH, 2011c).

Whether a patient is classified as a public or private health service user, all South African citizens are directed by the Patients' Rights Charter, which clarifies the responsibilities of health care facilities in delivering care that meets the principles of Batho Pele (Act 108 of 1996) (Charney, 2007, Ducel *et al.*, 2002) Batho Pele is rooted in a series of policies and legislative frameworks, namely the Constitution of the Republic of South Africa of 1996 (as amended) and the White Paper on the Transformation of the Public Service of 1995 (Khoza, 2005). In addition, the South African Department of Health formulated the National Core Standards as a managerial tool to guide and assess expected practices in general. In addition to upgrading attempts of South African health care services, especially in the public health care sector, all South African citizens have the right to access, equity and quality health care as one of the basic human rights. These human rights imply the South African government's obligation to ensure that South Africans do have access to quality health care (Mkhize, 2009).

1.3 Problem Statement

From the literature expounded above it can be concluded that the dualistic health care sectors in South Africa are pressurised nationally to enhance the quality of health care. The launch of the National Health Insurance (NHI) system is an initiative by the South African government to enhance the access to and quality of health care in both health care sectors in South Africa. Despite the core differences between the private and public health care sectors, these sectors are subjected to similar national and international parameters for quality. Quality in health care refers to the combination of three concepts namely quality of care, patient safety and adverse events. As registered nurses are the health care professionals exposed to patients on a continuous basis, international research have indicated registered nurses' report of quality of patient care as a valuable contribution. This leads the researcher to ask if there is a difference in the nurse reported quality of care, patient safety and adverse events between the private and public hospitals in South Africa as these hospitals should adhere to similar quality requirements as stipulated internationally by the WHO and nationally by the Department of Health. The following sub-questions can be formulated:

- What is the nurse reported quality and safety of patient care and adverse events in medical and surgical units in selected public and private hospitals in the Free State and North West Provinces?
- What is the difference between the nurse reported quality and safety of patient care and adverse events in selected public and private hospitals in the Free State and North West Provinces?

1.4 Aim and Objectives

The aim of this research is to compare the nurse reported quality and safety of patient care and adverse events in public and private hospitals in the Free State and North West Provinces. In order to reach this aim, the objectives of this research are to:

- explore and describe the nurse reported quality and safety of patient care and adverse events in medical and surgical units in selected public and private hospitals in the Free State and North West Provinces;
- compare the nurse reported quality and safety of patient care and adverse events in selected public and private hospitals in the Free State and North West Provinces and
- formulate recommendations for nursing practice, nursing research and nursing education to enhance the quality and safety of patient care and decrease adverse events.

1.5 Hypotheses

A research hypothesis is used to make a prediction about the existence or direction of the relationship between variables (Burns, 2009). For the purposes of this study, H_{01} states that there is a relationship between the nurse reported quality and safety of patient care and adverse events in medical and surgical units of the private and public hospitals in the Free State and North West Provinces. H_{A1} states that there is no relationship between the nurse reported quality and safety of patient care and adverse events in medical and surgical units of private and public hospitals in the Free State and North West Provinces.

1.6 Researcher's Assumptions

The researcher's assumptions are discussed as divided into meta-theoretical, theoretical and methodological assumptions.

1.6.1 Meta-theoretical Assumptions

According to Botes (Botes, 1995), meta-theoretical assumptions address the nature of the reality for the researcher. Meta-theoretical assumptions have their origin in philosophy and are not testable. The researcher declares that her meta-theoretical assumptions are founded in a Christian worldview.

1.6.1.1 Human Being

Man is a unique creation of God that functions in a bio-psycho-social way. This human being has qualities that enable the person to act responsible towards his/her internal and external environment. The researcher is also of the opinion that the human being must be respected and must also treat others with respect.

Because of the dynamic nature of human beings, high levels of well-being mean that we are more able to respond to difficult circumstances, to innovate and constructively engage with other people and the world around us. As well as representing a highly effective way of bringing about good outcomes in many different areas of our lives, there is also a strong case regarding well-being as an ultimate goal of human endeavour (NEF, 2009).

In this research the relevant human beings are the registered nurses, as well as patients in medical and surgical wards in private and public hospitals in the Free State and North West Provinces in South Africa that strive for wholeness by their presentation and participation.

Quality and safety of patient care and prevention of adverse events demonstrate respect for registered nurses and patients as unique creations of God.

1.6.1.2 Health

According to the WHO, health can be defined as a "state of complete physical, mental and social well-being and not merely the absence of disease of infirmity" (WHO, 1946). The researcher's view of health is a state of physical, psychological, social and spiritual well-being and congruent with that of the WHO. The healthy person can function as a whole being when human structures and systems are functioning in harmony. The registered nurse can impact this person's health by teaching and educating the recipient on the concepts of a healthy lifestyle that could lead to a better quality of life. In this study the human being will be the registered nurse delivering quality and safe nursing care as well as the patient as the recipient of nursing care in medical and surgical wards in the private and public hospitals in the Free State and North West Provinces.

1.6.1.3 Environment

The Merriam-Webster Dictionary (2012) (http://www.merriam-webster.com/, 2012) defines environment as: "the circumstances, objects, or conditions by which one is surrounded; the aggregate of social and cultural conditions that influence the life of an individual or community". The environment can be referred to as the workplace. A healthy workplace is one in which workers and managers collaborate to use a continuous improvement process to protect and promote the health, safety and well-being of all workers and the sustainability of the workplace by considering the following things based on identified needs (WHO, 2010b):

- health and safety concerns in the physical work environment;
- health, safety and well-being concerns in the psychosocial work environment, including organisation of work and workplace culture;
- personal health resources in the workplace; and
- ways of participating in the community to improve the health of workers, their families and other members of the community.

In this research the environment refers to the private and public health care sectors, as well as the medical and surgical units in private and public hospitals in the Free State and North West Provinces. This environment is the workplace where professional nurses nurse patients and where quality and safe patient care is promoted and adverse events prevented.

1.6.1.4 Nursing

The researcher supports the International Council of Nurses' (ICN, 1987) definition of nursing namely that nursing encompasses the autonomous and collaborative care of individuals of all ages as well as families, groups and the communities, whether sick or well and in all settings. Furthermore, nursing entails promoting health, preventing illness and caring for ill, disabled and dying people. Nursing in this research refers to the care rendered to patients that should adhere to quality care and patient safety criteria and that aims to prevent adverse events.

1.6.2 Theoretical Assumptions

The theoretical assumptions include the theories, models, conceptual frameworks and conceptual definitions central to this research. In this research the international classification of patient safety as adapted from the WHO (2009a) serves as a conceptual framework and will be described in Chapter 2.

The conceptual definitions that are central to this study are clarified below.

Nurse Report

In this study the concept "nurse report" is similar to perception. Perception is defined in the Oxford English Dictionary as "the process of becoming aware or conscious of a thing or things in general; the state of being aware; consciousness; understanding." (2012). The process of understanding becomes a mediated experience, as it requires the use of the senses in order to process data. To be perceivable, the object must be able to be understood by the mind through the interplay of sight, sound, taste, touch and smell. To be perceived, a sensation must pass through the body through one of the sensory organs, that is, the eye, ear, nose, mouth, or skin. To interpret that sensation is what is known as perception. The perceivable is that which can be interpreted by the body. The measures on quality of care, patient safety and adverse events, mentioned above, reflect the perceptions of registered nurses working in the selected medical and surgical units in private and public hospitals in the Free State and North West Provinces.

According to McHugh nurses' presence at the bedside with patients, from admission through discharge, make them reliable informants regarding the quality of patient care at a hospital (McHugh, 2012). Findings confirm that nurses' perceptions of quality correspond with other indicators of quality, including the outcomes measures of mortality, failure to rescue, and patient satisfaction, as well as process of care measures.

Quality of Care

Donabedian states that "quality of care is the extent to which actual care is in conformity with present criteria for good care" (Donabedian, 1980b). Feld (2001) and Wang (2010) are of the opinion that care can be described as "striving for and reaching excellent standards of care" and it is not only evaluating outcome, but reducing the risk (Feld, 2007, Wang, 2010, Du Preez, 2010). In this study the following measures of quality of care were included: nurse's reports of the quality of care in their unit and change in the quality of care over the last year; readiness of patients for discharge; confidence in hospital management to resolve reported problems in quality of care; and an estimate of the frequency of a variety of adverse events involving themselves and their patients (Sermeus, 2008).

Patient Safety

According to Hassen (2010) patient safety is focused on the prevention of error in health settings. Seven questions from the Agency for Healthcare Research and Quality (AHRQ's) safety culture questionnaire were also utilised in the RN4CAST National Nurse Survey (NNS) to measure the safety culture in selected nursing units (Sermeus, 2008). These questions were answered on a 5-point scale ranging from strongly disagree to strongly agree. The statements below were included in both of the above mentioned surveys:

- Staff feels as if their mistakes are held against them.
- Important patient care information is often lost during shift changes.
- Things "fall between the cracks" when transferring patients from one unit to another.
- Staff feels free to question the decisions or actions of those in authority.
- In this unit, we discuss ways to prevent errors from happening again.
- We are given feedback about changes put into place based on event reports.
- The actions of hospital management show that patient safety is a top priority.

Adverse Events

Adverse events are unintended injuries or complications that result in prolonged admission, disability at discharge, or death that were caused by health care management rather than the disease process (Whittaker, 2011b). According to WHO (2005), an adverse event is an injury related to medical management, in contrast to complications of disease. Medical management includes all aspects of care, including diagnosis and treatment, failure to diagnose or treat and the systems and equipment used to deliver care. Adverse events may be preventable or non-preventable. A preventable adverse event is an adverse event caused by an error or any other type of systems or equipment failure (WHO, 2005).

Private Hospital

A private hospital is an institution for the treatment, care and cure of the sick and wounded, for the study of disease, and for the training of physicians, nurses and allied health personnel. A private hospital is similar to group hospital, except that it is controlled by a single practitioner or by the practitioner and associates in his or her office. Furthermore, a private hospital is a hospital operated for profit (Stedman's, 1997). According to Cullinan there are a strong private health sector in South Africa, which includes health professionals in private practice, private hospitals, pharmaceutical manufacturers and distributors and medical aid schemes (Cullinan, 2006b). Some 80% of the funds spent on health in the country are spent in the private sector, which accounts for almost half the country's approximately 400 hospitals. Yet only about 17% of the population, the majority white and Indian have medical aid schemes and use private health facilities.

Public Hospital

A public hospital refers to an institution for the treatment, care and cure of the sick and wounded, for the study of disease, and for the training of physicians, nurses and allied health personnel (Stedman's, 1997). According to Cullinan there are three categories of public hospitals in South Africa. The most common names used to refer to these categories are District, Regional and Tertiary (provincial tertiary and national central) hospitals, although government now refers to level 1, 2 and 3 hospitals. As their names imply, they offer different levels of service. Of the 388 public hospitals, 64% are district hospitals. Secondary and specialised hospitals make up 16% each of the total number. Together provincial and national hospitals comprise less than 4% of all hospitals in the public sector. Only tertiary hospitals were included in this research (Cullinan, 2006b).

1.6.3 Methodological Assumptions

Methodological assumptions are the beliefs concerning the nature of scientific research (Mouton, 1996). The researcher will use the model for nursing research developed by Botes (Botes, 1991a) to explain the methodological assumptions in this research. Botes describes three orders in her model and explains that the three levels are interrelated. The three levels (level 3 is the nursing practice; level 2 is the methodological level and level 1 is the meta-theoretical level) are explained in Table 1.1 below.

Table 1-1: The research model by Botes (Botes, 1991b) applied to this research

Orders	Explanation	Application to research
First	Meta-theoretical assumption. The researcher's worldview that impacts all levels of her existence.	Man is a unique creation of God that functions in a bio-psycho-social way.
Second	Research methodology. The research environment where the researcher utilises the research process to conduct the research.	Descriptive and contextual correlation design – hypothesis (H_{01} and H_{A1}).
Third	Empirical nursing practice. The practice environment where nursing is conducted.	Patient quality, safety and adverse events in selected public and private hospitals in the Free State and North West Provinces.

The first order is the meta-theoretical assumptions that make up the researcher's worldview. In this order the researcher's worldview impacts directly on how the researcher views reality. The first order is inter connected with the second and third order and therefore the researcher's view of reality infiltrates activities. As indicated in table 1-1, the researcher's view of reality is that of a Christian worldview.

The second order, nursing theory, includes the activities of nursing science and encompasses research and theory development. This is a meta-practical activity, implying that the researcher identifies nursing problems as they are, explores the problem, describes the problem and suggests a solution. For the purpose of this study the concept quality of care, patient safety and adverse events will be identified, described and recommendations will be made.

The third order is the empirical reality and implies nursing practice. Nursing practice can be studied, problems or research questions can be identified and solutions may be proposed. In the context of this study, adverse events need to be reduced to improve quality of care and patient safety.

The research model by Botes was developed from a functional approach to nursing, implying that research is not just done because it needs to be done, but to serve a higher goal. The motive to "serve" is seen as the central criteria of the nursing profession. The Botes model accommodates basic characteristics of nursing practice, like interpersonal relationships and the dynamic nature of nursing (Botes, 1991b).

1.7 Research Design

The research is conducted from a quantitative, correlational design with descriptive, exploratory and contextual research strategies. This study is quantitative in nature for the following reasons (Brink *et al.*, 2006):

- formal instruments were used to collect information;
- it focuses on a small number of concepts (quality of care, patient safety and adverse events);
- there is a defined idea about how the concepts are interrelated (hypotheses were formulated);
- the data was collected under controlled conditions and
- statistical procedures were used in analyses.

According to Burns and Grove (2009) correlational designs are used to examine groups of subjects in various stages of development simultaneously with the intent of inferring trends over time (Burns and Grove, 2009). This study's design qualify as correlational because the data collection occurred simultaneously in both the private and public sector while registered nurses took part in the study differed in age and years of experience. These developmental differences were correlated to differences in perceptions of registered nurses regarding quality of care, patient safety and adverse events.

Different strategies are utilised in the study namely exploratory, descriptive and contextual strategies. Firstly, this study is exploratory in that it aims to identify a phenomenon of interest, identify variables within the phenomenon, develop definitions of the variables and describe variables in a study situation (Burns and Grove, 2009). The phenomenon of interest is the relationship between the different variables, namely quality of care, patient safety and adverse events in private hospitals as compared to those in public hospitals in the two participating Provinces. Secondly, the exploration of the phenomena will be closely recorded and therefore this research is also descriptive in nature.

Thirdly, this study is contextual because it focuses on private and public hospitals in the Free State and North West Provinces (Burns, 2009). Selected private hospitals with more than 100 beds and level 3 public hospitals in the North West and the Free State Provinces provided the setting for the study. The population of choice was registered nurses working in medical and surgical units in the private and public hospitals of South Africa. South Africa is divided into nine geographical provinces: Gauteng, North West, Free State, Limpopo, Mpumalanga, KwaZulu-Natal, Eastern Cape, Northern Cape and Western Cape. Six of the nine provinces, namely Gauteng, North West, Free State, KwaZulu-Natal, Eastern Cape and Western Cape were included in the study as most national referral hospitals in the public sector and hospitals in the private sector are located within these provinces (Klopper, 2012). The three largest private hospital groups were invited to participate in the study, of which two gave permission to participate. Included in the study were 55 (n=83) private hospitals (hospitals with a bed capacity of 100 beds or more) and 7 (n=14) national referral hospitals (also referred to as level 3 or tertiary or academic hospitals) in the public sector (Coetzee *et al.*, 2012). A comprehensive description of the research setting is presented in Chapter 3.

1.7.1 Research Method

The research method for this study will be outlined in Table 1-2, which provides an overview of the study. However, in Chapter 3 the researcher will offer a comprehensive discussion of the research method (Refer to Chapter 3.4).

1.7.2 Rigour

Quantitative research is guided by the principles of validity and reliability to ensure the generation of valid and scientific knowledge. De Vos *et al.* distinguish between four types of validity to ensure that the instrument being used accurately reflects the concepts it is supposed to measure (De Vos *et al.*, 2005). A discussion with regard to face validity, content, criterion validity and construct validity of the RN4CAST NNS is presented in Chapter 3. A discussion of the reliability of the instruments used, which refers to the consistency of measurement, is also presented in Chapter 3.

Table 1-2: Research methods

OBJECTIVE	DATA COLLECTION	POPULATION AND SAMPLING	DATA ANALYSIS	RIGOUR
To explore and describe the nurse reported quality and safety of patient care and adverse events in surgical and medical wards in the private and public hospitals in the Free State and North West Provinces.	NNS completed by registered nurses in adult surgical and medical wards in private and public hospitals in the Free State and North West Provinces (Sermeus, 2008).	*Population*: All the registered nurses rendering nursing care to adult patients in medical and surgical wards in selected private and public hospitals in the Free State and North West Provinces (Coetzee *et al.*, 2012) *Sampling*: Probability sampling was used that was all inclusive. The aim is to have a sample that is similar to the population in as many ways as possible to enable the researcher to generalize from the sample to the target population (Brink *et al.*, 2006). Registered nurses who took part in this study (n=332). Sampling conducted by inclusion criteria (Coetzee *et al.*, 2012).	Secondary data analysis that is important, readily accessible and easy to adapt for other purposes (Matthews, 2010). Descriptive statistical analysis through SPSS which included frequencies (mean, percentages, effect sizes and standard deviations).	Validity of the design represents the strength of a design to produce accurate result (Burns and Grove, 2009). Reliability of the instrument is deducted from the reliability of instruments used to compile the RN4CAST.

To compare the nurse reported quality and safety of patient care and adverse events in selected public and private hospitals in the Free State and North West Provinces.	Results from objective one.	Obtained from objective one	Inferential statistical analysis with specific reference to the t-test and Mann-Whitney-test, indicating the difference between the nurse reported quality and safety of patient care and adverse events in surgical and medical wards in the private and public hospitals in the Free State and North West Province.	Applicable to rigour in objective one.
To formulate recommendations to enhance the quality and safety of patient care and adverse events in medical and surgical units.	From the conclusions formulated from objective one and two.	From the research results obtained in objective one and two.	Not applicable	Not applicable

1.8 Ethical Considerations

Ethical approval was granted by the Ethical Committee of the North West University (Certificate number NWU-0015-08-S1, refer to Annexure C) and the provincial departments of health applicable to this study under the umbrella of the wider RN4CAST program in South Africa. In the public sector ethical clearance was received at national, provincial and district level for each of the individual hospitals, while the ethical committees of the two private hospital groups granted approval in the private sector (Klopper *et al.*, 2012).

Prior to conducting this study, permission was obtained from the National Department of Health, South Africa and the Departments of Health of the Free State and North West Provinces. The permission was granted to the RN4CAST global research project team, South Africa, after a full disclosure on the study was given to the relevant authorities as discussed by Cormack (2000). Consent was granted by the Chief Executive Office and Deputy Director Nursing/Nursing Service Manager of each participating hospital. Chapter 3 offers a comprehensive discussion on the ethical considerations of this study, (refer to Chapter 3.7).

1.9 Summary

Chapter 1 presented a brief overview of the study. The background and problem statement, followed by the aim and objectives of the study was provided. The design and the relevant data collection and analysis methods were discussed. Chapter 1 concluded with an overview of issues related to rigour and ethics. Chapter 2 follows with a comprehensive review of the literature related to the concepts introduced in Chapter 1.

Chapter 2. Literature Review

2.1 Introduction

Chapter 1 presented an overview of the study, including an identification of the fundamental concepts involved in the research questions that guide this study. Chapter 2 continues with a discussion of the literature relevant to the phenomenon under investigation. The purpose of conducting a literature review is to find data related to the conceptual focus of the research topic. The process involves the collection and synthesis of existing data relating to the research topic (du Plooy, 2006). Literature searches and reviews constitute a critical step in the research process and frequently mean the difference between a targeted, thorough and well-designed study against a fragmented one (Brink *et al.*, 2006). According to Brink a literature review is a process that involves finding, reading, understanding and forming conclusions about the published research and theory on a particular topic (Brink *et al.*, 1996). Burns and Grove reiterate that a review of relevant literature is conducted to generate a picture of what is known and what is not about a particular situation (Burns and Grove, 2009). A discussion of the literature related to quality care, patient safety, adverse events, working environment, registered nurse and patient and the private and public hospitals context of South Africa is presented below.

2.2 Search Strategy

The literature review followed from a search strategy that entailed comprehensive searches of databases for topics related to the phenomena under investigation. The following key words were utilised as a search strategy:

- quality care;
- patient safety;
- working environment;
- registered nurse;
- patient;
- adverse events and
- South African health systems.

National and international articles relevant to the research questions were used. Articles found on the World Wide Web and numerous other sources (articles, text books, fact sheets,

presentations, newspaper articles and legal documents) were utilised for this literature review. Abstracts of relevant articles were evaluated for use. Full text was scrutinised if the researcher was undecided on relevance to the current study project. The researcher reviewed articles from as early as the 1990's if they were considered to contain ground-breaking work. Articles were excluded from the review based on the following criteria:

- articles in languages other than English or Afrikaans;
- secondary sources;
- articles not applicable to the current research topic and
- out-dated articles (i.e. articles published prior to the year 2000).

Quick links on the main page of the North-West University (NWU) Library were utilised to access the complete list of databases:

- The A-Z journal list was consulted to determine the electronic availability of journals identified. An "inter-library loan" was requested if a journal with a relevant article was not available.
- On the complete list of databases EBSCOHost, "Google Advanced Scholar Search" and "Science Direct" were used as search engines for articles.

Hard copies of articles were obtained from the library catalogue.

2.3 Quality of Care

Quality of care is defined Marquis and Huston as the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and is consistent with current professional knowledge (Marquis and Huston, 2006). Huston reiterates that quality does not exist unless the desired health outcomes are attained, as outcomes are only one indicator of quality (Huston, 2003). Huston furthermore suggests that for care to be considered high quality, it must be consistent with current professional knowledge.

The following paragraphs review different perspectives of quality of care. Quality of nursing care is described as caring for the patient in such a way that the care meets all the individual's needs and exceeds their expectations (Ervin, 2006). There are four broad categories of methods to ensure quality, namely to:

- strengthen the role of patients/consumers and citizens;
- regulate and assess health service;
- apply standards or guidelines locally and
- establish quality problem-solving teams.

Feld and Wang are of the opinion that care can be described as “striving for and reaching excellent standards of care” (Feld, 2007; Wang, 2010). This does not only evaluate outcome, but involves reducing the risk (Du Preez, 2010). Donabedian states that “Quality of care is the extent to which actual care is in conformity with present criteria for good care”. (Donabedian, 1966). Seven pillars of quality can be identified namely efficacy, effectiveness, efficiency, optimality, accessibility, legitimacy and equity. (Donabedian, 1990)

According to the WHO’s publication on quality of care titled “A process for making strategic choices in health systems”, health systems should seek to make improvements in six areas or dimensions of quality (WHO, 2006b). These dimensions require that health care is:

- **effective:** delivering health care that is adherent to an evidence base and that results in improved health outcomes for individuals and communities, based on need;
- **efficient:** delivering health care in a manner that maximizes resource use and avoids waste;
- **accessible:** delivering health care that is timely, geographically reasonable and provided in a setting where skills and resources are appropriate to medical need;
- **acceptable/patient-centre:** delivering health care that takes into account the preferences and aspirations of individual service users and the cultures of their communities;
- **equitable:** delivering health care that does not vary in quality because of personal characteristics such as gender, race, ethnicity, geographical location, or socio-economic status and
- **safe:** delivering health care that minimizes risks and harm to service users.

Donabedian implies that there is an underlying functional relationship that integrates the elements of structure, process and outcome. If this functional relationship exists, one would expect to find that the quality of the patient care process (professional normative behaviour) would lead to the quality of outcomes (high patient satisfaction) (Donabedian, 1987). Jooste feels that quality indicates that certain characteristics for excellence must be visible in health services like effectiveness, professional appearance and behaviour, therapeutic environment, acceptable, accessibility and patient satisfaction (Jooste, 2003). Jooste states further that safety and care are constant concerns for registered nurses as providers of quality care, as consumers (patients) are more conscious of health matters (Jooste and Jasper, 2010).

The issue of quality of care is complicated further by the fact that the definition and measurement of the concept differs from providers and patients (Marquis, 2006). Parasuraman *et al.* (1991) identify five measurements that customers use to judge quality of service (Parasuraman *et al.*, 1991). These dimensions are listed below in order of declining importance:

- **Reliability:** The ability to perform the promised service both dependably and accurately. Reliable service performance is a customer expectation and means that the service is accomplished on time, in the same manner, and without errors every time.
- **Responsiveness:** The willingness to help customers and to provide prompt service. Keeping customers waiting, particularly for no apparent reason, creates unnecessary negative perceptions of quality. If a service failure occurs, the ability to recover quickly and with professionalism can create very positive perceptions of quality.
- **Assurance:** The knowledge and courtesy of employees as well as their ability to convey trust and confidence. The assurance dimension includes the following features: competence to perform the service, politeness and respect for the customer, effective communication with the customer and the general attitude that the server has the customer's best interests at heart.
- **Empathy:** The provision of caring, individualised attention to customers. Empathy includes the following features: approachability, sensitivity and effort to understand the customer's needs.
- **Tangibles:** The appearance of physical facilities, equipment, personnel, and communication materials. The condition of the physical surroundings (e.g. cleanliness) is tangible evidence of the care and attention to detail that are exhibited by the service provider. This assessment dimension also can extend to the conduct of other customers in the service.

Dianne McMahon, Certified Legal Nurse Consultant states that registered standards ensure that the highest level of quality in care is promoted. Standards provide a method to assure that clients receive high-quality care, that the nurse knows the essentials to provide nursing care, and measures are in place to determine whether the care meets these standards (McMahon). The standard of care involves being technically competent and keeping up to date with nursing. The South African Nursing Council (SANC) is the body entrusted with setting and maintaining standards of nursing education and practice in the Republic of South Africa. It is an autonomous, financially independent, statutory body, initially established by the Nursing Act, 1944 (Act No. 45 of 1944) and currently operating under the Nursing Act, 2005 (Act No 33 of 2005).

2.3.1 Definition of Quality of Care

Over the past decades academics have spent time and effort on criticising and developing definitions of quality of care as indicated by the following table (see Table 2.1).

Table 2-1: Definitions of quality of care (adapted from (Du Preez, 2010))

YEAR	AUTHOR	DEFINITION	CONTRIBUTION
1966	Donabedian	*"Quality of care is the extent to which actual care is in conformity with present criteria for good care" (Donabedian, 1966).*	Includes evaluation in the definition
1990	Donabedian	Seven pillars of quality, namely (Donabedian, 1990) • Efficacy – the ability to care to improve health. • Effectiveness – the degree to which health improvements are realised. • Efficiency – to obtain the best health improvement at the lowest cost. • Optimality – balancing cost and benefits. • Accessibility – optimal patient-staff relationship, including cost-effective care. • Legitimacy – conformity to social preferences influencing the individual, family and community. • Equity – fairness regarding the quality of care rendered.	Pillars of quality of care
1990	Institute of Medicine (IOM)	*"Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired outcomes and are consistent with current registered knowledge"* (Institute of Medicine, 1990).	Knowledge is linked to quality of care
1995	De Geyndt	Quality of health care is largely defined as the absence or shortage of financial, material and human inputs (De Geyndt, 1995)	Linked organisational structure, process and outcomes
1999	Coyle	Indicators such as personal value, worth, dignity and control experienced by patients are included in the definition (Coyle and Williams, 1999, Coyle, 1999)	Criteria are set against which care is evaluated
2007	Feld	Quality of care in health care can be described as "striving for and reaching excellent standards of care" (Feld, 2007, Wang, 2010). Quality of care involves not only evaluating the outcome, but reducing risk.	Improves personal health care in all fields of medicine

2010	Wang	The future of quality health care includes accreditation of hospitals. Accreditation means that standards are set to make sure that proper procedures and patient-staff ratio are met (Wang, 2010)	Driving force behind developing standards

As discussed in Chapter 1 (refer to 1.5.3.1) the focus of this study is quality of care as reported by nurses. Yet, a detailed discussion of quality of care in general is meaningful for the purposes of the study. Numerous research articles (De Geyndt, 1995, Hariharan *et al.*, 2004) use Donabedian's definition of quality of care. Taking the above definitions of quality of care into consideration, it is evident that it is difficult to develop a perfect definition. Donabedian (Donabedian, 1980b) states that with regard to health care and administration, defining and measuring quality is about judging whether and to what extent a specified instance of medical care has quality. The delivery of care is also aggravated by inadequate opportunities to develop staff and inadequate material resources.

The National Core Standards for Health Establishments in South Africa (DoH, 2011a) state that quality can be defined in various ways, namely:

- getting the best results possible within the available resources; and
- the level of attainment of health systems' intrinsic goals for health improvement and responsiveness to legitimate expectations of the population.

From a comprehensive discussion of quality of care the focus is diverted to a cardinal element entailed in the concept "quality of care" namely patient safety.

2.4 Patient Safety

The WHO defines patient safety as "*the absence of preventable harm to a patient during the process of health care*."(WHO, 2002) Over the past ten years, patient safety has been increasingly recognized as an issue of global importance, and the following 10 facts were identified:

- Patient safety is a serious global public health issue. In recent years, countries have increasingly recognized the importance of improving patient safety. In 2002, the WHO Member States agreed on a World Health Assembly resolution on patient safety.
- Estimates show that in developed countries as many as one in 10 patients is harmed while receiving hospital care. The harm can be caused by a range of errors or adverse events.

- In developing countries, the probability of patients being harmed in hospitals is higher than in industrialized nations. The risk of health care-associated infection in some developing countries is as much as 20 times higher than in developed countries.
- At any given time, 1.4 million people worldwide suffer from infections acquired in hospitals. Hand hygiene is the most essential measure for reducing health care-associated infection and the development of antimicrobial resistance.
- At least 50% of medical equipment in developing countries is unusable or only partly usable. Often the equipment is not used due to lack of skills or commodities. As a result, diagnostic procedures or treatments cannot be performed. This leads to substandard or hazardous diagnosis or treatment that can pose a threat to the safety of patients and may result in serious injury or death.
- In some countries, the proportion of injections given with syringes or needles re-used without sterilization is as high as 70%. This exposes millions of people to infections. Each year, unsafe injections cause 1.3 million deaths, primarily due to transmission of blood-borne pathogens such as the hepatitis B virus, hepatitis C virus and HIV/AIDS.
- Surgery is one of the most complex health interventions to deliver. More than 100 million people require surgical treatment every year for different medical reasons. Problems associated with surgical safety in developed countries account for half of the avoidable adverse events that result in death or disability.
- The economic benefits of improving patient safety are compelling. Studies show that additional hospitalization, litigation costs, infections acquired in hospitals, lost income, disability and medical expenses have cost some countries between US$ 6 billion and US$ 29 billion a year.
- Industries with a perceived higher risk such as aviation and nuclear plants have a much better safety records than health care. There is a one in 1 000 000 chance of a traveller being harmed while in an aircraft. In comparison, there is a one in 300 chance of a patient being harmed in the process of receiving health care.
- The experience and health of patients lie at the heart of the patient safety movement. The World Alliance for Patient Safety is working with 40 champions who have in the past suffered due to lack of patient safety measures to help make health care safer worldwide.

The conceptual framework for the international classification of patient safety (adapted by the WHO (WHO, 2009a) portrays the quality and safety factors. The following aspects are central to this framework (Refer to Figure 2-1):

- **Patient:** A patient is a person who is a recipient of health care, itself defined as services received by individuals or communities to promote, maintain, monitor or restore health.
- **Patient safety:** The reduction of risk of unnecessary harm associated with health care to an acceptable minimum. An acceptable minimum refers to the collective notions of given current knowledge, resources available and the context in which care was delivered weighed against the risk of non-treatment or other treatment.
- **Hazard:** A hazard is a circumstance, agent or action with the potential to cause harm.
- **Circumstance:** A circumstance is a situation or factor that may influence an event, agent or person(s).
- **Health care-associated harm:** Harm arising from or associated with plans or actions taken during the provision of health care, rather than an underlying disease or injury.
- **A patient safety incident:** A patient safety incident is an event or circumstance that could have resulted, or did, in unnecessary harm to a patient.
- **Service delivery:** Service delivery is defined as the day-to-day provision of health care/nursing care to individuals, families in the medical and surgical wards in the public and private hospitals in the Free State and North West Provinces. This is also the assumption of the researcher in pursuing this study.
- **Quality nursing care:** According to registered nurses the definition of quality of nursing care is for registered nurses to apply correct nursing care according to registered knowledge and skills (Muller, 2008).

As published in the Policy Statement on Patient Safety by the Registered Nurses Association of Ontario (2004), numerous initiatives (national, provincial, territorial and local levels) including research activities, coalitions, and national reports have repeatedly pointed to the gaps in safety and outcomes associated with adverse events within the health care system. A release of the Canadian Adverse Events Study (Baker *et al.*, 2004a) indicated that 36.9% of adverse events are preventable. Adverse events in hospitals have been reported in several countries with as many as two-thirds of all errors considered to be preventable. Collectively, these key documents have heightened pressures to improve patient safety within our health care system.

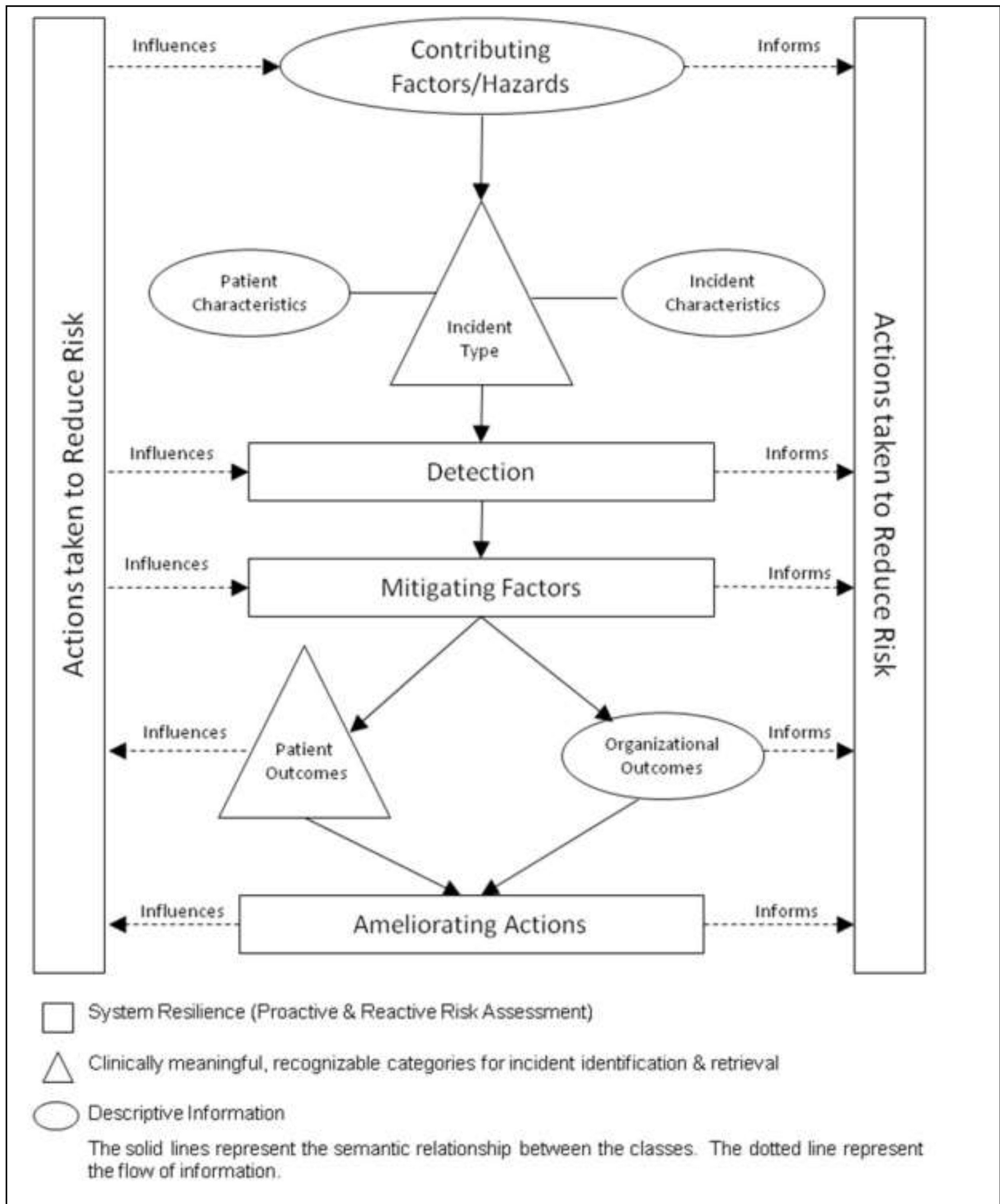

Figure 2-1: Conceptual Framework for the International Classification for Patient Safety (WHO, 2009a)

Currently, many patient safety outcomes linked to nursing practice are discussed in negative terms and include medication errors, nosocomial infections, patient falls, and pressure ulcers. Patient safety has been defined as preventing and mitigating unsafe acts by protecting people from harm (real or potential). However, a more comprehensive view builds on protection to "nurture the human capacity for sustaining life through processes that assist, heal, and

revitalise responses toward health and well-being". RNAO supports a broader perspective of patient safety that moves beyond error and physical safety of patients to one that includes psychological safety (e.g. verbal threats or intimidation) and the creation of safe environments (RNAO, 2004). According to Katz and Green (1997), patient safety can be seen as "the degree to which the risk of and intervention and the risk in the care environment are reduced for the patient and others, including the health care provider".

Human workforce planning in health care and patient safety is high on the priority list of international policy organisations. Linking both workforce planning in nursing and patient safety would provide major support to these actions. Nursing is numerically the largest health profession providing direct care. Given nurses' impact on patient outcomes and safety and the costs involved, workforce planning for nursing has a significant impact at a public and policy level (Sermeus *et al.*, 2011).

The South African Minister of Health, Dr Aaron Motsoaledi, listed a number of areas that have been selected for fast tracked improvement in health services. These essential areas include cleaner facilities, shorter waiting times and better patient safety and care. In spite of some clear successes, more improvements are needed to ensure patients are provided with proper, decent health care (DoH, 2011a).

2.4.1 Work Environment

A workplace in general is defined as a setting in which one's employment or other work activity occurs. It is where people with different roles and with different functions interact all the time (Barker, 2003). People work in different work settings with different situations. Kahn explains that the workplace is a complex environment with different situations such as having too much or too little to do, being subjected to conflicting demands, feeling distracted by family problems and working for demanding unhelpful managers (Kahn *et al.*, 1999). Nurses work in health care organisations that are wrestling with staff shortages, increasing patient loads, shrinking reimbursement and growing regulating pressure (Liebler, 2004).

All countries, rich and poor, have numeric, skill, and geographic imbalances in their health care and nursing workforce and lack an adequate nurse workforce to meet projected future requirements for care (Aiken *et al.*, 2011b). This global nurse shortage is remarkable in light of the highly reported variability in nurse density. None of these models take into account the dynamics between nurse-to-patient ratios, skill mix, nurses' education level, the nursing work environment on one hand and nurse outcomes (nurse retention, job satisfaction, and burnout)

and patient outcomes on the other hand. Evidence, nonetheless, confirms that effective nursing workforce strategies enhance the performance of health care organisations and health systems. It was shown, for example, that after the implementation of mandated minimum nurse-to-patient ratio's in California the nurse staffing levels in hospitals increased substantially. Aiken *et al.* illustrate that these lower workloads (i.e. Californian nurses on average care for one patient less in comparison to nurses in other states) are associated with lower patient mortality, as well as less burnout, job dissatisfaction and better nurse-reported perceived quality of care. (Aiken *et al.*, 2011a)

The ICN states that as professionals, nurses need a practice environment that acknowledges the social and health mandate of their discipline and the scope of practice as defined by country/regulatory legislation. Institutional policy structures must recognise the importance of education, on-going learning emphasises team work and working in environments that allow new graduates to practice according to professional standards and in alignment with their learning in their educational programs (Rowell, 2003).

Models applicable to nurses' work environments have emerged from studies conducted in Europe during the last decade. The conclusion of a survey done on nurses in general acute care hospitals (488 in 12 European countries; 617 in the United States of America [USA]); and patients in 210 European hospitals and 430 USA hospitals, were that deficits in hospital care quality were common in all countries. Improvement of hospital work environments might be a relatively low cost strategy to improve quality and safety in hospital care and to increase patient satisfaction (Aiken *et al.*, 2012).

The benefit of these models is that they are relevant to any work location − from small rural community settings to large urban acute care hospitals. Kristensen's model for social and psychological well-being combines six stressors, relating them to both the individual and the organisation (Kristensen, 1999). This work was supported by Seigrist's (1996) model on high-effort/low-reward conditions (Seigrist, 1996). According to Kristensen (1999), the following are required for optimal social and psychological well-being:

- demands that fit the resources of the person (absence of work pressures);
- a high level of predictability (job security and workplace safety);
- good social support from colleagues and managers and access to education and professional development opportunities (team work, study leave);
- meaningful work (professional identity);
- a high level of influence (autonomy, control over scheduling, leadership); and
- a balance between effort and reward (remuneration, recognition, rewards).

The DoH has proposed a strategy for Human Resources for Health for SA for 2012/13 - 2016/17, which agree with the models of Kristensen as discussed above. Matsoso and Strachani, authors of this strategy, reviewed the working environment of the health workforce in South Africa (Matsoso, 2011, DoH, 2011b). This review states the necessity to ensure a health care environment where the health workforce is valued and supported, and has the opportunity to develop while providing high-quality care. A set of interrelated issues such as job design, performance management, remuneration, employment relationships, physical work environment and equipment, workplace cultures and human resource practices, facility workforce planning and career pathing, affect the motivation and abilities of health care professionals. As the registered nurse represents the majority workforce in hospitals, the work environment of the registered nurse is the reality where quality and safety and adverse events realise.

2.4.2 Registered Nurse

The ICN defines a registered nurse as a practitioner "*who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice*" (ICN, 2007).

Registered nurses play a critical role in protecting patient safety and providing quality health care (ICN, 2007). In the IOM (2003) report entitled Health Professions Education: A Bridge to Quality, (IOM, 2003) it was found that nurses and other health professionals are not adequately prepared to provide the highest quality and safest care possible. The authors concluded that "education for the health professions is in need of a major overhaul" (IOM, 2003). In fact, an expert committee formed by the IOM, an independent, international, non-profit organisation that works outside of government to provide unbiased and authoritative advice to decision makers and the public found that "how we are cared for by nurses affects our health, and sometimes can be a matter of life and death….nurses are indispensable to our safety" (IOM, 2004). This finding has been confirmed by an emerging body of research showing that a nurse is much more likely than any other health profession to recognise, interrupt, and correct errors that are often life-threatening (Rothschild *et al.*, 2006). Higher levels of baccalaureate-prepared nurses in hospital settings reduce mortality and failure-to-rescue rates (Aiken *et al.*, 2003). Inadequate nurse staffing levels may lead to a higher incidence of complications and inadequate care (Aiken *et al.*, 2002).

Even though registered nurses are highly skilled and degree prepared, they are also human beings with the same needs as other people. A nurse is an individual caregiver with special motivational needs in the working environment who has a desire to care. The registered nurse is capable of self-motivation and of motivating others and has a unique social relationship with colleagues and other people in the medical team, as well as the patient care (Jooste and Jasper, 2010). Jooste agrees with Virginia Henderson's article that was published in 1978 on the concept of nursing. It states that a nurse's image of themselves is at odds with the public's image of them, and "what nurses do is at odds with what nurses and the public think they should do". Henderson also suggests that if one seeks consensus on a universal concept of nursing, it could boil down to the fact that nurses "render the most intimate personal service and that this service is the most constant factor in health programs since the nurse is the only category of worker available on a 24-hour, 7-days-a-week basis". This intimate personal service can be referred to as quality and safety of patient care and the prevention of adverse events.

The registered nurse and the work environment where quality and safety of patient care and prevention of adverse events are conducted are positioned within the South African health systems.

2.4.3 South African Health Systems

According to the "Health Systems Strengthening Glossary" by the WHO, a health system is defined as: (i) all the activities whose primary purpose is to promote, restore and/or maintain health; (ii) the people, institutions and resources, arranged together in accordance with established policies, to improve the health of the population they serve, while responding to people's legitimate expectations and protecting them against the cost of ill-health through a variety of activities whose primary intent is to improve health (WHO, 2011).

South Africa's health system consists of a large public sector and a smaller, but fast growing private sector (www.SouthAfrica.info). Health care in South Africa varies from the most basic primary health care, offered free by the state, to highly specialised, hi-tech health services available in the both the public and private sector. However, the public sector is stretched and under-resourced. This two-tiered system is not only inequitable and inaccessible to a large portion of South Africans, but institutions in the public sector suffer poor management, underfunding and deteriorating infrastructure. While access has improved, the quality of health care has fallen. The situation is compounded by public health challenges, including the burden of diseases such as HIV and tuberculosis (TB), and a shortage of key medical personnel.

According to the Quality Standards for Health Care Establishments (private and public sector) in South Africa the six most critical areas for patient-centred care is based on the Constitution of South Africa, the Batho Pele principles, the Patients' Rights Charter and the National Core Standards (NCS) (DoH, 2011a) and is in accordance with the Negotiated Service Delivery Agreement (NSDA) (DoH, 2010). These documents identify six priority areas for immediate improvement, which are largely reflected in the first three domains of the NCS and consist of the following (Whittaker, 2011a):

- Values and attitudes of staff, so that patients are treated in a respectful manner with due respect for patient privacy and choice (Patient Rights).
- Reducing waiting times and queues for administration, assessment, diagnosis, pharmacy, surgery and referral and transfer time (Patient Rights).
- Cleanliness of hospitals and clinics, including buildings, grounds, amenities, equipment and staff (Patient Rights).
- Keeping patients safe and providing reliable care by reducing adverse events resulting from care given, including operations and failures of the system and its workers through ignorance, inadequate inputs, systems failure or negligence (Patient Safety, Clinical Governance and Care).
- Preventing infections from being passed on in hospitals and clinics, specifically hospital-acquired infections (Patient Safety, Clinical Governance and Care).
- Ensuring that medicines, supplies and equipment are available and patients get their prescribed medicine on the same day (Clinical Support Services).

The most important knowledge in the field of patient safety is how to prevent harm to patients during treatment and care (WHO, 2005). The prevention of harm can also be understood as the prevention of adverse events.

2.5 Adverse Events

Professor Stuart Whittaker, Chief Executive Officer (CEO) of the Council for Health Service Accreditation of Southern Africa indicates that adverse events are unintended injuries or complications that result in prolonged admission, disability at discharge, or death. Such adverse events are caused by health care management rather than the disease process. Startling information on the risk to patients who entered hospitals in England began to emerge in the late 1990's and early 2000's (Whittaker, 2011b). Research at the time was suggesting that about 850 000 adverse events might occur in a year, costing upwards of £2-billion in extended hospital stays alone. Current research shows that errors are seldom due to carelessness or lack of trying hard enough. More commonly, faulty systems, processes and

conditions that lead people to make mistakes, cause errors. These errors can be prevented by designing systems that make it hard for people to do something wrong and easy to do it right.

Today's patient care in health care organisations is anything but safe, as between 2.9% and 16.6% of hospitalised patients are affected by adverse events such as medication errors, health care-associated infections, or patient falls. More than one-third of adverse events lead to temporary (34%) or permanent disability (6–9%) and between 3% and 20.8% of the patients experiencing an adverse event die (Aranaz-Andres *et al.*, 2009, Zegers *et al.*, 2009, Soop *et al.*, 2009). As 37–70% of all adverse events are considered preventable (Soop *et al.*, 2009), (Vincent *et al.*, 2001), (Baker *et al.*, 2004b). Harmful impacts on patients such as psychological trauma, impaired functionality or loss of trust in the health care system as well as socio-economic costs, could be avoided (Ehsani *et al.*, 2006, IOM, 2004, Vincent *et al.*, 2001)

Health care-associated infections are estimated to affect hundreds of millions of people globally. Gathering reliable data is difficult, therefore precise numbers remain unknown. National surveillance systems exist in many high-income countries but are non-existent in the vast majority of middle- and low-income countries. Dr Benedetta Allegranzi, Technical Lead for the Clean Care is Safer Care programme at the WHO, states "Health care-associated infections have long been established as the biggest cause of avoidable harm and unnecessary death in the health systems of high income countries. We now know that the situation in developing countries is even worse. There, levels of health care-associated infection are at least twice as high. One in three patients having surgery in some settings with limited resources becomes infected. Solutions exist, and the time to act is now. The cost of delay is even more lives tragically lost. "The number of health care-associated infections should be much lower in high-income countries, because we know what works and we have the means to act. Low- and middle-income countries face many more challenges, but this does not mean the problem is insurmountable. Several interventions are simple and low-cost," says Professor Didier Pittet, Head of the Collaborating Centre on Patient Safety at the University of Geneva Hospitals and author on *The Lancet* study (WHO, 2010a)

Achieving a high level of safety through patient harm prevention is an essential step in improving the quality of care (Wachter, 2008). In order to improve patient safety, it is necessary to identify ‘‘error and violation producing conditions’’ within health care organisations (IOM, 2004). A high percentage of adverse events are related to organisational factors (Smits, 2010) such as heavy workloads, inadequate expertise, stressful environments or poor communication. Thus, understanding organisational behaviour is foundational to

reduce the incidence of adverse events and improve patient safety (WHO, 2009b, Ausserhofer *et al.*, 2013).

In the report of the Regional Director of the WHO, Regional office for Africa, on "Patient safety in African health services: issues and solutions" adverse events are discussed as follows. Patient safety practice refers to processes or structures that, when applied reduce the probability of adverse events resulting from exposure to the health care system across a range of diseases and procedures. Every patient has the right to be treated using the safest technology available in health facilities. This implies freedom from unnecessary or potential harm associated with health care. Therefore, all health-care professionals and institutions have obligations to provide safe and quality health care and to avoid unintentional harm to patients. Medical errors could result in numerous preventable injuries and deaths. Adverse events have been estimated to occur in 4% to 16% of all hospitalized patients. More than half of these occur in surgical care, and more than half are preventable (WHO, 2008)

2.6 Possible Causes for Poor Quality and Safety of Patient Care and Adverse Events

When taking the above literature into consideration, various causes for poor quality of care can be identified. These causes portray inter-relatedness between different aspects, indicating a complex system. These causes are listed and briefly described below.

- Physical work environment

Economic conditions and financial exigencies could intensify disparities in hospitals in terms of working conditions, nurse qualifications and patient outcomes (Rafferty and Clarke, 2009) Poor organisational environments at different levels have potentially negative impacts on quality of care (Van Bogaert *et al.*, 2009).

- Workload

Sochalski (2002) investigated the relationship between nurse staffing and the quality of nursing care in hospitals and concluded that workload has a significant effect on the quality of nursing care. Because nursing staff represents the largest group in a hospital, severe costs are involved to provide patient care. To constrain costs, nursing personnel frequently need to be reduced and this causes strain on goals to maintain quality, threatening patient satisfaction (Kangas *et al.*, 1999). With regard to staff shortages Needleman *et al.*, 2002 indicate that a nurse shortage might lead to poor quality of patient care and that more nurses provide better patient outcomes (Keenan, 2003).

- Skilled staff shortage

Quality of care depends to a large extent on the skills of the staff (Kingma, 2009). Beal, Riley and Lancaster (Beal *et al*., 2008) describe essential elements for an optimal clinical practice environment and state that by developing clinical nurses as bedside scholars across their career, the very best care can be provided to patients and families. In a systematic review and meta-analysis done by Kane, Shamliyan, Mueller, Duval and Wilt on the association of registered nurse staffing levels and patient outcomes, a greater registered nurse staffing is consistently associated with a reduction in the adjusted odds ratios of hospital related mortality (Kane *et al*., 2007). This indicates that increased nursing staffing in hospitals is associated with improvement in patient care outcomes.

- Organisational support

When supported adequately by the organisation, nurses deliver quality service, take advantage of development opportunities and enjoy high levels of job satisfaction (Kingma, 2009).

2.7 Integrated Discussion

All the concepts discussed above namely quality of care, patient safety, work environment, registered nurse, the patient, adverse events and South African health systems can be described as being inter-related to each other. This inter-relationship is graphically depicted in figure 2-2 below, followed by a brief discussion.

Within the South African health system, which includes private and public hospitals, the patient is central to receive health care. Within private hospitals the patient needs to pay a fee for a service. Within public hospitals the patient is supposedly central to receive health care according to the Batho Pele principles, Patient Rights Charter and the South African Constitution. The patient is the recipient of care rendered by the registered nurse. This care is rendered within a work environment. Within the rendering of care by the registered nurse to the patient in the work environment, quality of care is stipulated by the WHO and the DoH. The quality of care rendered to the patient by the registered nurse entails two inter-related elements, namely patient safety and adverse events.

Figure 2-2: Inter-relationship between nurse reported quality of care, patient safety, adverse events, registered nurse, work environment and the patient within South African health systems

2.8 Summary

A recent article in a national newspaper can serve as the ideal summary to this chapter. The following extract is very telling: "*The cost of health care is more ruthlessly profit-driven than it was during the Apartheid era, Health Minister Aaron Motsoaledi believes. During Apartheid, an emergency patient would first be stabilised before being transported to the appropriate health facility, whereas now it was a "money first or you die" situation. "It's more brutal than what it was during Apartheid... we need to change from that," he said. He said the situation had progressed from a two-tier health care system based on race during Apartheid to a two-tier health care system based on socio-economic status, where, if you don't have money, you die*" (Skade, 2011).

This chapter provided a comprehensive review of the literature in support of this study. Definitions and descriptions were given of the five variables and the causes and consequences of each variable were discussed. From the discussion presented on the three variables (nurse reported quality of care, patient safety and adverse events) and concepts

related to the study it became evident that quality of care could be measured by looking at patient safety, which is measured by adverse events. The registered nurse and the work environment influence the quality of care, which causes patients to be exposed to adverse events without their knowledge. Figure 2-2 provides a visual overview of the five concepts and the supposed relationships (from the literature presented) between them. A discussion of the relationships in the context of this study will be presented in Chapter 4.

Chapter 3. Research Design and Research Method

3.1 Introduction

This chapter offers a discussion of the research design and methodology of this study. In Chapter 2, a thorough literature review regarding the central theme of this study was conducted. The aim of this research is to compare the quality and safety of patient care and adverse events in public and private hospitals in the Free State and North West Provinces.

The purpose of the research design is to achieve greater control of the study and to improve validity of the study by examining the research problem (Burns and Grove, 2008). According to Klopper the research design will always influence the choice of the research methods applied (Klopper, 2008). Following is a discussion of the design, method and relevant terminology relating to the variables under research.

3.2 Research Design

A design is the blueprint for conducting a study and maximises control over factors that could hinder the validity of the findings (Burns and Grove, 2008, Oman *et al.*, 2003). The research design enables the researcher to gain information about what is being studied, who the study participants are, when the researcher will observe the variables and where the study will be conducted (Oman et al., 2003). Klopper (2008) states that any research starts with a problem and this problem directs the choice of the design that will be followed. Researchers plan and design studies to guide them in generating and analysing data so that they can be more confident in the results.

The research design for this study is quantitative, correlational, explorative, descriptive and contextual. A discussion of the nature of the design used in this study follows in the paragraphs bellow.

3.2.1 Quantitative Inquiry

Quantitative inquiry can be seen as a systematic, objective process based on statistical analyses aimed at obtaining research findings. Researchers can then answer questions about measurable concepts (Langford, 2001). The RN4CAST researchers collected data that was analysed and described in terms of descriptive and inferential statistics. Data considered

relevant to this study was generalised in order to determine if a difference exists between quality of care, safety and adverse events in selected private and public hospitals.

3.2.2 Correlational Design

A correlational design is a systematic investigation of relationships between two or more variables to explain the type (positive or negative) and strength of relationships in the world and not to examine cause and effect (Burns and Grove, 2009). Researchers do not endeavour to control or manipulate the variables under investigation, but rather to clearly identify and describe the variables (Burns and Grove, 2009). For this study a correlational design is used to discover the relationship between quality of care, safety and adverse events in private and public hospitals in the Free State and North West Provinces. This study's design qualify as correlational because the data-collection occurred simultaneously while professional nurses taking part in the study differed in age and years of experience. These developmental differences were then later correlated to differences in perceptions of professional nurses regarding quality of care, patient safety and adverse events.

3.2.3 Explorative and Descriptive Design

Exploration refers to the investigation of a phenomenon. Exploration and description is conducted simultaneously. A descriptive design identifies or describes a concept, event or experience that is important to nursing practice (Oman *et al*., 2003). This type of design provides a way to accumulate knowledge about a topic and to conduct an early exploration on a research question (Taylor *et al*., 2006:173). An explorative and descriptive design attempts to examine situations with the aim to establish what the norm is (Walliman, 2005).

3.2.4 Contextual Design

To meet the criteria for a contextual design, a description of the context or setting in which the research will be conducted must be provided (Klopper, 2008). Included in a contextual design are social and environmental circumstances with specific individuals.

For this study, the context included selected private and public hospitals in the North West and Free State Provinces in South Africa. There is a dichotomy between the public and private health care sectors. The public health care sector is a free of charge nurse driven service to ± 40 million South African citizens. To the contrary, the public health care sector is driven from a business model based on the number of beds. Services are rendered according to fee for services or per diem (per day) or diagnostic specific groupings (Bester, 2008).

Data gathering can take place in different settings applicable to the specific research, in other words, the precise settings where data will be gathered. Depending on the research questions, the researcher will decide in which setting the study will be conducted (Polit and Beck, 2006). The applicable setting must be selected cautiously to assure the validity and reliability of the data obtained. The setting for this study included a total of seven hospitals, three private hospitals in the Free State and two in the North West and one public hospital in each province. The setting for this study will be discussed in 3.4.3.

3.3 Hypothesis

A hypothesis can be defined as a formal statement of a predicted relationship between two or more variables (Burns and Grove, 2009). Hypotheses are largely based on a scientific theory and allow for both likelihood and testability. Thus the hypothetical statements related to this study are:

- *(H01):* There is no difference in the nurse reported quality and safety of patient care and adverse events in selected private and public hospitals in the Free State and North West Provinces in South Africa.
- *(Ha1):* There is a difference in the nurse reported quality and safety of patient care and adverse events in selected private and public hospitals in the Free State and North West Provinces in South Africa.

Please note that although a hypothesis is formulated in this study, the reader will find in the remainder of Chapters 3 and 4 an unequal sample was obtained between the private and public hospitals. The researcher cannot generalise the outcome of the results since the hospitals utilised in this study were pre-selected and forms part of an international collaborative research program, the RN4CAST. In this study *p*-values will be reported on for completeness of the study but the focus will be on effect size.

3.4 Research Method

Klopper (2008) states that the research method contains different steps, like choosing a suitable population, sampling, data collection and analysis and ensuring rigidity. In the paragraphs that follow present a discussion of the instruments used to collect data, the situation, population and sampling for this study.

3.4.1 Discussion of the Instrument

The RN4CAST NNS was the only instrument used to collect data for this study. This programme was developed to expand typical nurse workforce forecasting models and aims to consider the way in which features of the working environments and the qualifications of the nursing workforce impact on nurse retention, productivity and patient outcomes (Sermeus, 2008).

3.4.2 National Nurse Survey

Currently, human resource planning models in nursing care are unreliable and ineffective because of the consideration of volumes and not effects on quality of care. Within South Africa the RN4CAST project aims to provide innovative forecasting methods by addressing not only volumes, but quality of nursing staff, as well as quality of patient care. The RN4CAST programme conducted a NNS and patient discharge data survey. To follow is the patient satisfaction survey and organisational survey in the private and public health care sectors in South Africa in order to develop base line data on staff outcomes, patient outcomes and organisational outcomes (Klopper *et al*., 2008). See Figure 3-1 below and layout of the survey. A selection of data will then be used to enhance the status of quality and safety of patient care in private and public hospitals in South Africa.

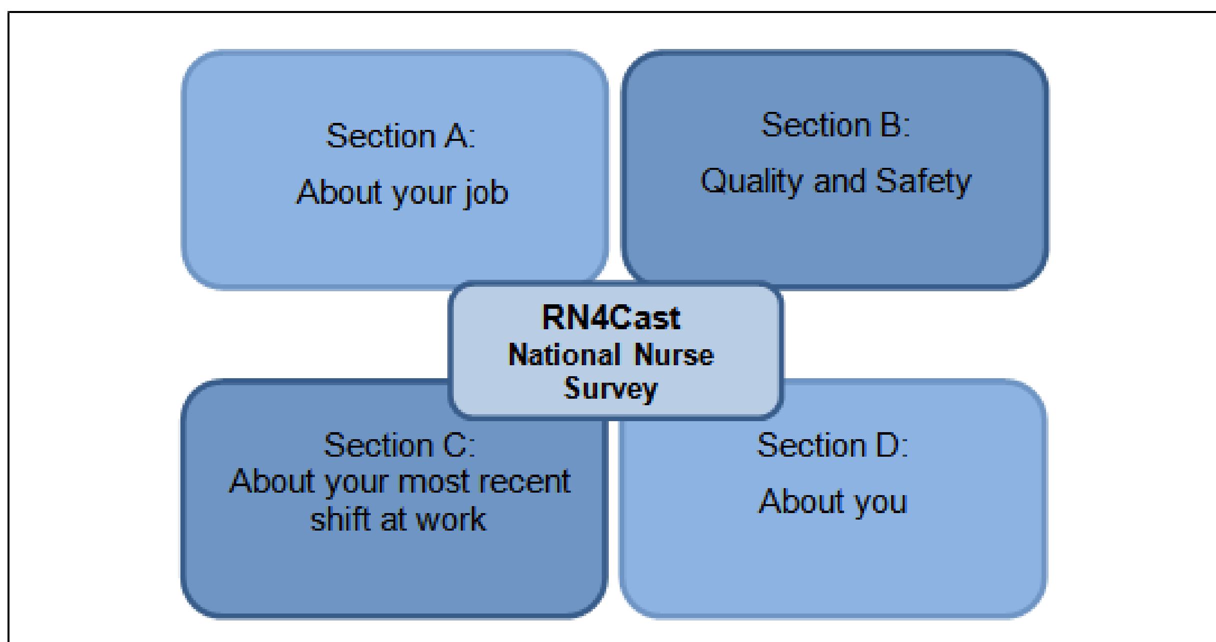

Figure 3-1: RN4CAST National Nurse Survey (Sermeus, 2008)

- Section A: About your job

This section focused on the practice environment of the nurses and included the Practice Environment Scale of the Nurse Work Index (PES-NWI), questions related to job satisfaction and the Maslach Burnout Inventory (MBI).

- Section B: Quality and safety

In this section nurses were asked to respond to issues related to the quality and safety of care delivered to patients in their unit. Nurses also reported on the occurrence of incidents involving patients in their units. This study focused predominantly on Section B.

- Section C: About your most recent shift at work in this hospital

Section C focused on questions related to working schedules and nurse-patient ratios in the units. None of the questions from this section was used in this study.

- Section D: About you

The demographic characteristics of nurses were explored in this section of the questionnaire and included questions related to age, gender and level of education, amongst others (Sermeus, 2008).

The NNS consisted of 118 questions divided into four sections and participants were asked to indicate the extent to which they agreed that each of the items was present in their current job. Using a Likert type inventory, participants were asked to indicate their level of agreement or disagreement with each of several statements by selecting one of four to six options that typically included “strongly agree” and “strongly disagree” at the ends of the scale (Huck, 2004). For the purpose of this study, only section B (Quality and Safety) and section D (demographic data) were used. A discussion of these sections is provided below and the relevant NNS is attached as Annexure D.

Nurse reported quality of care was measured using five questions, namely:

1) “In general, how would you describe the quality of nursing care delivered to patients on your unit/ward?” The answer ranged on a scale from 1 (Poor) to 4 (Excellent).
2) “How confident are you that your patients are able to manage their care when discharged?” The answer ranged on a scale from 1 (Not confident at all) to 4 (Very confident).
3) “How confident are you that hospital management will act to resolve problems in patient care that you report?” The answer ranged on a scale from 1 (Not confident at all) to 4 (Very confident).

4) "Please give your unit/ward an overall grade on patient safety." The answer ranged on a scale from 1 (Failing) to 5 (Excellent).
5) "In the past year would you say the quality of patient care in your hospital has …" which could be answered by 1 (Deteriorated), 2 (Remained the same) or 3 (Improved).

Patient safety issues were measured by seven questions derived from the Agency for Healthcare Research and Quality's (AHRQ) safety culture questionnaire, which ranged on a scale from 1 (Strongly disagree) to 5 (Strongly agree) (Sermeus *et al.*, 2011).

Registered nurses also reported on perceptions of adverse events involving patients in their unit, which ranged on a scale from 0 (Never) to 6 (Every day).

3.4.3 Setting

The research setting was selected level 3 hospitals (also referred to tertiary, referral or academic hospitals) within the public sector in the Free State and North West Provinces (Refer to Figure 3.2). These hospitals receive patients from, and provide sub-specialist support to, a number of Regional Hospitals or level 2 facilities. Most of the care should be level 3 care that requires the expertise of clinicians working as sub-specialists or in rarer specialties (e.g., within surgery for example, sub-specialties such as urology, neurosurgery, plastic surgery and cardiothoracic surgery). A specialised level 3 hospital will only have one or two specialties e.g. cardiology and anaesthetics (Cullinan, 2006a).

In comparison with public tertiary hospitals, only private facilities with more than 100 beds were utilised. The private hospital sector plays a substantial strategic role in South African health care and is fundamental to the delivery of health care services. An effective private hospital sector makes an important contribution by addressing the health care needs of the country's employed population. To this end, the case for maintaining a strong private hospital sector aligns with government's policy objective of alleviating pressure on the State, enabling it to concentrate its efforts on treating patients who depend on it for their medical requirements (HASA, 2008).

Figure 3-2: Map of the nine provinces in South Africa. Note Study area of Free State and North West Provinces encircled where level 3 hospitals (also referred to tertiary, referral or academic hospitals) within the public sector was selected (http://www.routes.co.za/map.html).

3.4.4 Population

The estimates portrayed in Table 3-1 below will provide a better understanding of the population in the Free State and North West Provinces against the total population of South Africa.

Table 3-1: Mid-year population estimates by province, 2011

	Population estimate	% of total population
Eastern Cape	6 829 958	13,50
Free State	2 759 644	5,46
Gauteng	11 328 203	22,39
KwaZulu-Natal	10 819 130	21,39
Limpopo	5 554 657	10,98
Mpumalanga	3 657 181	7,23
Northern Cape	1 096 731	2,17

North West	3 253 390	6,43
Western Cape	5 287 863	10,45
Total	50 586 757	100,00

From Table 3.1 it is clear that the Free State and North West Provinces' populations are some of the smallest in South Africa. Population refers to a collection of human beings that belong to the same group and live in the same geographical area. Their universal characteristics can be investigated in a research study. The researcher must be able to answer the research question on the selected population (Walliman, 2005, Taylor *et al.*, 2006, Polit and Beck, 2004, Burns and Grove, 2009). The population for this study was all nurses registered with the SANC, working in private and/or public hospitals, rendering nursing care to adult patients in medical, surgical and intensive care units (Klopper *et al., 2012*).

3.4.5 Sampling

Sampling is the selection of a subset of individuals from within a population to evaluate characteristics of the whole population. It is not cost effective for researchers to survey the entire population. There are three main advantages of sampling namely that the cost is lower, data collection is faster, and since the data set is smaller it is possible to ensure similarity and to improve the accuracy and quality of the data (Polit and Beck, 2004, Taylor *et al.*, 2006).

In order to determine the validity of the RN4CAST NNS for the study population, the statistical consultant suggested a sample size of at least 300 participants (Tabachnick, 2001). As response rates to surveys involving nurses are at best moderate, the researcher decided to invite all the nurses who met the inclusion criteria and work within the selected surgical and medical wards of private and public hospitals in the Free State and North West Provinces.
In this study an all-inclusive sampling was done according to the following inclusion criteria to ensure homogeneity (Klopper *et al.*, 2012).

- nurses registered with the SANC, trained as registered nurses with experience in nursing in the public or private health care sector of more than one (1) year;
- proficient in Afrikaans or English and
- permanently employed in the selected health care facilities or agency nursing staff working permanently at the allocated health care facility.

3.5 Data Collection

Data collection is the systematic gathering of information appropriate to the research purpose of the specific objectives, questions or hypotheses of the study. According to Burns and Grove data collection in quantitative studies are usually numerical (Burns, 2009). Inaccurate data collection can impact on the results of a study and ultimately lead to invalid results. A discussion of data collection for this study follows.

As stated in Chapter 1, the RN4CAST programme followed a survey design. Surveys are widely used methods of gathering scientific information (McBurney and White, 2007) and are typically used when asking large numbers of people questions about their behaviours, attitudes and opinions (Polit and Beck, 2004). In this study, Section B in the RN4CAST NNS was used to determine similarities and differences in nurse reported quality of care, safety and adverse events in medical and surgical wards for adult patients, in selected private and public hospitals in the Free State and North West Provinces.

A survey is a cost-effective way of gathering information and can be described as either descriptive or analytical (Crookes and Davies, 1998). Surveys are usually done as non-experimental studies (Polit and Beck, 2004, Burns, 2009) and can be used for exploratory, descriptive or clarifying purposes (Smith *et al.*, 2008).

In this study the RN4CAST survey was used for data collection. The survey is seven pages in length and consists of four sections (Sermeus *et al.*, 2011):

- Section A focuses on the practice environment of nurses and questions related to job satisfaction, intention to leave and nurse burnout.
- Section B focuses on nurse perceived quality of care, patient safety and adverse events involving patients in the unit.
- Section C focuses on the most recent shift of nurses and centres on questions related to work schedules, nursing tasks and nurse-to-patient ratios in the unit.
- Section D focuses on demographic characteristics of nurses.

Sections B and D, as discussed in 3.4.2, were utilised in this study.

3.5.1 Procedure for Data Collection

The data for this study was obtained from a larger data bank that formed part of the RN4CAST programme. Data collection followed two different processes to accommodate the dual health care system in South Africa.

- **Public hospitals:**

The contact person for entry was the Deputy Director Nursing (DDN). The DDN organised a meeting with the nursing management team: operational managers (zone matron) and unit managers.

The research team explained the research and data collection methods and in return management supported the project. Each hospital was visited by 6-10 researchers for a period of two days.

Day 1: Researchers met with management and were given the opportunity to familiarise them with the hospital (08:00-10:00). The team was divided into the following units: Medical Team, Surgical Team, and Critical Care Team. Thereafter the NNS were handed to the dedicated participants in each unit with the support of the unit manager, for collection after a designated time frame. This process was conducted for the day and night staff.

Day 2: The second day was booked to cover a new shift. Although management now knew about and supported the data collection, the process of handing out and collecting surveys per unit, per shift, day and night staff was conducted. During the whole process of data collection, field notes were kept.

- **Private hospitals:**

The Nursing Service Manager was the point of entry for the survey. A hospital was visited by two researchers equipped with sufficient NNS forms. A meeting with the Nursing Service Manager led to the identification of a field worker, which was a nurse employee of that specific hospital that could assist with data collection. Training was given to the field worker by the researchers and the field worker was then left for a two week period to hand out and collect completed surveys. The training of field workers was an additional education opportunity to all the hospitals that participated in this study (Bester, 2012)

3.5.2 Data Analysis

Data for the RN4CAST was captured via a computer programme EpiData 3.1 (Lauritsen, 2008) and analysed using the SPSS 16.0 program (Statistical Package for the Social Sciences) (SPSS, 2011). Descriptive statistics, utilising frequencies, means and standard deviations, was used to report on demographics and perceptions of quality of care and patient safety, while medians were utilised in reporting on perceptions of adverse events. Descriptive statistics is the starting point of analysis in any study in which the data is numerical (Burns and

Grove, 2009). Descriptive statistics regarding gender, age, years of experience, basic training of registered nurses, quality of care, patient safety, and adverse events will be discussed in this study (Refer to 4.3.1).

Additionally a Mann-Whitney test was done to distinguish between the perceptions of adverse events of registered nurses in the private and public sector. A discussion of the results and relevant literature will be provided in Chapter 4.

3.6 Validity and Reliability of the Instruments

This section presents a discussion of the rigour in terms of the validity and reliability of the instrument used in the study. Rigour involves discipline, careful adherence to detail and strict accuracy and implies excellence in research (Burns and Grove, 2009). Klopper states that rigour must be reflected throughout the entire research project and that it must be applied to certain criteria (Klopper, 2008). For the purpose of this study rigour will be described in terms of validity and reliability of the NNS.

3.6.1 National Nurse Survey (NNS)

Validity refers to the degree to which a quantitative instrument measures what it is supposed to measure (Polit and Beck, 2008). Burns and Grove define validity as the extent to which an instrument actually reflects the abstract construct being examined (Burns, 2009). In 2009, a pilot study was conducted to determine the predictive validity of the RN4CAST NNS in Belgian hospitals. Nurses with a full-time equivalence greater than 40% were included in the study (n=179). From the study it was concluded that the RN4CAST NNS was valid and psychometrically sound (Bruyneel *et al.*, 2009). The predictive validity of the instrument was supported by the confirmation of key factors, which were previously identified by international research conducted in the USA. The findings had similar associations between these factors and nurse-perceived outcomes (Bruyneel *et al.*, 2009).

Reliability indicates that the instrument consistently assigns the same score to individuals or objects with equal values. In determining the predictive validity of the RN4CAST NNS in Belgian hospitals, Bruyneel *et al.*, reported on a remarkable consistency in results from the International Hospital Outcomes study and other studies performed in differently organised health care systems (Bruyneel *et al.*, 2009). Cronbach's alphas and corrected item total correlations were calculated. Given the small sample size the Cronbach's alphas of the factors were acceptable, ranging between 0.63 – 0.84 (Bruyneel *et al.*, 2009).

3.7 Ethical Considerations

To conclude the discussion related to the design and method for this study a summary of the ethical considerations and principles adhered to in the study is provided below. Specific ethical considerations were taken into account during the course of this study and these considerations are described in the following paragraphs.

- University's code of ethics

The researcher functioned within the scientific domain as a Master's-candidate, registered as a student at the North-West University (NWU) (Potchefstroom Campus). In this study, the student proclaimed adherence to the University's code of ethics as stipulated by the Statute. Research was conducted only after the Ethics Committee of the NWU granted ethics clearance (NWU, 2010). Please refer to Annexure A for a copy of the ethics clearance certificate.

- National ethical governance

The researcher submitted to the Constitution of the Republic of South Africa (Act 108 of 1996). As the Constitution serves as the 'South African DNA' for human rights, the researcher wished to add this law as national body that directs the formulation of research ethics in South Africa. On a national level the researcher adhered to the code of ethics as governed by the Medical Research Council (NWU, 2010), as well as the South African Department of Health (Free State and North West Provinces) that participated in the RN4CAST programme.

- International codes of ethics

From an international perspective, the researcher chose to adhere to the code of ethics by the ICN (2008:1-2), as well as the ethical principles and guidelines for the protection of human research subjects as stipulated in the Belmont Report, Declaration of Helsinki's ethical principles for medical research that involves human subjects and the Nuremberg Code (NWU, 2010).

- Prevention of plagiarism

The researcher acknowledges the North-West University's policy to prevent plagiarism (NWU, 2010) and declares to adhere to this policy.

Taking the above-mentioned ethical considerations into account, Table 3-2 is applicable to this study.

Table 3-2: Ethical Considerations

ETHICAL CONSIDERATIONS	ACTION
Ethical clearance	A preliminary literature review was conducted by the researcher to determine whether there was a need for the study. A research proposal was submitted to the Ethics Committee of the NWU for ethical clearance (refer to Annexure A). Ethical clearance was also obtained from the private hospital groups that participated in the RN4CAST programme.
Recruitment of participants	Participant selection/sampling was done by the RN4CAST research team.
Respect for person	The principle of respect for others rests upon the autonomy of others (NWU, 2010) and therefore emphasises each person's right for existence. Participants were informed that participation is free and voluntary (Pretorius, 2009). Participants had the right to decline participation if they so wished.
The principle of beneficence	There were no deleterious consequences for refusal to participate in the study. The principle of beneficence refers to the participant's right to maintained well-being during the course of the research (NWU, 2010). Besides maintaining their well-being, any form of emotional discomfort should be avoided or minimalized. Informed consent was obtained from each of the participants (Pretorius, 2009).
The principle of justice	The principle of justice (NWU, 2010) refers to the participants' right to a fair selection, as well as their right to privacy and anonymity.

3.8 Summary

In Chapter 3 the researcher described the research design and research method. Information was provided regarding the different instruments utilised for the study and included the RN4CAST NNS. The setting, population and sampling were elaborated on. The procedure for data collection and data analysis were discussed and the validity and reliability of the different instruments utilised was provided. The chapter concluded with the ethical considerations related to the study. A discussion of the results is presented in the following chapter.

Chapter 4. Analysis of the Data and Results

4.1 Introduction

This chapter addresses the analysis and subsequent results that relate to the research hypothesis posed in Chapter 1. Data analysis reduces, organises and gives meaning to data and is mainly determined by the research objectives, questions or hypotheses, the research design and the level of measurement achieved by the research instruments (Burns and Grove, 2009). An overview of the participant demographics will be provided, followed by a discussion of the data collection and analysis process.

4.2 Data Cleaning and Capturing

The raw data was entered into EpiData 3.1 on two individual sheets and correlated for error eradication. EpiData 3.1 ensured that the results of the study data are of high quality and is supported by the documentation of every procedure (Lauritsen, 2008). The data was then imported into Statistical Product and Service Solutions, known as SPSS Inc. (2010) that offered capabilities, flexibility and usability for statistical analysis in social sciences. The statistical processing was done by Statistical Consultation Services, NWU, Potchefstroom Campus.

4.3 Secondary Data Analysis

In this study secondary data analysis was conducted. Secondary data analysis is data used by a researcher that has already been produced by others. Secondary data is important, readily accessible and easy to adapt for other purposes and can be used for different research questions (Devine, 2003);(Matthews, 2010). The collection of original data by a researcher is called primary data collection. Secondary data analysis is widely used by researchers undertaking analysis of quantitative data. When using any data not collected by one self, it is always necessary to ask where the data comes from, who wants to have access to it and why it is available now (Matthews, 2010).

As mentioned by Boslaugh (2011), the researcher experienced the major advantage of economy while working with secondary data. The costs are minimized and also the time spent on data collection. Furthermore, secondary data analysis is ideal for researchers who prefer testing hypotheses using existing data sets, which is relevant to this study (Boslaugh, 2011).

Data analysis in general can be seen as the grouping, ordering, controlling and summarising of the data that were collected during the course of the study. Data analysis describes the analysed data in meaningful terms. In quantitative research, statistical strategies for analysis are most frequently utilised (Brink, 2006). Following is a discussion regarding statistical analysis and how it was employed in this study.

4.3.1 Statistical Analysis

Statistics deals with all aspects of the collection, organisation, analysis and interpretation of data, including the planning of data collection in terms of the design of surveys and experiments. According to Bruce *et al.*, statistics can be seen as numerical facts and the collection, presentation, analysis and interpretation of numerical information (Bruce *et al.*, 2008). The data analysis in this research is divided into descriptive and inferential statistics.

4.3.1.1 Descriptive Statistical Analysis

The following descriptive statistics are reported in this research:

- Frequency Distribution: usually the first strategy a researcher uses to organise data for examination. Frequency distribution allows checking for errors in coding and computer programming (Burns and Grove, 2009).
- Mean: the most commonly used measure of central tendency. The mean is the sum of the scores divided by the number of scores being summed (Burns and Grove, 2009).
- Median: the numerical value separating the higher half of a data sample from the lower half. The median is of central importance as it is the most robust statistic, having a breakdown point of 50%: so long as no more than half the data is contaminated, the median will not give an arbitrarily large result (Hogg *et al.*, 2013). According to Field, a median or middle score is another way to quantify the centre of a distribution, if scores are ranked in order of magnitude (Field, 2010).
- In descriptive statistics, the quartiles of a set of values are the three points that divide the data set into four equal groups, each representing a fourth of the data being sampled. An example of a lower quartile would be the middle number between the beginning of a number line and the median spot of a number line. The second quartile is the half, or also called median of the data. The third quartile is the middle value between the highest value of the data set and the median value of the data set (Freund and Perles, 1987).
- Standard deviation: the way variables vary around the mean of the distribution is indicated through standard deviation. As such the larger the standard deviation, the

more spread out the scores are around the mean in a distribution (Brink, 2006). Standard deviation can be seen as the deviation score and indicates the degree of error if the mean alone was used to interpret the data. Thus, if most of the participants' answers were similar, the standard deviation is very low and the higher the standard deviation, the bigger the variation in answers (Burns and Grove, 2009).

4.3.1.2 Comparative Statistical Analysis

Hypothesis testing is the collection of objectively measureable data to confirm or refute a hypothesis (Schmidt and Brown, 2012). In this study the difference between two groups was investigated by means of the Mann-Whitney U-test (will now be referred to as the Mann-Whitney) and the Independent t-test. Associations between variables were investigate by means of crosstabs.

The Mann-Whitney is a non-parametric test that explores differences between two independent samples (Field, 2010). In this research the exploration of differences are between nurse reported quality of care, patient safety and adverse events between selected private and public hospitals in the Free State and North West Provinces. These differences can be analysed by means of both statistical (indicated through the *p*-value) and practical significance (indicated through the effect size). According to Whitley and Ball the *p*-value measures the likeliness that any observed difference between groups is due to chance (Whitley and Ball, 2002). The effect size of the Mann-Whitney is conventionally interpreted as small if it is about 0.10, medium if it is about 0.30, or large if it is about 0.50 (Ellis, 2010).

The Independent t-test uses the t-statistic that establishes whether two means collected from independent samples differ significantly (Field, 2010). Furthermore, *p*-values (statistical significance) and effect size (practical significance) of differences in nurse reported quality of care, patient safety and adverse events in private and public hospitals in the Free State and North West Provinces, were used to obtain insight into differences. The practical significance of difference is measured in terms of effect sizes and 0.2, 0.5 and 0.8 is respectively interpreted as small, medium and large. In statistical significance testing the *p*-value is the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the null hypothesis is true (Goodman, 1999).

Crosstabs is a procedure that cross-tabulates two variables, thus displaying their relationship in tabular form. In contrast to frequencies, which summarise information about one variable, Crosstabs generates information about bivariate associations. Chi-square indicates the

strength of the association/practical significance. Where w~0.1 is a small effect, no practically significant association, w~0.3 medium effect, practically visible association and w~0.5 large effect, practically significant association (Steyn, 2009).

In this study data collection was done in selected private and public hospitals in the Free State and North West Provinces. The data analysis report to follow will include *p*-values for completeness sake, yet the focus will be on effect size. The reader will therefore find that both the *p*-values and effect sizes will be declared but only the effect sizes will be interpreted.

4.4 Discussion of the Descriptive and Comparative Statistical Analysis

Following is the discussion of the frequencies, means, standard deviation, median, 25th and 75th percentiles, of the items related to the nurse reported quality and safety of patient care and adverse events in selected private and public hospitals in the Free State and North West Provinces. Two separate statistical tests were conducted to establish the differences between hospital type and what the nurse reported on quality and safety of patient care and adverse events namely the Mann-Whitney- and the Independent t-test. As already stipulated above, a third test namely Crosstabs, was conducted to establish the associations between hospital type and some of the demographic data.

4.4.1 Participant Demographics

The demographics of the registered nurses were extrapolated from section D of the NNS. A total of 332 Registered Nurses (n=332) that met the inclusion criteria completed and returned the NNS. Only demographic data that was applicable to this study was analysed. The following variables were addressed: gender, age, education and how many years working as a registered nurse. A summary of these variables is presented in Table 4-1.

Gender (D1)

Out of 189 participants in the private sector that completed the NNS, four (4) participants did not indicate their gender. A total of 96.2% (178/185) were female and 3.8 % (7/185) male (refer to Table 4-1). Two participants in the public sector did not indicate their gender while 92.9% (131/141) where female and 7.1% (10/141) were male participants. There is no practical (0.074) significant association between the public and private sector regarding gender. According to the report "SANC Geographical Distribution 2012" there are 6865 (88.15%) female and 923 (11.85%) male registered nurses in the Free State and in the North

West province there are 7425 (88.45%) female and 969 (11.55%) male registered nurses (SANC, 2012). These statistics correspond with the conclusion of this study.

Table 4-1: Crosstab: Gender (D1)

Gender	Private	Public
Female	96.2%	92.9%
Male	3.8%	7.1%
Number missing	4	2
Total (n)	189	143

Age distribution (D2)

According to SANC the vast majority of registered nurses in South Africa are in the age group of 50–54 years. The average age of the 179 registered nurses in the private sector is 40.12 years (standard deviation=9.326) (SANC, 2012). Ten (10) Participants did not respond to the question. In the public sector the average age of 134 registered nurses is 43.54 years (standard deviation=9.48). Nine (9) Participants did not respond to the question. There was a small to medium practical significant difference (d=0.36) (refer to Table 4-2).

Table 4-2 T-test: Age (D2)

What is your age	Private	Public	Effect Size	*p*-value
Mean	40.12	43.54		
Standard deviation	9.326	9.480		
			0.36	0.002

Education (D6)

Regarding the education of participants, a total of 26% (49/175) of registered nurses in the private sector had a baccalaureate degree in nursing, while 74% (133/175) indicated having a 4-year diploma in nursing. In the public sector, 27.5% (83/133) of registered nurses graduated, while 72.5% (100/133) obtained a diploma (refer to Table 4-3).There is no significant practical (0.007) association between the public and private sector as far as basic training is concerned and *p*-values will be reported on for completeness sake. According to SANC statistics “Output 4-year Programme (2003-2012) Universities”, 2642 nurses registered with Baccalaureate degrees from 2009 to 2012. For the same period, 238 923 nurses registered with a 4 year college diploma. (SANC, 2012). Registered nurses with a 4 year college diploma increased dramatically over the past 4 years.

Table 4-3 Crosstab: Education (D6)

Education	Private	Public
Baccalaureate degree in Nursing	26%	27.5%
Diploma in Nursing	74%	72.5%
Number missing	7	5
Total (n)	182	138

Number of years registered in the nursing profession (D9a)

In the private sector the average number of years registered in the nursing profession is 14.20 (standard deviation=9.826) years. In the public sector the average number of years registered in the nursing profession is 15.52 (standard deviation=9.695) (Refer to Table 4-4). In the private sector 13 of the 189 participants did not respond to the question and in the public sector 9 out of 143 participants did not respond. There was a difference in the means of the registered nurses' years of experience in both private and public hospitals but it was of no practical significance. According to the report "SA Nursing Council. Growth in the Registers", the total number of nurses on the register has grown from 177721 to 248736 (40.0%) over the nine (9) year period 2003 to 2012 (SANC, 2012).

Table 4-4 T-test: Number of years worked as a registered nurse in your career (D9a)

How many years have you worked as a registered nurse in your career	Private	Public	Effect Size	*p*-value
Mean	14.20	15.52		
Standard deviation	9.826	9.695		
			0.13	0.237

Number of years as a registered nurse in this hospital (D9b)

In the private sector the average number of years worked as a registered nurse in the hospital in which the NNS was done is 7.84 years (standard deviation=5.707). In the public sector the average number of years worked as a registered nurse in the hospital in which the NNS was done is 11.59 years (standard deviation=9.078) (Refer to Table 4-5). An effect size of 0.41 indicates a practical difference that trends to be medium in the number of years worked as a registered nurse in the hospital in which the NNS was done. In the private sector 25 of the 179 participants did not respond to the question and in the public sector 11 out of 143 participants did not respond.

Table 4-5 T-test: Number of years as a registered nurse in this hospital (D9b)

How many years have you worked as a registered nurse in this hospital	Private	Public	Effect Size	*p*-value
Mean	7.84	11.59		
Standard deviation	5.707	9.078		
			0.41	0.000

4.4.2 Quality and Safety of Patient Care and Adverse Events

The following section will give a comprehensive discussion of the analysis of 25 items related to the nurse reported quality and safety of patient care and adverse events. For result interpretation, all data was converted into percentage values to compare the private and public hospitals side by side in a single graph. The number of participants (n) is stated below each bar chart. If a participant did not complete a given question, it is indicated in the bar chart as "Not answered". Statistics for each analysis are based on the cases with no missing or out of range data for any variable in the analysis. The item numbers in the NNS are added for cross reference. Mann-Whitneys' and Independent t-tests were applied to interpret statistical data in this section.

i) Nurse reported quality of patient care

How would you, as registered nurse, describe the quality of nursing care delivered to patients? (B1)

In the private sector, 60.3% (114/185) of the registered nurses were of opinion that the quality of care in their units was good. 21.2% (40/185) of the participants indicated that the quality of care provided was excellent, and only 2.8% (5/185) responded that quality care was poor. Four (2.1%) participants did not respond. The situation in the public sector was: 52.4% (75/141) of the registered nurses were of opinion that the quality of care in their units was good. 23.1% (33/141) of the participants indicated that the quality of care provided in their units was excellent, and only 2.1% (3/141) responded that quality care was poor (refer to figure 4.6). Two (1.4%) participants did not respond. In both groups most of the registered nurses, in the private and public sector, reported that they delivered good quality care in their unit. An effect size of 0.06 indicates a medium-significant practical difference in the quality of nursing care delivered to patients (refer to Table 4-6).

According to Hughes the work environment in which nurses provide care to patients can determine the quality and safety of patient care. As the largest health care workforce, nurses apply their knowledge, skills, and experience to care for the various and changing needs of

patients. When care falls short of standards, whether because of resource allocation (e.g., workforce shortages and lack of needed medical equipment) or lack of appropriate policies and standards, nurses shoulder much of the responsibility (Hughes, 2008).

Table 4-6 T-test: Quality of nursing care delivered to patients in your unit/ward (B1)

How would you describe the quality of nursing care delivered to patients in your unit/ward	Private	Public	Effect Size	*p*-value
Mean	3.02	2.98		
Standard deviation	0.683	0.732		
			0.06	0.590

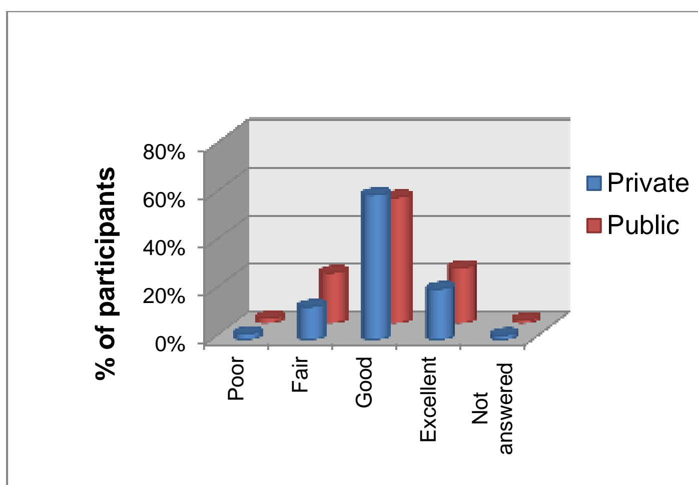

Figure 4-1: How would you, as registered nurse, describe the quality of nursing care delivered to patients? (B1), (n= Private 185, Public 141)

How confident are you that your patients are able to manage their care when discharged? (B2)

Registered nurses in the private sector responded as follows: Four (2.1%) participants did not respond, 53.4% (101/185) of the participants were confident, 29.1% (55/185) were somewhat confident and 1.6% (3/185) of the participants was not at all confident. In the public sector, one (0.7%) participant did not respond and 43.4% (62/141) of the participants was confident that patients were able to manage their care when discharged. 35.7% (51/141) were somewhat confident in their opinion and 7% (10/141) of the participants were not at all confident. An effect size of 0.22 indicates a small practical difference in confidence of registered nurses that patients will be able to manage their own care when discharged (refer to Table 4-7 and Figure 4-2). Boughton and Halliday state that health care professionals might consider patients to be ready for discharge on medical grounds, but many of the

patients are uncertain and anxious about leaving the hospital. Patients believe that they will not receive any follow-up support and little family support (Boughton and Halliday, 2009).

The Family Caregivers Alliance is of the opinion that, although both the American Medical Association and the Joint Commission on the Accreditation of Healthcare Organisations (JCAHO) offer recommendations for discharge planning, there is no universally utilized system in US hospitals. Additionally, patients are released from hospitals "quicker and sicker" than in the past, making it even more critical to arrange for good care after release. Studies have shown that as many as 40% of patients over 65 had medication errors after leaving the hospital, and 18% of Medicare patients discharged from a hospital are readmitted within 30 days. This is not good for the patient, not good for the hospital, and not good for the financing agency. On the other hand, research has shown that excellent planning and good follow-up can improve patients' health, reduce readmissions and decrease healthcare costs (FCA, 2009).

Table 4-7 T-test: Confidence that your patients are able to manage care when discharged (B2)

How confident are you that your patients are able to manage their care when discharged	Private	Public	Effect Size	*p*-value
Mean	2.81	2.63		
Standard deviation	0.685	0.803		
			0.22	0.036

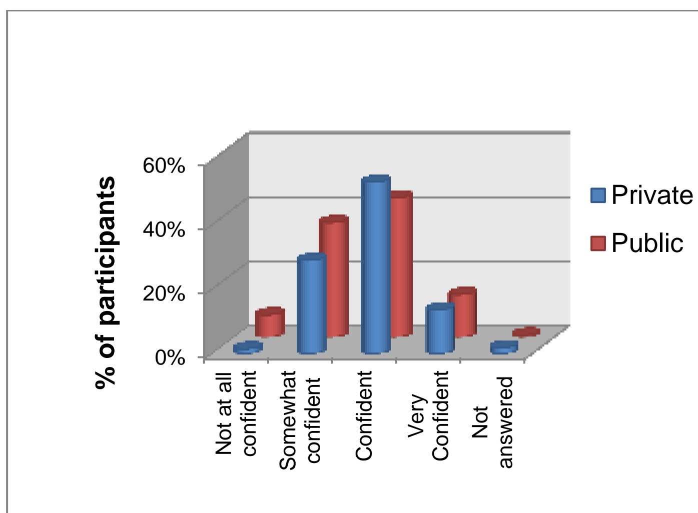

Figure 4-2: How confident are you that your patients are able to manage their care when discharged? (B2) (n= Private 185, Public 142)

How confident are you that hospital management will act to resolve problems in patient care that you report? (B3)

When asked to indicate the degree to which participants think management will act to resolve problems in patient care, in the private sector, 43.9% (83/186) of the participants felt confident that management would be able to solve the problem. Only 20.6% (39/186) felt very confident while 24.9% (47/186) were somewhat confident and 9% (17/186) had no confidence in their management's ability to solve patients' problems. Three (3) participants did not complete the question.

In the public sector, 30.8% (44/140) of the participants felt confident that management would be able to solve the problem. Only 13.3% (19/140) felt very confident while 39.2% (56/140) were somewhat confident and 14.7% (21/140) had no confidence in their management's ability to solve patients' problems. Registered nurses in the public sector (mean of 2.44 vs. 2.77 for private) had less confidence in management to resolve their problems in patient care. An effect size of 0.37 indicates a small to medium practical difference in nurses' confidence in management to act on reported problems (refer to Table 4-8 and Figure 4-3). Three participants did not complete the question. Nurses' confidence in management is commented by Aiken *et al.,* (Aiken et al., 2002) stating that much of the re-engineering and restructuring undertaken by hospital management has been planned to follow industrial models of productivity improvement rather than addressing nurses' concerns.

Hughes is of the opinion that everything about health care is complex. There are complex care processes, complex health care technologies, complex patient needs and responses to therapeutic interventions, and complex organisations. There are tremendous opportunities and challenges in improving the quality and safety of health care, but the majority require purposeful redesign of health care organisations and processes. Organisations that are committed to high-quality and safe care will not place nurses at the "sharp end" of care, but will focus on system improvements. Recognizing the complexity of care and how several factors combine at a specific time and result in errors and adverse events, organisations, leaders, and clinicians will dedicate themselves to using data and evidence and to continuously improve the quality and safety of care, even when there are complex challenges (Hughes, 2008).

Table 4-8 T-test: Confident that hospital management will act (B3)

How confident are you that hospital management will act to resolve problems in patient care that you report	Private	Public	Effect Size	*p*-value
Mean	2.77	2.44		
Standard deviation	0.884	0.907		
			0.37	0.001

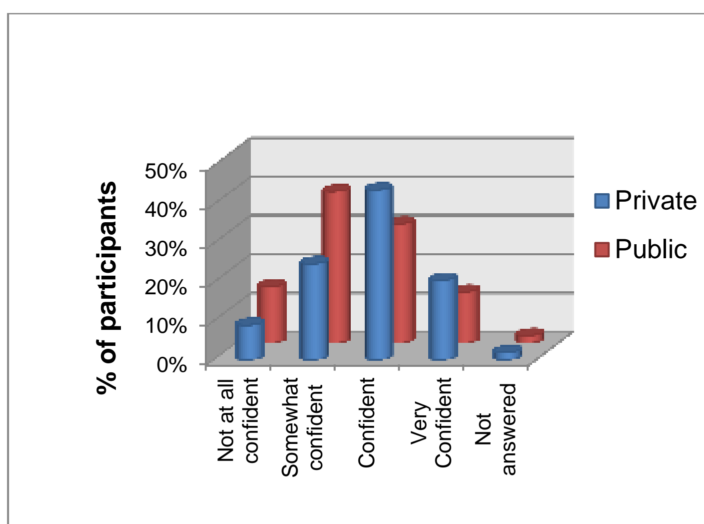

Figure 4-3: How confident are you that hospital management will act to resolve problems in patient care that you report? (B3) (n= Private 186, Public 140)

Please give your unit/ward an overall grade on patient safety (B4)

In rating patient safety in their wards in the private sector, 56.1% (108/186) of the participants responded that it was very good and 16.9% (32/186) excellent. 23.3% (44/186) of the participants viewed it to be acceptable while only 1.1% (2/186) rated it poor. Three participants did not answer the question. In the public sector, 28% (40/140) of the participants responded that it was very good and 18.9% (27/140) excellent. 44.8% (64/140) of the participants viewed it to be acceptable while only 4.2% (6/140) rated it poor. Three participants did not answer the question. An effect size of 0.32 indicates a practical difference that trends to be small to medium on the overall grade on patient safety (refer to Table 4-9 and Figure 4-4).

In a patient safety culture survey conducted by Sorra *et al.*, in hospitals in the USA, 70% of the participants gave their work area or unit a grade of “A-Excellent” (22%) or “B-Very Good” (48%) on patient safety. In the hospitals selected for this study 70% of the participants in private hospitals gave their wards a grade of “Excellent” or “Very Good”. In the selected public hospitals only 46.9% rated their wards as “Excellent” or “Very Good”, which implies that there is a difference between the private and public sectors (Sorra *et al.*, 2007). The RN4CAST

Nurse Survey conducted in England indicate that nurses reporting lower patient numbers per RN are more likely to describe that patient safety (as well as quality of patient care) are excellent or good. Where patient safety is reported as excellent, there are an average of seven patients per RN compared to more than nine where patient safety is 'poor' or 'failing' (Ball, 2012).

Table 4-9 T-test: Give your unit/ward an overall grade on patient safety (B4)

Please give your unit/ward an overall grade on patient safety	Private	Public	Effect Size	*p*-value
Mean	3.88	3.59		
Standard deviation	0.733	0.921		
			0.32	0.002

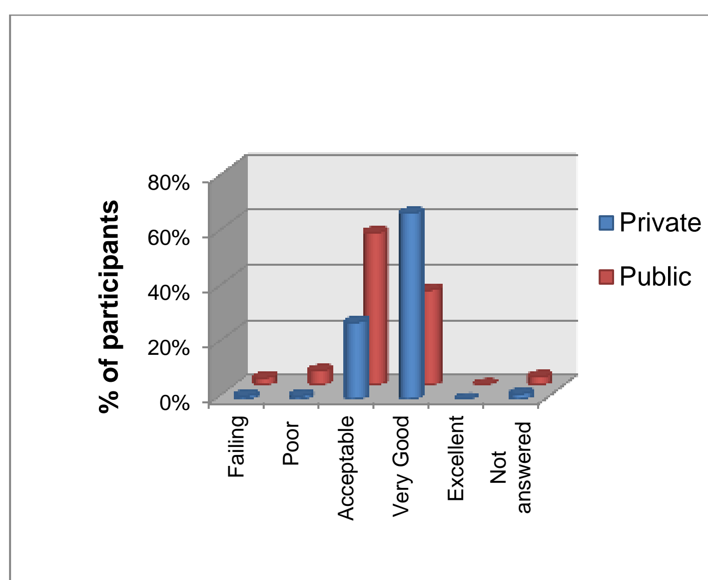

Figure 4-4: Please give your unit/ward an overall grade on patient safety. (B4) (n= Private 186, Public 140)

How would you describe the grading of quality of patient care in your hospital over the past year? (B5)

In the private sector participants were almost equally divided on whether quality of patient care deteriorated (30.7%, 58/181), improved (32.8%, 62/181) or remained the same (32.3%, 61/181). Eight (8) participants did not respond to the question. In the public sector, however, 44.8% (64/141) participants were of the opinion that quality of patient care improved. 32.2% (46/141) were of the opinion that quality of patient care remained the same and 21.7% (31/141) agreed that the quality of patient care deteriorated. An effect size of 0.13 indicates a small practically significant difference in the rating on the quality of patient care (refer to Table 4-10 and Figure 4-5).

Table 4-10 Mann-Whitney U-Test: How often would you rate quality of patient care in your hospital in the past year (B5)

How often would you rate quality of patient care in your hospital in the past year	Private	Public	Effect Size	*p*-value
Median	2.00	2.00		
25th Centile	1.00	2.00		
75th Centile	3.00	3.00		
			0.13	0.020

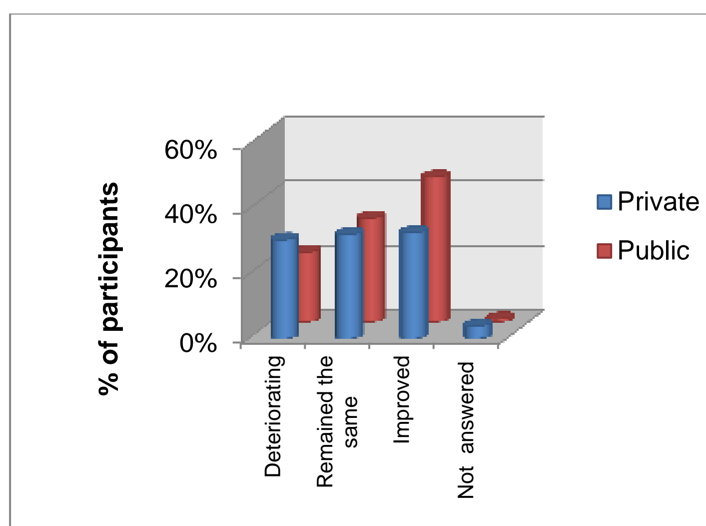

Figure 4-5: How would you describe the grading of quality of patient care in your hospital over the past year? (B5) (n= Private 181, Public 141)

Regarding the grading of the quality of health care, the South African Health Review (2011) states that licensing, certification and accreditation of health care facilities and its progressively evolving methodology is now an accepted scientific process. Accreditation programmes in Africa are being implemented with some success, depending on the level of management support and available resources. An increasing number of countries are developing quality standards and programs to improve the quality of their health care services. The emerging African experience indicates that accreditation is achievable through a wide range of facilities, ranging from poorly supported, rural primary health care clinics to sophisticated public and private tertiary level facilities. A rewarding outcome of the change in those facilities undergoing accreditation is the establishment of a culture of quality, identification of best practice protocols and the drive towards continuous quality improvement. In South Africa there is an increased awareness for quality improvement. Firstly is the development and implementation of the National Core Standards and fast-track programme launched and driven by the National Department of Health (DoH, 2011b). Secondly is the preparation for the National Health Insurance (NHI) programme and the implemented pilot.

ii) Nurse reported safety of patient care

Your opinion about patient safety issues in your employment setting (B6)

The following descriptive statistics are discussed with regard to the registered nurses' opinion about patient safety issues in the workplace. Independent t-tests were applied to analyse statistical data in this section.

Staff feels that their mistakes are held against them (B6.1)

In terms of the inappropriateness of managerial approaches to errors, in the private sector, 38.6% (73/181) of the participants agreed and 13.2% (25/181) strongly agreed that management held their mistakes against them, whilst 19% (36/181) disagreed and 6.3% (12/181) strongly disagreed. Eight (8) participants did not complete the question.

In the public sector, 39.2% (56/141) of the participants agreed and 18.2% (26/141) strongly agreed that management held their mistakes against them, whilst 17.5% (25/141) disagreed and 6.3% (9/141) strongly disagreed. Two (2) participants did not complete the question. An effect size of 0.10 indicates a small practical difference of staff's feeling that their mistakes are held against them (refer to Table 4-11). Kim *et al.,* state that nurses feel uncomfortable to report errors and suggested that safety must be improved in a culture where employees are not concerned that their mistakes will be kept against them and can openly discuss errors that occurred (Kim, 2007).

Clancy reported on a survey developed by the Agency for Healthcare Research and Quality in the United States, allowing hospitals and other health care settings to measure safety by asking staff to rate things like teamwork and communication about errors. The survey was launched in 2004. Since then, more than 338,000 employees from 855 hospitals have used the survey. Employees gave responses to statements such as "Staff feel like their mistakes are held against them," and "Staff feel free to question the decisions of or actions of others with more authority." They also gave feedback on whether they reported mistakes that could hurt a patient, even if no harm was done. These responses helped hospitals to recognise what works well and where they need to improve. Sixty percent of hospitals that have taken the survey repeated it to see if their safety culture has changed. When clinicians feel that they can talk openly about conditions that could harm patients, care improves. As evidence, hospital units that have open communication have fewer medication errors (Clancy, 2011).

Table 4-11 T-test: Staff feels like their mistakes are held against them (B6.1)

Staff feels like their mistakes are held against them	Private	Public	Effect Size	*p*- value
Mean	3.35	3.46		
Standard deviation	1.143	1.168		
			0.10	0.386

Important patient care information is often lost during shift changes (B6.2)

When asked about the loss of information during shift changes, 41.8% (79/179) of the participants in the private sector agreed that information on patients was lost during shift changes, while 9% (17/179) strongly agreed, resulting in a total of 50.8%. 10.6% (20/179) neither agreed nor disagreed, while 33.4% (63/179) of the participants disagreed or strongly disagreed. 5.3% (10/179) participants did not answer the question (refer to Table 4-12). This is confirmed by Alvarado, Lee, Christoffersen, Fram, Boblin, Poole, Lucas and Forsyth (Alvarado et al., 2006) who state that the lack of communication and significant patient information among nurses might lead to inappropriate nursing care plans and negative patient outcomes. However, 22.4% (32/138) participants in the public sector strongly disagree that information is lost and 23.8 (34/138) participants disagreed, resulting in a total of 46.2%. 15.4% (22/138) neither agreed nor disagreed, while 35% (50/138) of the participants agreed or strongly agreed. 3.5% (5/138) participants did not answer the question.

In 2001, the Institute of Medicine (IOM) reported that inadequate handoffs are "where safety often fails first." Other groups quickly joined the call for improved handoffs (Riesenberg, 2012). In 2006, the Joint Commission added a new National Patient Safety Goal: improve the effectiveness of communication among caregivers and require hospitals to "implement a standardized approach to 'handoff' communications, including an opportunity to ask and respond to questions." Also in 2006, the World Health Organisation Collaborating Centre on Patient Safety (Solutions), the World Alliance for Patient Safety, and the Commonwealth Fund joined to launch the "High 5s" initiative, which includes prevention of patient care handoff errors.

Table 4-12 T-test: Important patient care information is often lost during shift changes (B6.2)

Important patient care information is often lost during shift changes	Private	Public	Effect Size	*p*-value
Mean	3.19	2.75		
Standard deviation	1.189	1.329		
			0.33	0.002

Things "fall between the cracks" when transferring patients from one unit to another (B6.3)

The trend as reflected in the previous question persists when participants are questioned if things *"fall between the cracks"* when transferring patients from one unit to another. In the private sector, 42.9% (81/181) of the participants agreed and 7.4% (14/181) strongly agreed on this matter, resulting in a total of 50.3%. 4.2% (8/181) participants from the private sector did not complete the question and 12.2% (23/181) could not decide whether they agree or disagree. 33.3% (63/181) participants disagreed or strongly disagreed.

In the public sector an equal number of participants, 23.8% (34/140), disagreed as well as strongly disagreed. This results in a total of 47.6%, almost equal to the percentages in the previous question. 2.2% (3/140) participants from the public sector did not complete the question and 12.6% (18/140) could not decide whether they agree or disagree. 25.9% (37/140) of the participants agreed and 11.9% (17/140) strongly agreed on this matter, resulting in a total of 37.8%.

As an experienced professional nurse, the researcher agrees with the general feeling of the participants in the private sector, as well as with the literature consulted for the purposes of this study. The effectiveness of a handover will depend on the accuracy and completeness of the information given, and whether it is received clearly and understood by the recipient. The lack of consistent processes, the absence of best practice guidelines and the limited use of protocols mean that handovers are fraught with risk. Poor handovers create discontinuities in care that can lead to adverse events, avoidable harm, complaints and litigation (Williams, 2012).

Table 4-13 T-test: Things "fall between the cracks" when transferring patients from one unit to another (B6.3)

Things "fall between the cracks" when transferring patients from one unit to another	Private	Public	Effect Size	*p*-value
Mean	3.12	2.78		
Standard deviation	1.223	1.389		
			0.25	0.022

An effect size of 0.33 (refer to Table 4-12) and 0.25 (refer to Table 4-13) indicates a medium and small to medium practically significant difference with regard to loss of important patient care information during shift changes or transfer of a patient.

Staff feels free to question the decisions or actions of those in authority (B6.4)

In terms of the transparency and accessibility of management, in the private sector, 45% (85/180) of the participants indicated that they did not feel free to ask questions regarding the decisions of those in authority. However, an almost similar number, 38.6% (73/180), agree with the transparency and accessibility of their management. 4.8% (9/180) participants from the private sector did not complete the question and 11.6% (22/180) could not decide whether they agree or disagree.

In the public sector, 44.8% (64/137) disagreed with the statement, and 42% (60/137) agreed that they could question the decisions or actions of management. 4.2% (6/137) participants from the public sector did not complete the question and 9% (13/137) could not decide whether they agree or disagree. In both private and public sectors most of the participants neither agreed nor disagreed on questioning management's authority in actions and decision making (refer to Table 4-14).

No significant conclusion could be drawn although a recent article "A Strategy to Improve Nurses Speaking Up and Collaborating for Patient Safety", published in the Journal of Nursing Administration (Sayre, 2012), states that a necessary but frequently missing ingredient to achieve collaboration is effective communication based on the ability of RNs to speak up. Research indicates that nurses resolve conflict with a concern for others ignoring the concern for self. This is especially significant because the nurse is frequently the advocate and voice of the patient. When the nurse fails to speak up and resolve conflict with a concern for self, the patient's voice may be left silent, and patient harm may occur.

Table 4-14 T-test: Staff feels free to question the decisions or actions of those in authority (B6.4)

Staff feels free to question the decisions or actions of those in authority	Private	Public	Effect Size	*p*-value
Mean	2.84	2.82		
Standard deviation	1.223	1.400		
			0.02	0.858

In this unit, we discuss ways to prevent errors from happening again (B6.5)

When asked about strategies to prevent the recurrence of errors in patient care, in the private sector 83.1% (157/294) of the participants agreed that error prevention is a priority in their ward. The minority of the participants either disagreed 5.8% (11/184) or strongly disagreed 4.2% (8/184) in stating that error prevention strategies are not a priority in their ward. 2.6% (5/184) participants from the private sector did not complete the question and 4.2% (8/184)

could not decide whether they agree or disagree. 10% (19/184) participants disagreed or strongly disagreed.

73.5% (105/139) Participants in the public sector agreed that error prevention is a priority in their ward. The minority of participants in the public sector disagreed 11.2% (16/139) and 4.2% (6/139) strongly disagreed that they discuss ways to prevent errors from happening again. 2.8% (4/139) participants from the public sector did not complete the question and 8.4% (12/139) could not decide whether they agree or disagree. An effect size of 0.09 indicates a small practical difference in the ways to prevent errors from happening again (refer to Table 4-15).

Stated by Hughes, an error which did not result in a serious or potentially serious event does not contradict the fact that it was and still is an error (Hughes, 2008). Since reporting both errors and near misses has been key to improve safety, health care organisations and the patients they serve can benefit from enabling reporting. (D., 2000). Reporting sets up a process so that errors and near misses can be communicated to key stakeholders. Once data are compiled, health care agencies can then evaluate causes and revise and create processes to reduce the risk of errors. As such, organisations have implemented strategies, such as staff education, elicitation of staff advice, and budget appropriations, to ease the implementation of patient safety systems and to improve internal (e.g., intra institutional) reporting and disclosure to patients and families.

Table 4-15 T-test: In this unit we discuss ways to prevent errors from happening again (B6.5)

In this unit, we discuss ways to prevent errors from happening again	Private	Public	Effect Size	*p*-value
Mean	3.98	3.88		
Standard deviation	0.978	1.123		
			0.09	0.409

We are given feedback about changes put into place based on event reports (B6.6)

In terms of communication and feedback between management and the registered nurse, most (66.7%, 126/180) of the participants in the private sector and 67.2% (96/137) in the public sector, agreed and strongly agreed that management communicated changes put in place, based on event reports. An effect size of 0.06 indicates a small practical difference on receiving feedback on changes put into place (refer to Table 4-16). In a study conducted by Van Bogaert *et al.* the researchers concluded that nurses' involvement in hospital and unit policies is important for professional satisfaction and to prevent burnout and to stimulate

engagement (Van Bogaert *et al.*, 2009). In the private and public sectors, a minute percentage, less than 20%, of participants disagreed and strongly disagreed that they received feedback on event reports.

This result is substantiated by Kim *et al.,* in a study conducted with 886 nurses at eight Korean teaching hospitals where Fifty-two percent of nurses reported that they were given feedback and informed about errors that were made (Kim, 2007). However, nurses were not positive about the openness of communication in their working environment. Even when the nurses saw something negative that may affect patient care, only half of them (48%) felt free to speak out, and only 38% said that they would voice opinions different from those of people in authority. About 66% of the respondents felt that their suggestions to improve patient safety seemed to be ignored, and only 27% of nurses felt free to question the decisions of those with more authority. About 50% of nurses reported that they were afraid to question when something did not seem to be right.

Table 4-16 T-test: We are given feedback about changes put into place based on event reports (B6.6)

We are given feedback about changes put into place based on event reports	Private	Public	Effect Size	*p*-value
Mean	3.58	3.66		
Standard deviation	1.157	1.221		
			0.06	0.587

The actions of hospital management show that patient safety is a top priority (B6.7)

When participants in the private sector were asked about patient safety as a priority for management, 50.3% (95/185) of the participants agreed and 30.2% (57/185) strongly agreed that patient safety is a managerial priority in their hospitals. 6.9% (13/185) of participants disagreed and 3.2% (6/185) strongly disagreed that patient safety is a top priority. 2.1% (4/185) participants from the private sector did not complete the question and 7.4% (14/185) could not decide whether they agree or disagree.

There are no significant differences from the participant in the public sector where 39.9% (57/140) agreed and 30.8% (44/140) strongly agreed that patient safety is a top priority. Only 6.3% (9/140) strongly disagreed and 7.7% (11/140) disagreed on this issue. 2.1% (3/140) participants from the public sector did not complete the question and 13.3% (19/140) could not decide whether they agree or disagree. An effect size of 0.14 indicates a small practical difference on management’s action that patient safety is top priority (refer to Table 4-17).

In “A model for reducing medical errors “ (Chiozza, 2007) it is revealed that “assuring patient safety before an injury occurs is the concern of all professionals involved in the patient care; patient safety is therefore, first and foremost, an issue intrinsically related to professional identity”. However, patient safety is also a cause of immense concern to all health care systems, because the public has lost its confidence in their ability to provide safe services. It is now particularly clear that the traditional health care system's reliance on competent people to do the right thing has not fulfilled the intended purpose: patients continue to experience adverse events and medical mishaps occur at alarmingly high rates (Lesar, 1997, Thomas, 2000). Finally, patient safety is also a management issue, in view of the fact that Clinical Risk Management has become an important part of hospital management. Reducing the probability of risk in hospitals is of vital importance in improving the quality of health care, relationships between hospital staff and patients and patient compliance, and also in limiting malpractice litigation (Morelli, 2007). The report of the Institute of Medicine “To err is human: building a safer health system” underlines that health care lags a decade or so behind other high-risk industries in its attention to ensuring basic safety (Kohn, 1999). Chiozza states that patient safety is a management issue. In view of the fact that clinical risk management has become an important part of hospital management, the Failure Mode and Effect Analysis is a proactive technique for error detection and reduction (Chiozza, 2007).

Table 4-17 T-test: The actions of hospital management show that patient safety is a top priority (B6.7)

The actions of hospital management show that patient safety is a top priority.	Private	Public	Effect Size	*p*-value
Mean	3.99	3.83		
Standard deviation	0.981	1.150		
			0.14	0.171

iii) Nurse reported adverse events

How often would you say each of the following incidents occur involving you or your patients? (B7)

Question seven in section D in the NNS is divided into two categories namely: quality care and safety of patients and safety of staff. For clarification the responses from the participants will be documented in table format. Mann-Whitneys’ were applied to analyse statistical data in this section.

How often would you say has a patient received the wrong medication, time or dose? (B7.1)

Medication error is a common cause of preventable patient harm. The Institute of Medicine in the United States of America (USA) estimates (IOM, 2006):

- 1 medication error per hospitalised patient per day in the USA;
- 1.5 million preventable adverse drug events per year in the USA;
- 7000 deaths per year from medication errors in US hospitals.

Other countries around the world that have researched the incidence of medication error and adverse drug events have similar statistics. The main components of these events are: prescribing, administration and monitoring of medication. There is potential for error in every step of the process and a variety of ways that error can occur at each step. The two factors outlined below in Table 4-18 are applicable to this study (WHO, 2012a):

Table 4-18: The potential for error in every step of the process and a variety of ways that error can occur at each step (WHO, 2012a).

Staff factors:	Workplace design factors:
• Inexperienced. • Rushing, emergency situations. • Multi-tasking. • Being interrupted in a mid-task. • Fatigue, boredom, lack of vigilance. • Lack of checking and double-checking habits. • Poor teamwork, poor communication between colleagues. • Reluctance to use memory aids.	• Absence of safety culture in the workplace. This may be evidenced by a lack of reporting systems and failure to learn from past near misses and adverse events. • Absence of readily available memory aids for staff. • Inadequate staff numbers. • Medicines not stored in an easy to use form.

In this research in the private sector 3% of the participants stated that patients never received wrong medication, time or dose. 7% of the participants indicated that patients received wrong medication, time or dose, a few times a year or less. There were 50% of the participants that indicated that patients received wrong medication, time or dose a few times a month. 7% of the participants indicated the incident to occur once a month or less. 6% of the participants did not complete the question. 30% of participants indicated that patients received wrong medication, time or dose, once a week. In the public sector 61% of the participants stated that patients never received wrong medication, time or dose. 10% of the participants indicated that patients received wrong medication, time or dose, a few times a year or less. There were 1% of the participants that indicated that patients received wrong medication, time or dose a few times a month. 10% of the participants indicated the incident to occur once a month or less. 4% of participants indicated that patients received wrong medication, time or dose, once a week and 6% indicated a few times a week. 6% of the participants did not complete the question. Taking all the above-mentioned facts into consideration, participants, private and public sector, indicates a small to medium practically significant difference in their opinions as to how often do patients receive wrong medication effect size=0.17 (refer to Table 4-19).

Table 4-19 Mann-Whitney U-Test: How often would you say patients received wrong medication, time or dose (B7.1)

How often would you say patients received wrong medication, time, or dose	Private	Public	Effect Size	*p*-value
Median	1.00	1.00		
25th Centile	0.00	0.00		
75th Centile	1.75	1.00		
			0.17	0.002

How often would you say has pressure ulcers develop after admission (B7.2)

Pressure ulcers are always related to the care provided, but its occurrence depends on intrinsic risk factors such as age, co-morbidity, nutritional condition, mobility, dependency for daily living activities, etc., the length of the hospital stay, the proper management of the patient (position changes), an appropriate assessment of the risk involved and the taking of preventive measures in keeping up with the risk (pressure ulcer-preventing mattress, protective patches, etc.) (WHO, 2006a).

52.4% of the participants from the private sector indicated that pressure ulcers develop only a few times a year or less and 28.6% stated that it never happens. 7.9% indicated that pressure ulcers develop once a month or less and 3.7% indicated a few times a month. 0.5% of the participants indicated a few times a week and 6.9% did not complete the question. Participants from the public sector (35.7%) indicated that pressure ulcers never develop in their hospitals and 37.1% indicated that pressure ulcers develop only a few times a year or less. 11.9% of participants indicated that pressure ulcers happens once a month or less and 7% indicated a few times a month, 0.7% indicated a few times a week and 2.1% indicated daily occurrences. 5.6% of the participants did not complete the question. An effect size of 0.01 indicates that there are no practically significant difference (refer to Table 4-20).

Table 4-20 Mann-Whitney U-Test: How often would you say patients develop pressure ulcers after admission (B7.2)

How often would you say patients develop pressure ulcers after admission	Private	Public	Effect Size	*p*-value
Median	1.00	1.00		
25th Centile	0.00	0.00		
75th Centile	1.00	1.00		
			0.01	0.858

How often would you say do patients suffer an injury due to falls (B7.3)

Hospitals globally report that patient slips and falls are the most common and serious injuries in hospitals (www.lifehealthcare.co.za, 2010). High risk patients are identified during the admission process and preventive measures are included in the care plans for these patients. This approach has contributed to the reduction in slips and falls from 1.2 per 1 000 Paid Patient Days in 2008 to 0.71 in 2010. In this research in the private sector 32.8% of the participants stated that there are never patients that suffer injury due to falls. 42.9% of the participants indicated that there are a few patients a year or less that suffer injury due to falls. There were 2.1% of the participants that indicated injury due to falls happens a few times a month. 11.1% of the participants indicated, injury due to patient falls occurs once a month or less. 11.1% of the participants did not complete the question. In the public sector the participants were predominantly of opinion that there are no injuries due to patient falls (56.6%) and 28.7% were of the opinion that there are only a few injuries per year or less. 2.1% indicated that it happens a few times a month and 1.4% indicated daily injuries due to falls. 6.3% did not complete the question. An effect size of 0.22 indicates that there are a small to medium practically significant difference (refer to Table 4-21).

Table 4-21 Mann-Whitney U-Test: How often would you say patients falls with injury (B7.3)

How often would you say patients falls with injury	Private	Public	Effect Size	*p*-value
Median	1.00	0.00		
25th Centile	0.00	0.00		
75th Centile	1.00	1.00		
			0.22	0.00

The finding of a negative relationship between “Registered nursing hours per patient day and patient falls corroborates previous findings of Krauss *et al.*, who demonstrated that patient falls are sensitive to nurse-to-patient ratios, with patients seven times more likely to fall when the nurse was assigned seven or more patients than when the nurse had three patients or fewer (Krauss *et al.*, 2005). The advantage of increased nursing time for patients at risk for falls seems intuitive: more patient contact creates additional capacity for direct observation, and thus more opportunities to prevent a fall (Taylor, 2011).

Health care-associated infections (B7.4)

Nosocomial infections occur worldwide and affect both developed and resource-poor countries. Infections acquired in health care settings are among the major causes of death and increased morbidity among hospitalised patients. They are a significant burden both for the patient and for public health. A prevalence survey (WHO, 2002) conducted under the

auspices of the WHO in 55 hospitals of 14 countries representing four WHO Regions (Europe, Eastern Mediterranean, South-East Asia and Western Pacific) indicated an average of 8.7% of hospital patients that had nosocomial infections. At any time, over 1.4 million people world-wide suffer from infectious complications acquired in hospital. The highest frequencies of nosocomial infections were reported from hospitals in the Eastern Mediterranean and South-East Asia Regions (11.8 and 10.0% respectively), with a prevalence of 7.7 and 9.0% respectively in the European and Western Pacific Regions. The most frequent nosocomial infections are infections of surgical wounds, urinary tract infections and lower respiratory tract infections. The WHO study on “Prevention of hospital-acquired infections” has shown that the highest prevalence of nosocomial infections occurs in intensive care units and in acute surgical and orthopaedic wards. Infection rates are higher among patients with increased susceptibility because of old age, underlying disease, or chemotherapy (WHO, 2002). The participants from the private sector responded that health care-associated infections occur a few times a year or less. In contradiction the participants from the public sector responded that health care-associated infections never occur.

Table 4-22: Urinary tract infections (B7.4.1)

	Private	Public
Never	19%	37.8%
Few times a year or less	44.4%	36.4%
Once a month or less	15.3%	10.5%
Few times a month	10.1%	7%
Once a week	1.1%	0.7%
Few times a week	2.1%	0.7%
Every day	1.1%	2.1%

Table 4-23 Mann-Whitney U-Test: How often would you say urinary tract infections occur (B7.4.1)

How often would you say urinary tract infections occur	Private	Public	Effect Size	*p*-value
Median	1.00	1.00		
25th Centile	1.00	0.00		
75th Centile	2.00	1.00		
			0.19	0.001

Table 4-24 Bloodstream infections (B7.4.2)

	Private	Public
Never	27%	45.5%
Few times a year or less	38.6%	26.6%
Once a month or less	11.6%	11.9%
Few times a month	10.6%	7%
Once a week	2.1%	1.4%
Few times a week	2.1%	1.4%
Every day	1.1%	1.4%

Table 4-25 Mann-Whitney U-Test: How often would you say bloodstream infections occur (B7.4.2)

How often would you say bloodstream infections occur	Private	Public	Effect Size	*p*-value
Median	1.00	1.00		
25th Centile	0.00	0.00		
75th Centile	2.00	1.00		
			0.16	0.005

Table 4-26 Air-borne infections (B7.4.3)

	Private	Public
Never	25.4%	41.3%
Few times a year or less	33.3%	25.9%
Once a month or less	13.8%	11.9%
Few times a month	10.1%	8.4%
Once a week	3.2%	0.7%
Few times a week	3.7%	2.8%
Every day	2.1%	2.1%

Table 4-27 Mann-Whitney U-Test: How often would you say air borne infections occur (B7.4.3)

How often would you say air borne infections occur	Private	Public	Effect Size	*p*-value
Median	1.00	1.00		
25th Centile	0.00	0.00		
75th Centile	2.00	2.00		
			0.15	0.008

The differences between private and public hospitals with regard to adverse events indicated a small to medium practical significant differences in urinary tract infections (effect size=0.19) (refer to Table 4-23) and patients that fall with injury (effect size=0.22) (refer to Table 4-21) the highest effect size.

Complaints from patients or their families (B7.5)

Participants from both private and public hospitals indicated that there are few complaints from patients or their families. The National Department of Health, in consultation with various other bodies, developed a National Patients' Rights Charter (2008). According to this charter everyone has the right to complain about health care services, to have such complaints investigated and to receive a full response on such investigation (www.hpcsa.co.za, 2008). Complaints relating to public hospitals need to be addressed to the clinic or hospital manager. However, if the complainant is still unhappy, he or she can contact the Department of Health in that Province. If a complaint relates to a private hospital, it can be reported to HASA. If a person feels that a nurse acted negligently or unethically, individual nurses can be reported to the SANC to investigate the complaint. An effect size of 0.15 indicates a small practically significant difference (refer to Table 4-29).

Table 4-28 Complaints from patients or their families (B7.5)

	Private	Public
Never	21%	36%
Few times a year or less	25%	25%
Once a month or less	21%	16%
Few times a month	4%	2%
Once a week	8%	6%
Few times a week	8%	7%
Every day	0%	0%
Not answered	13%	7%

Table 4-29 Mann-Whitney U-Test: How often would you say complaints from patients and/or their families are received (B7.5)

How often would you say complaints from patients and/or their families are received	Private	Public	Effect Size	*p*-value
Median	2.00	2.00		
25th Centile	1.00	1.00		
75th Centile	3.00	3.00		
			0.15	0.008

Abuse towards nurses (B7.6-7)

Participants are of the opinion that verbal abuse towards nurses by staff are more likely to transpire in the private sector than in the public sector. In addition to this, participants (7.7%) in the public sector claim that abuse towards nurses by staff occurs every day. The majority of the participants, both from the private (45.5%) and public (62.2%) sectors indicated that

physical abuse towards nurses by patients and/or families never occurs. The majority of the participants, both from the private (70.4%) and public (73.4%) sectors indicated that physical abuse towards nurses by staff never occurs.

Relationships in the workplace could influence nurses' decision to stay or leave, including friendship and support between colleagues and peers. Negative relationships are characterised by verbal abuse and a lack of respect from doctors, nursing colleagues and nurse managers. At times nurses are abused verbally and even physically by patients and their families. Where relationships with colleagues are happy and collegial, nurse managers agreed that patients also receive good care. Nurses who helped one another made the workload more bearable, contributing to lower turnover rates in such units. Support in the workplace develops when positive relationships are built, where there is mutual respect, trust and integrity (Naude, 2005). The work environment needs to be friendly and supportive and the workplace must have a welcoming atmosphere. Nurses want to be appreciated and respected by management and doctors. They want their expertise to be recognised and to participate in decision-making processes pertaining to patient care (Upenieks, 2003). Participants from both the private and public sector agreed on the frequency of verbal abuse by patients and/or families. As discussed above and mentioned in Chapter 2, the work environment is a crucial factor in quality care and safety of patients.

Table 4-30 Verbal abuse towards nurses by patients and/or families (B7.6.1)

	Private	Public
Never	7.9%	16.8%
Few times a year or less	27.5%	28.7%
Once a month or less	17.5%	12.6%
Few times a month	18%	14%
Once a week	6.3%	2.8%
Few times a week	11.1%	8.4%
Every day	5.8%	11.2%
Not answered	6%	7%

Table 4-31 Mann-Whitney U-Test: How often would you say verbal abuse towards nurses by patients and/or their families occur (B7.6.1)

How often would you say verbal abuse towards nurses by patients and/or their families occur	Private	Public	Effect Size	*p*-value
Median	2.00	2.00		
25th Centile	1.00	1.00		
75th Centile	3.25	3.00		
			0.08	0.152

Table 4-32 Verbal abuse towards nurses by staff (B7.6.2)

	Private	Public
Never	24.9%	32.9%
Few times a year or less	28.6%	29.4%
Once a month or less	12.7%	9.8%
Few times a month	14.8%	6.3%
Once a week	4.2%	4.2%
Few times a week	4.2%	3.5%
Every day	4.2%	7.7%
Not answered	8%	9%

Table 4-33 Mann-Whitney U-Test: How often would you say verbal abuse towards nurses by staff occur (B7.6.2)

How often would you say verbal abuse towards nurses by staff occur	Private	Public	Effect Size	*p*-value
Median	1.00	1.00		
25th Centile	0.00	0.00		
75th Centile	3.00	2.00		
			0.09	0.133

An effect size of 0.08 (refer to Table 4-31) and 0.09 (refer to Table 4-33) indicates small practically significant differences with regard to verbal abuse towards nurses in the private and public sector.

Table 4-34 Physical abuse towards nurses by patients and/or families (B7.7.1)

	Private	Public
Never	45.5%	62.2%
Few times a year or less	24.9%	16.8%
Once a month or less	11.1%	5.6%
Few times a month	5.8%	4.9%
Once a week	1.6%	1.4%
Few times a week	3.7%	2.1%
Every day	1.6%	2.8%
Not answered	11%	11%

Table 4-35 Mann-Whitney U-Test: How often would you say physical abuse towards nurses by patients and/or families occur (B7.7.1)

How often would you say physical abuse towards nurses by patients and/or families occur	Private	Public	Effect Size	*p*-value
Median	1.00	0.00		
25th Centile	0.00	0.00		
75th Centile	2.00	1.00		
			0.15	0.008

Table 4-36 Physical abuse towards nurses by staff (B7.7.2)

	Private	Public
Never	70.4%	73.4%
Few times a year or less	12.2%	8.4%
Once a month or less	2.6%	2.1%
Few times a month	3.2%	4.9%
Once a week	1.6%	0%
Few times a week	0.5%	2.1%
Every day	1.1%	2.1%
Not answered	29%	26%

Table 4-37 Mann-Whitney U-Test: How often would you say physical abuse towards nurses by staff occur (B7.7.2)

How often would you say physical abuse towards nurses by staff occur	Private	Public	Effect Size	*p*-value
Median	0.00	0.00		
25th Centile	0.00	0.00		
75th Centile	0.00	0.00		
			0.01	0.806

An effect size of 0.15 (refer to Table 4-35) and 0.01 (refer to Table 4-37) indicates small practically significant differences with regard to physical abuse towards nurses in the private and public sector.

Work related physical injuries to nurses (B7.8)

Participants from both the private and public sector agreed that work related injuries to nurses occur only a few times a year. The responses of participants are reported in Table 4-38. Unsafe working conditions contribute to health worker attrition in many countries due to work-related illness and injury and the resulting fear of health workers of occupational infection, including HIV/Aids and tuberculosis. The 2006 World Health Report titled Working Together

for Health (WHO, 2006c) reported on a severe health workforce crisis in fifty-seven countries, most of them in Africa and Asia. Protecting the occupational health of health workers is critical to having an adequate workforce of trained and healthy health personnel. The WHO Global Plan of Action on workers' health calls on all member states to develop national campaigns for immunising health workers against Hepatitis B. Among health workers infected with Hepatitis B, the WHO global burden of disease from sharps injuries to health-care workers showed that 37% of the Hepatitis B among health workers was the result of occupational exposure. Infection with the Hepatitis B virus is 95% preventable with immunization. While less than 10% of the HIV among health workers is the result of exposure at work, needle stick injuries, the cause of 95% of the HIV occupational seroconversions, are preventable with practical, low-cost measures and have the co-benefit of preventing exposure to other blood borne viruses and bacteria (WHO, 2012b).

Table 4-38 Work related physical injuries to nurses (B7.8)

	Private	**Public**
Never	60%	75%
Few times a year or less	19%	7%
Once a month or less	8%	3%
Few times a month	0%	2%
Once a week	1%	2%
Few times a week	3%	3%
Every day	0%	0%
Not answered	8%	7%

Table 4-39 Mann-Whitney U-Test: How often would you say work related physical injuries to nurses occur (B7.8)

How often would you say work related physical injuries to nurses occur	**Private**	**Public**	**Effect Size**	***p*-value**
Median	1.00	1.00		
25th Centile	0.50	0.00		
75th Centile	2.00	1.00		
			0.15	0.006

An effect size of 0.15 (refer to Table 4-39) indicates a small practically significant difference with regard to work related physical injuries in the private and public sector.

4.5 Integrated discussion

In Chapter 4 the participant demographics were discussed, as well as descriptive and comparative statistical analysis related to the variables under investigation. The results are summarised in three categories namely: demography, quality and safety of patient care and adverse events.

- Demography

There are no practical significant associations between the private and public sector regarding gender and basic training. Registered nurses in the private sector are slightly younger and have less experience than nurses working in the public sector. As indicated in Figure 2.2 in Chapter 2, regarding the inter-relatedness between nurse reported quality and safety of patient care and adverse events within South African health systems, the demographic results were congruent with this description.

- Quality and safety of patient care

Both groups of registered nurses, private and public sector, reported that they delivered good quality care in their unit. When rating patient safety, small to medium practically significant differences was observed in the loss of important patient information during patient transfers between units and shift changes and on management's action that patient safety is top priority.

- Adverse events

The biggest difference between private and public hospitals resides from patients that fell with injuries however this difference is not practically significant.

This study followed the WHO International Classification Framework for Patient Safety (2009) as the theoretical framework. The cyclic nature of this framework entailed a continuous improvement as actions were taken to reduce risks. The loss of important patient information can be positioned within this WHO framework as graphically depicted in Figure 2.1 in Chapter 2.

4.6 Summary

Chapter 4 described the realisation of data collection and secondary data analysis. The descriptive and inferential statistics regarding quality of care, patient safety and adverse events were presented. The subsequent chapter provides an evaluation of the study, the limitations of the study and future directions by means of recommendations for nursing practice, research, education and policy development.

Chapter 5. Evaluation of the Study, Limitations and Recommendations

5.1 Introduction

An evaluation of the study is done to reflect whether the findings meet the objectives set in Chapter 1. Limitations are theoretical and methodological restrictions or weaknesses in a study that may decrease the ability to generalise the findings (Burns and Grove, 2009). Thus limitations restrict the applicability of the study to the general population.

According to Burns and Grove recommendations include ideas that emerged from the present study and previous studies in the same area that can provide direction for the future (Burns and Grove, 2009). The limitations of this study are consequently discussed, followed by recommendations for nursing practice, nursing research, nursing education and policy development.

5.2 Evaluation of the Study

This study was performed in fulfilment of the requirements for the degree Magister Curationis. The researcher gained confidence and understanding of the research process through the writing of this dissertation. The study aimed to compare nurse reported quality and safety of patient care and adverse events in selected private and public hospitals in the Free State and North West Provinces; however no significant difference was identified. A need for this study was identified when international literature was found to have explored and described of registered nurses reporting of quality and safety of patient care and adverse events. Yet, limited research had been done within the South African context regarding the relationship between the private and public sector in terms of quality of care, patient safety and adverse events.

A correlational design with explorative, descriptive and contextual research strategies was used in order to answer the question of whether there is a relationship between the private and public sector in terms of quality of care, patient safety and adverse events. Data was collected by means of the RN4CAST NNS and secondary statistical analyses by means of descriptive and inferential statistics were conducted.

Findings included neutral report on aspects related to the relationship between the private and public sector regarding quality of care, patient safety and adverse events. H_{01} states that there is no statistical difference between the nurse reported quality and safety of patient care and adverse events in medical and surgical units between the public and private hospitals in the Free State and North West Provinces, while H_{A1} states that there is a statistical difference between the nurse reported quality and safety of patient care and adverse events in medical and surgical units in public and private hospitals in the Free State and North West Provinces. Ha1 was rejected. Adverse events are not reported accurately due to evaluation apprehension. Furthermore, there is a need to address issues regarding management and leadership in order to create a safe environment for registered nurses in which to report adverse events or limitations in quality of care and safety.

5.3 Limitations of the Study

As self-reporting are very circumstantial, different influences on the study participants might have influenced the outcome of the study. Some of these elements might well be the difference between the private and public health care settings.

This study relied on self-report questionnaire data, which are subject to social desirability biases. According to Burns and Grove evaluation apprehension refers to participants' desire to be seen in a favourable light by the researchers (Burns and Grove, 2009). The participants' responses might have been influenced to reveal perceptions as being more positive than reality entails in order for the researchers to regard the institutions in a more favourable light. This could be worsened by the participants feeling that their mistakes will be held against them.

5.4 Recommendations

Recommendations for nursing practice, nursing research, nursing education and nursing policy are formulated below in accordance with conclusions from the study.

5.4.1 Recommendations for Nursing Practice

In both the private and public hospitals, training and retraining regarding aspects of quality of care, patient safety and adverse events should occur on a regular basis in order for patient outcomes to improve. Reporting of adverse events should occur promptly and without hesitation so as to reduce the risk of recurrence. These recommendations are in line with the core standards as set out by the South African Department of Health (DoH, 2011a):

- Patients receive care and treatment that follow nursing protocols, meet their basic needs and contribute to their recovery.
- Care provided contributes positively to national priorities, including the United Nations MDGs for maternal and child health, HIV/AIDS and tuberculosis.
- Doctors, nurses and other health professionals constantly work to improve the care they provide through proper support systems.
- Clinical risk identification and analysis take place in every ward to prevent patient safety incidents.
- Patients with special needs or at high risk, such as pregnant mothers, children, the mentally ill or the elderly, receive special attention.
- Safety protocols are in place to protect patients undergoing high-risk procedures such as surgery, medication administration, blood transfusion or resuscitation.
- Adverse events or patient safety incidents are promptly identified and managed to minimise patient harm and suffering.
- Adverse events are routinely analysed and managed to prevent recurrence and learn from mistakes.
- An Infection Prevention and Control Programme is in place to reduce health care associated infections (DoH, 2007)
- Specific precautions are taken to prevent the spread of respiratory infections.
- Standard precautions are applied to prevent health-care associated infections.

5.4.2 Recommendations for Nursing Research

Research focussing on how to align nurses' report of quality of care, patient safety and adverse events with the reality of the insufficiencies might prove to have some merit. If registered nurses perceive quality of care, patient safety and adverse events to be ideal, improvement of these patient outcomes might be seen as unnecessary.

As self-reporting do not warrant true predictions of quality of care, patient safety and adverse events, it might be useful to inspect the quality of care, patient safety and adverse events outcomes as delivered by nurses in the private and public sector. This will indicate the future for nursing education.

Since patient safety is such a serious concern, recommendation on patient safety should include the prevention and control of healthcare-associated infections. These research questions will assist to develop measures to help prevent and reduce the occurrence of adverse events in healthcare, such as:

- Measures to improve reporting of patient safety events. Compared to direct observation, event reports capture only a fraction of events and may not reliably identify serious events.
- Stop blaming individuals when errors are made and move to a more balanced approach that focuses on the healthcare systems and work environments, a "culture of safety."
- Levels of awareness of patient safety amongst patients.
- Measuring both hospital- and unit-level aspects of supervisor/manager expectations and actions, non-punitive response to error, and continuous learning.

5.4.3 Recommendations for Nursing Education

It is of great importance that nursing education should not only include elements of rendering quality of care and patient safe care, but also elements of risks involved in patient outcomes. Definite guidelines (such as set out by the WHO) regarding situations causing a decrease in quality of care, patient safety and adverse events should be included in basic nursing education curricula, with measures that effectively limit these situations. Patient safety should also be taught at the post-graduate level, and remain an area of definite priority.

In-service education to nursing staff plays an important role, it should add value to the hospital and should also be cost-effective. Patient safety and adverse events must be a focus of continuous training, specific to the unit where the registered nurses render care. It is also recommended that management be trained in strategies that can be used to decrease the culture of blaming in order to ensure a positive work environment. It is further important to develop registered nurses' discernment of event reporting to improve the completeness, standard and importance of the reports.

5.4.4 Recommendations for Policy Development

Quality of care, patient safety and adverse events should be highlighted in every new policy. Quality control in hospitals should adhere to clear guidelines and occur on a regular basis. Both internal and external audits on quality of care, patient safety and adverse events should be done on a regular basis in private and public sectors. Leadership should be developed in the nursing profession to manage and lead health professionals towards optimal quality of care, patient safety and the prevention of adverse events.

5.5 Summary

The study was evaluated, limitations to the study were identified and solutions given for possible improvement. Recommendations to enhance patient safety and quality of care as well as to decrease adverse events were made for nursing practice, future nursing research, nursing education and nursing policy.

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Chapter 7. Annexures

7.1 Annexure A: Request for Approval of RN4CAST

Health & Soc Dev

Department:
Health & Social Development
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

DIRECTOR: POLICY & [illegible] JUL 2010 DEPARTMENT [illegible] HEALTH

2nd Floor Tirelo Building
Dr. Albert Luthuli Drive
Mafikeng, 2745
Private Bag X2068
MMABATHO

DIRECTORATE POLICY, PLANNING AND RESEARCH

Fax: 086 724 0856
emolakane@nwpg.gov.za

To : Dr Pedra Bester
Co –investigator for South Africa's Team
North West University

RECEIVED

From : Director: Policy, Planning & Research Directorate
Mr K.Rabanye

Date : 03 July 2010

Subject: Request for approval **Improving the quality of nursing in South Africa through nurse staffing and patient safety (RNA4 CAST)**

The above stated subject matter has the following reference

This communiqué serves to inform your good office that permission to undertake the above mentioned study has been granted by the North West Department of Health and Social Development.

Arrangements with managers at District level shall be facilitated by the researcher. We shall be delighted to receive a final report in this regard.

Yours truly

Mr K.Rabanye
Chairperson: PHRC –Health Branch
North West Department of Health and Social Development

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7.2 Annexure B: Approval for RN4CAST

health
Department of Health
FREE STATE PROVINCE

30 July 2010

Prof H.C. Klopper
Principal Investigator: RN4CAST
University of North-West
Private Bag X6001
POTCHEFSTROOM CAMPUS
2520

Dear Prof Klopper

Subject: PERMISSION TO CONDUCT RESEARCH IN SELECTED HOSPITALS

The above mentioned correspondence bears reference.

Permission is hereby granted for the above – mentioned research on the following conditions:

- Consent from the individual CEO's still needs to be obtained.
- Research results shared with the Department as well as all reports made available to the Free State Department of Health.
- Participation by personnel should be preceded by individual consent.
- Research does not impact negatively on service delivery.
- Confidentiality of participants is ensured and no patient / staff identifiers will be used.

Trust you find the above in order.

Kind Regards,

Dr S Kabane
Head of Health
Date: 2010/07/30

7.3 Annexure C: Ethics Letter of Approval

NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT

Private Bag X6001, Potchefstroom
South Africa 2520

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Ethics Committee
Tel +27 18 299 4850
Fax +27 18 293 5329
Email Ethics@nwu.ac.za

11 July 2008

Prof H Klopper

Dear Prof Klopper

ETHICS APPROVAL OF PROJECT

The North-West University Ethics Committee (NWU-EC) hereby approves your project as indicated below. This implies that the NWU-EC grants its permission that, provided the special conditions specified below are met and pending any other authorisation that may be necessary, the project may be initiated, using the ethics number below.

Project title: Leadership and policy development improving the quality of nursing in South Africa through nursing staffing and patient safety

Ethics number: N W U - 0 0 1 5 - 0 8 - S 1 (Institution / Project Number / Year / Status)
Status: S = Submission; R = Re-Submission; P = Provisional Authorisation; A = Authorisation

Approval date: 11 July 2008 **Expiry date**: 10 July 2013

Special conditions of the approval (if any): None

General conditions:

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, please note the following:

- *The project leader (principle investigator) must report in the prescribed format to the NWU-EC:*
  - *annually (or as otherwise requested) on the progress of the project,*
  - *without any delay in case of any adverse event (or any matter that interrupts sound ethical principles) during the course of the project.*
- *The approval applies strictly to the protocol as stipulated in the application form. Would any changes to the protocol be deemed necessary during the course of the project, the project leader must apply for approval of these changes at the NWU-EC. Would there be deviated from the project protocol without the necessary approval of such changes, the ethics approval is immediately and automatically forfeited.*
- *The date of approval indicates the first date that the project may be started. Would the project have to continue after the expiry date, a new application must be made to the NWU-EC and new approval received before or on the expiry date.*
- *In the interest of ethical responsibility the NWU-EC retains the right to:*
  - *request access to any information or data at any time during the course or after completion of the project;*
  - *withdraw or postpone approval if:*
    - *any unethical principles or practices of the project are revealed or suspected,*
    - *it becomes apparent that any relevant information was withheld from the NWU-EC or that information has been false or misrepresented,*
    - *the required annual report and reporting of adverse events was not done timely and accurately,*
    - *new institutional rules, national legislation or international conventions deem it necessary.*

The Ethics Committee would like to remain at your service as scientist and researcher, and wishes you well with your project. Please do not hesitate to contact the Ethics Committee for any further enquiries or requests for assistance.

Yours sincerely

Prof MMJ Lowes
(chair NWU Ethics Committee)

7.4 Annexure D: RN4CAST National Nurses Survey

National Nurse Survey: Registered nurses

RN4CAST Questionnaire (Registered nurses)

FOR OFFICIAL USE ONLY:

IDENTIFICATION CODE

COUNTRY CODE	*27*
HOSPITAL GROUP CODE	
HOSPITAL CODE	
UNIT CODE	

PLEASE MARK AN "X" IN THE BOX CORRESPONDING TO YOUR ANSWER IN EACH QUESTION, OR SUPPLY THE REQUESTED INFORMATION.

A. ABOUT YOUR JOB

1. Please indicate the extent to which you agree that each of the following features is present in your current job.

	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
1. Adequate support services allow me to spend time with my patients.	1☐	2☐	3☐	4☐
2. Physicians and nurses have good working relationships.	1☐	2☐	3☐	4☐
3. A supervisory staff that is supportive of nurses.	1☐	2☐	3☐	4☐
4. Active staff development or continuing education programs for nurses.	1☐	2☐	3☐	4☐
5. Career development/clinical ladder opportunity.	1☐	2☐	3☐	4☐
6. Opportunity for registered nurses to participate in policy decisions.	1☐	2☐	3☐	4☐
7. Physicians value nurses' observations and judgments.	1☐	2☐	3☐	4☐
8. Enough time and opportunity to discuss patient care problems with other nurses.	1☐	2☐	3☐	4☐
9. Enough registered nurses on staff to provide quality patient care.	1☐	2☐	3☐	4☐
10. A nurse manager who is a good manager and leader.	1☐	2☐	3☐	4☐
11. A chief nursing officer who is highly visible and accessible to staff.	1☐	2☐	3☐	4☐
12. Enough staff to get the work done.	1☐	2☐	3☐	4☐
13. Physicians recognize nurses' contributions to patient care.	1☐	2☐	3☐	4☐
14. Praise and recognition for a job well done.	1☐	2☐	3☐	4☐
15. High standards of nursing care are expected by the management.	1☐	2☐	3☐	4☐
16. A chief nursing officer is equal in power and authority to other top level hospital executives.	1☐	2☐	3☐	4☐

	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
17. A lot of team work between nurses and physicians.	1☐	2☐	3☐	4☐
18. Opportunities for advancement.	1☐	2☐	3☐	4☐
19. A clear philosophy of nursing that pervades the patient care environment.	1☐	2☐	3☐	4☐
20. Working with nurses who are clinically competent.	1☐	2☐	3☐	4☐
21. Physicians respect nurses as professionals	1☐	2☐	3☐	4☐
22. A nurse manager who backs up the nursing staff in decision making, even if the conflict is with a physician.	1☐	2☐	3☐	4☐
23. Management that listens and responds to employee concerns.	1☐	2☐	3☐	4☐
24. An active quality assurance program.	1☐	2☐	3☐	4☐
25. Registered nurses are involved in the internal governance of the hospital (e.g., practice and policy committees).	1☐	2☐	3☐	4☐
26. Collaboration between nurses and physicians.	1☐	2☐	3☐	4☐

1. Please indicate the extent to which you agree that each of the following features is present in your current job.

	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
27. A preceptor program for newly hired nurses.	1☐	2☐	3☐	4☐
28. Nursing care is based on a nursing rather than a medical model.	1☐	2☐	3☐	4☐
29. Registered nurses have the opportunity to serve on hospital and nursing committees.	1☐	2☐	3☐	4☐
30. Physicians hold nurses in high esteem.	1☐	2☐	3☐	4☐
31. Written, up-to-date care plans for all patients.	1☐	2☐	3☐	4☐
32. Patient care assignments that foster continuity of care (i.e., the same nurse cares for the patient from one day to the next).	1☐	2☐	3☐	4☐

2. How satisfied are you with your current job in this hospital?

1☐ Very dissatisfied   2☐ A little dissatisfied   3☐ Moderately satisfied   4☐ Very satisfied

3. How would you rate the work environment at your job in this hospital (such as adequacy of resources, relations with coworkers, support from supervisors)?

1☐ Poor   2☐ Fair   3☐ Good   4☐ Excellent

4. How satisfied are you with the following aspects of your job?

	Very Dissatisfied	A Little dissatisfied	Moderately Satisfied	Very Satisfied
1. Work schedule flexibility	1☐	2☐	3☐	4☐
2. Opportunities for advancement	1☐	2☐	3☐	4☐
3. Independence at work	1☐	2☐	3☐	4☐
4. Professional status	1☐	2☐	3☐	4☐
5. Wages	1☐	2☐	3☐	4☐
6. Educational opportunities	1☐	2☐	3☐	4☐
7. Annual leave	1☐	2☐	3☐	4☐
8. Sick leave	1☐	2☐	3☐	4☐
9. Study leave	1☐	2☐	3☐	4☐

5 a). If possible, would you leave your current hospital within the next year as a result of job dissatisfaction?

1☐ Yes   2☐ No

b). If yes, what type of work would you seek?

1☐ Nursing in another hospital   2☐ Nursing, but not in a hospital   3☐ Non-nursing

6. If you were looking for another job, how easy do you think it would be for you to find an acceptable job in nursing?

1☐ Very difficult   2☐ Fairly difficult   3☐ Fairly easy   4☐ Very easy

7. Would you recommend your hospital to a nurse colleague as a good place to work?

1☐ Definitely no   2☐ Probably no   3☐ Probably yes   4☐ Definitely yes

8. Would you recommend your hospital to your friends and family if they needed hospital care?

1☐ Definitely no   2☐Probably no   3☐ Probably yes   4☐ Definitely yes

9. Please mark the response that best describes <u>how frequently</u> you have each feeling in relation to your current job in this hospital.

	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
1. I feel emotionally drained from my work.	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
2. I feel used up at the end of the workday.	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
3. I feel fatigued when I get up in the morning and have to face another day on the job	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
4. I can easily understand how my patients feel about things.	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
5. I feel I treat some patients as if they were impersonal objects.	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
6. Working with people all day is really a strain for me.	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
7. I deal very effectively with the problems of my patients.	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
8. I feel burned-out from my work.	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
9. I feel I'm positively influencing other people's lives.	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
10. I've become more insensitive toward people since I took this job.	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
11. I worry that this job is hardening me emotionally.	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
12. I feel very energetic.	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
13. I feel frustrated by my job.	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
14. I feel I'm working too hard on my	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐

job.							
15. I don't really care what happens to some patients.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
16. Working directly with people puts too much stress on me.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
17. I can easily create a relaxed atmosphere with my patients.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
18. I accomplish many worthwhile things in this job.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
19. I feel exhilarated after working closely with my patients.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
20. I feel like I'm at the end of my rope.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
21. In my work, I deal with emotional problems very calmly.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
22. I feel patients blame me for some of their problems.	0☐	1☐	2☐	3☐	4☐	5☐	6☐

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B. QUALITY AND SAFETY

1. In general, how would you describe the quality of nursing care delivered to patients on your unit/ward?

1☐ Poor 2☐ Fair 3☐ Good 4☐ Excellent

2. How confident are you that your patients are able to manage their care when discharged?

1☐ Not at all confident 2☐ Somewhat confident 3☐ Confident 4☐ Very confident

3. How confident are you that hospital management will act to resolve problems in patient care that you report?

1☐ Not at all confident 2☐ Somewhat confident 3☐ Confident 4☐ Very confident

4. Please give your unit/ward an overall grade on patient safety.

1☐ Failing 2☐ Poor 3☐ Acceptable 4☐ Very good 5☐ Excellent

5. In the past year would you say the quality of patient care in your hospital has …

1☐ Deteriorated 2☐ Remained the same 3☐ Improved

6. The following questions ask for your opinion about patient safety issues in your employment setting.

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1. Staff feel like their mistakes are held against them.	1☐	2☐	3☐	4☐	5☐
2. Important patient care information is often lost during shift changes.	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. Staff feel free to question the decisions or actions of those in authority.	1☐	2☐	3☐	4☐	5☐
5. In this unit, we discuss ways to prevent errors from happening again.	1☐	2☐	3☐	4☐	5☐

6. We are given feedback about changes put into place based on event reports.	1☐	2☐	3☐	4☐	5☐
7. The actions of hospital management show that patient safety is a top priority.	1☐	2☐	3☐	4☐	5☐

7. How often would you say each of the following incidents occurs involving you or your patients?

	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
1. Patient received wrong medication, time, or dose	0☐	1☐	2☐	3☐	4☐	5☐	6☐
2. Pressure ulcers after admission	0☐	1☐	2☐	3☐	4☐	5☐	6☐
3. Patient falls with injury	0☐	1☐	2☐	3☐	4☐	5☐	6☐
4. Health care-associated infection:							
1. Urinary tract infections	0☐	1☐	2☐	3☐	4☐	5☐	6☐
2. Bloodstream infections	0☐	1☐	2☐	3☐	4☐	5☐	6☐
3. Pneumonia	0☐	1☐	2☐	3☐	4☐	5☐	6☐
5. Complaints from patients or their families	0☐	1☐	2☐	3☐	4☐	5☐	6☐
6. Verbal abuse toward nurses							
1. By patients and/or families	0☐	1☐	2☐	3☐	4☐	5☐	6☐
2. By staff	0☐	1☐	2☐	3☐	4☐	5☐	6☐
7. Physical abuse toward nurses							
1. By patients and/or families	0☐	1☐	2☐	3☐	4☐	5☐	6☐
2. By staff	0☐	1☐	2☐	3☐	4☐	5☐	6☐

8. Work related physical injuries to nurses [0]☐ [1]☐ [2]☐ [3]☐ [4]☐ [5]☐ [6]☐

C. ABOUT YOUR MOST RECENT SHIFT AT WORK IN THIS HOSPITAL

1. Which best describes the most recent shift you worked in this hospital?

[1]☐ Day duty [2]☐ Afternoon/evening [3]☐ Night duty

2. Write in the box the number of hours you worked on your most recent shift in this hospital, e.g 6, 12 hours ?

☐☐ **Hours:**

3. On your most recent shift at this hospital did you work beyond your contracted hours, e.g more than 12 hours?

[1]☐ Yes [2]☐ No

4. How many patients were you directly responsible for on the most recent shift you worked, e.g. 1, 3, 10 patients?

☐☐ **Patients:**

a. Were you the shift leader on your most recent shift?

[1]☐ Yes [2]☐ No

5. Is the number of patients in preceding question (C4) typical of your workload every day?

[1]☐ Less [2]☐ Same [3]☐ More

6. Of all the patients were you directly responsible for on your most recent shift,

a. how many required assistance with all activities of daily living? ☐

b. how many required hourly or more frequent monitoring or treatments? ☐

7. How would you describe your role in caring for most of the patients on your most recent shift?

Mark the one option that fits best.

[1]☐ I provided most care myself
[2]☐ I supervised the care by others and provided some myself.
[3]☐ I provided only limited care such as dressing changes or drug administration and most of direct care was done by others

8. On your most recent shift how many patients in total were on your unit/ward? ☐

9. Counting yourself, how many registered nurses in total provided direct patient care on your unit/ward during the most recent shift you worked?

Number of registered nurses: ☐☐

10. How many other nursing care staff (staff nurses, nursing assistants and care workers) in total provided direct patient care on your unit/ward during the most recent shift you worked?

Other nursing care staff: ☐☐

11. On your most recent shift, how often did you perform the following tasks?

	Never	Sometimes	Often
1. Delivering and retrieving food trays	0☐	1☐	2☐
2. Performing non-nursing care	0☐	1☐	2☐
3. Arranging discharge referrals and transportation (including to long term care)	0☐	1☐	2☐
4. Routine phlebotomy/blood draw for tests	0☐	1☐	2☐
5. Transporting of patients within hospital	0☐	1☐	2☐
6. Cleaning patient rooms and equipment	0☐	1☐	2☐
7. Filling in for non-nursing services not available on off-hours	0☐	1☐	2☐
8. Obtaining supplies or equipment	0☐	1☐	2☐
9. Answering phones, clerical duties	0☐	1☐	2☐

12. On your most recent shift, which of the following activities were necessary but left undone because you lacked the time to complete them? Mark all that apply.

1. Adequate patient surveillance	☐
2. Skin care	☐
3. Oral hygiene	☐
4. Pain management	☐
5. Comfort/talk with patients	☐
6. Educating patients and family	☐
7. Treatments and procedures	☐
8. Administer medications on time	☐
9. Prepare patients and families for discharge	☐

10. Adequately document nursing care ☐

11. Develop or update nursing care plans/care pathways ☐

12. Planning care ☐

13. Frequent changing of patient position ☐

D. ABOUT YOU

1. What is your gender?

[1]☐ Female [2]☐ Male

2. What is your age? Years: ☐

3a. Did you receive your basic nursing education in the country where you currently work as a registered nurse?

[1]☐ Yes [2]☐ No

b. If no, in what country did you receive your basic nursing education? Country:

☐

4. Not including the country where you currently work, list the last three countries, if any, (and years) where you have worked as a registered nurse.

Country|Years: ☐ **Country|Years:** ☐ **Country|Years:** ☐

5. What was your age when you first became a registered nurse (completed your training)? Years: ☐

6. Do you have a baccalaureate degree in nursing?

[1]☐ Yes [2]☐ No

7. How satisfied are you with your choice of nursing as a career?

[1]☐ Very dissatisfied [2]☐ A little dissatisfied [3]☐ Moderately satisfied [4]☐ Very satisfied

8. Are you working in this hospital full time?

[1]☐ Yes [2]☐ No

9. How many years have you worked as a <u>registered</u> nurse …

a. in your career **Years:** ☐

b. in this hospital **Years:** ☐

10. Please write the name/number of the ward/unit that you work in (e.g Ward 1A or Ward C):_______________

11. Do you have an additional qualification in critical care nursing? If <u>yes</u>, please indicate the type.

[1]☐ Masters degree [2]☐ Diploma

Thank you for taking the time to complete and return this survey.

7.5 Annexure E: Graphs of raw data

The demographics of the registered nurses were extrapolated from section D of the RN4CAST NNS. A total of 332 registered nurses (n=332) that met the inclusion criteria completed and returned NNS. Only demographic data that was applicable to this study was analysed. The following variables were addressed: gender, age, education, satisfaction with nursing as a career and how many years working as a registered nurse.

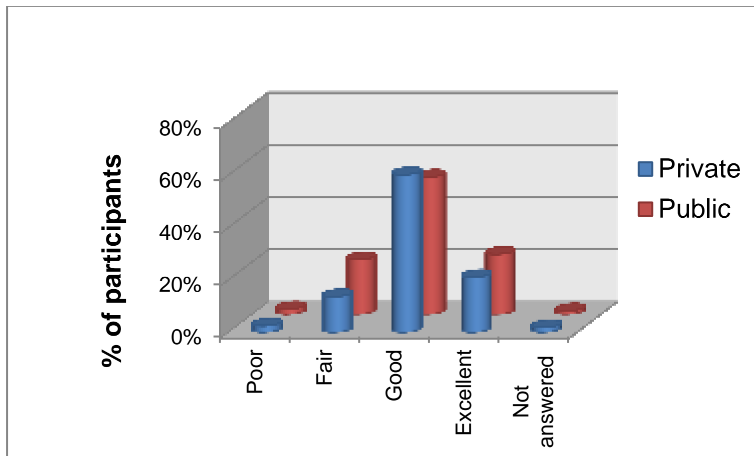


Figure 7-1: How would you, as registered nurse, describe the quality of nursing care delivered to patients?
n= Private 185, Public 141.

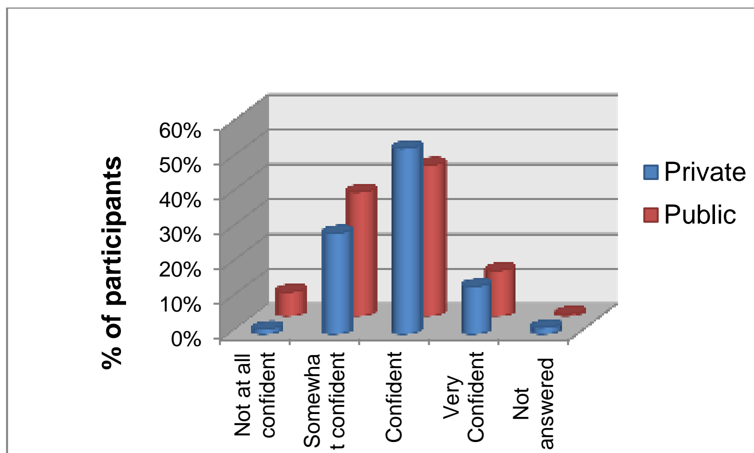


Figure 7-2: How confident are you that your patients are able to manage their care when discharged?
n= Private 185, Public 142

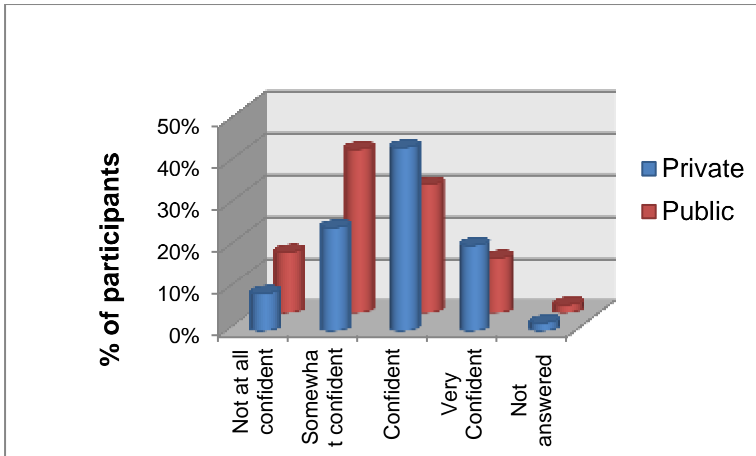


Figure 7-3: How Confident are you that hospital management will act to resolve problems in patient care that you report?

n= Private 186, Public 140

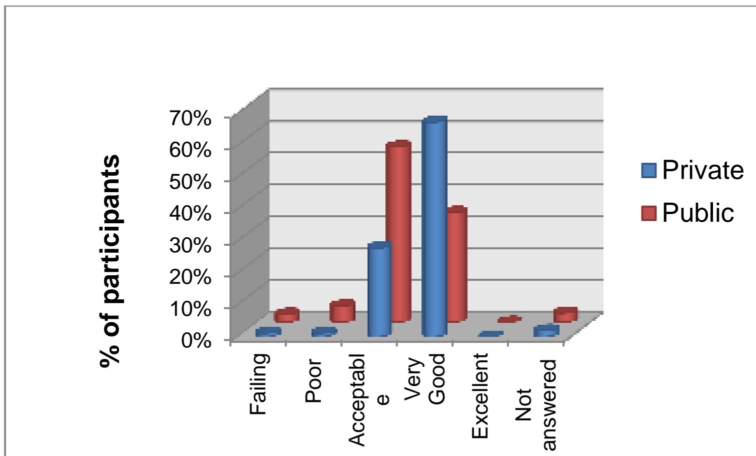


Figure 7-4: Please give your unit/ward an overall grade on patient safety.

n= Private 186, Public 140

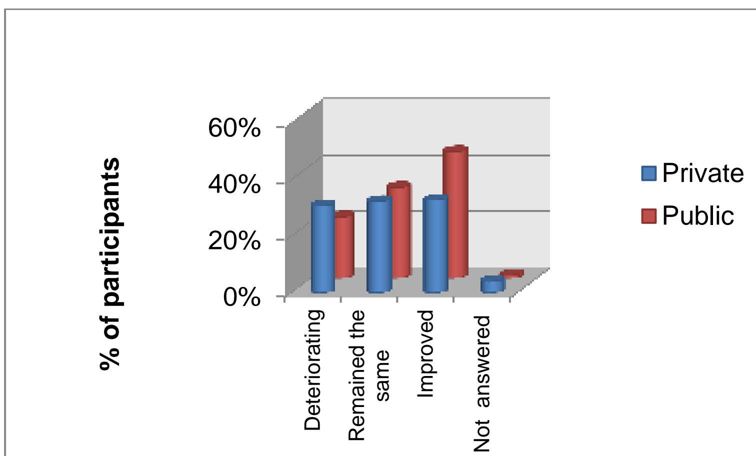


Figure 7-5: How would you describe the grading of quality of patient care in your hospital?

n= Private 181, Public 141

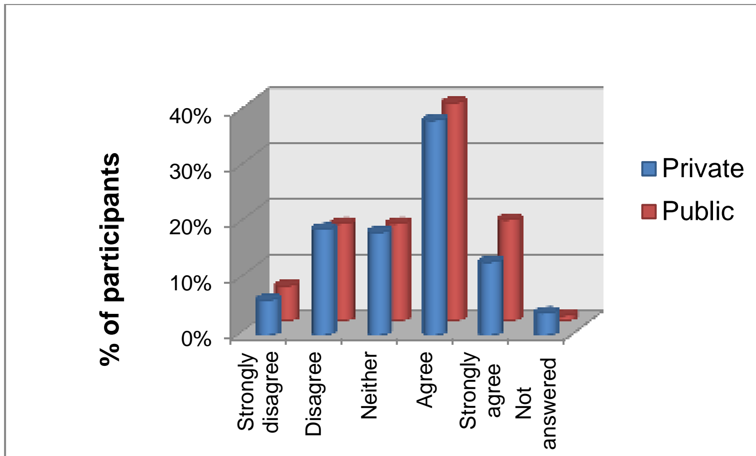


Figure 7-6: Staff feel that their mistakes are held against them.

n= Private 181, Public 141

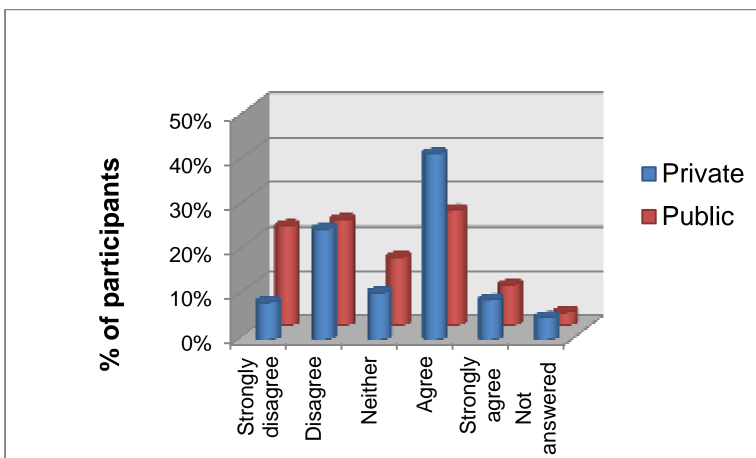


Figure 7-7: Important patient care information is often lost during shift changes.

n= Private 179, Public 138.

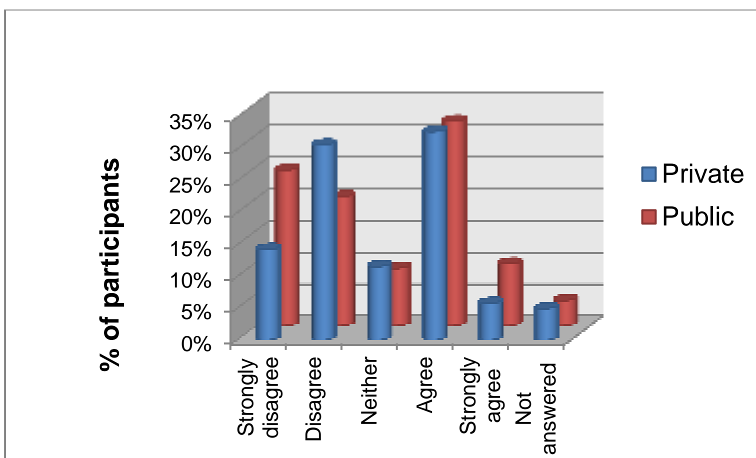


Figure 7-8: Staff feels free to question the decisions or actions of those in authority.

n= Private 180, Public 137

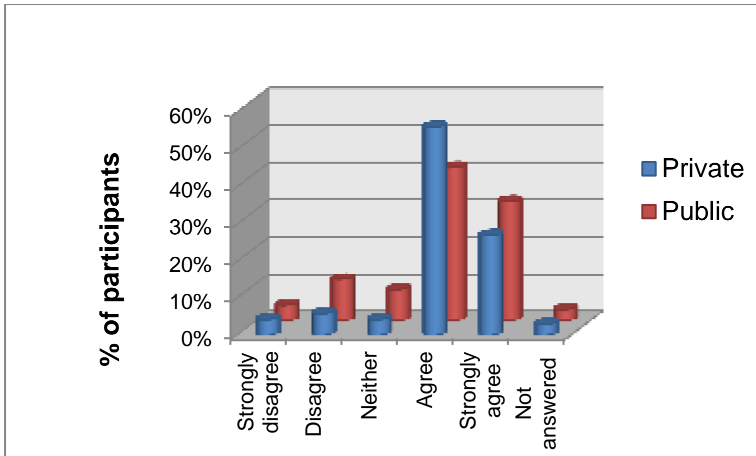


Figure 7-9: In this unit, we discuss ways to prevent errors from happening again.

n= Private 184, Public 139

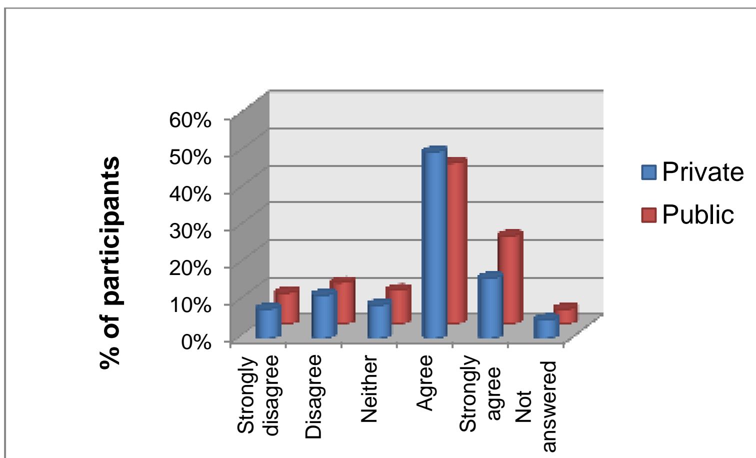


Figure 7-10: We are given feedback about changes put into place based on event reports.

n= Private 180, Public 137

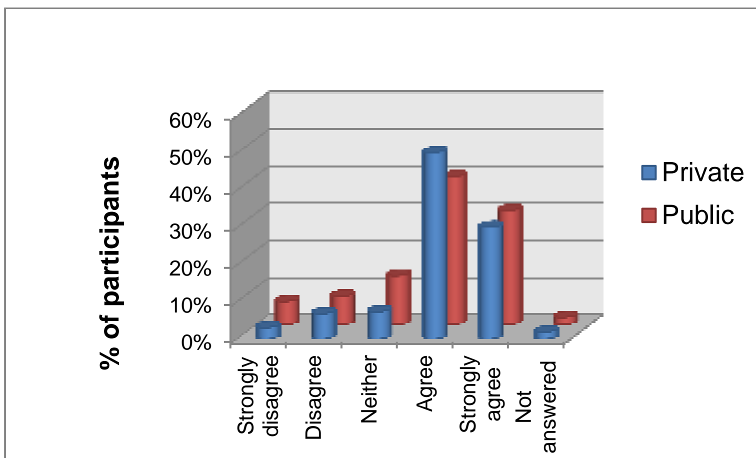


Figure 7-11: The actions of hospital management show that patient safety is a top priority?

n= Private 185, Public 140

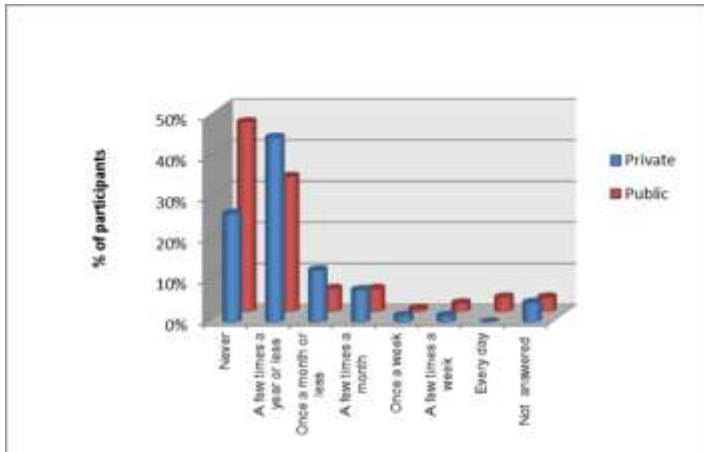


Figure 7-12: How often would you say has a patient received the wrong medication, time or dose?

n= Private 180, Public 138

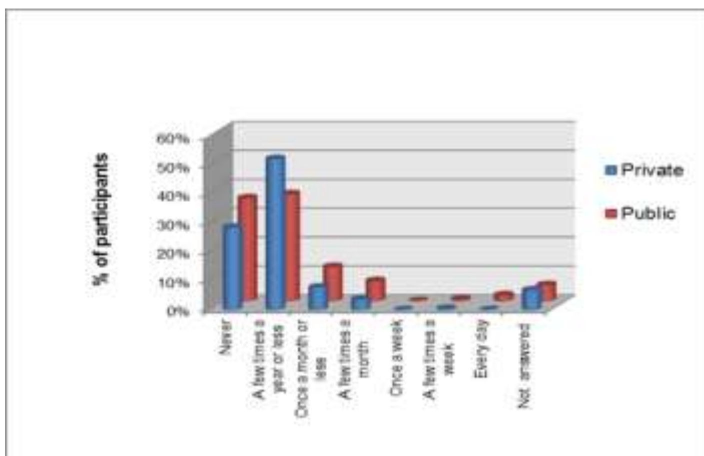


Figure 7-13: How often would you say has pressure ulcers develop after admission?

n= Private 176, Public 135

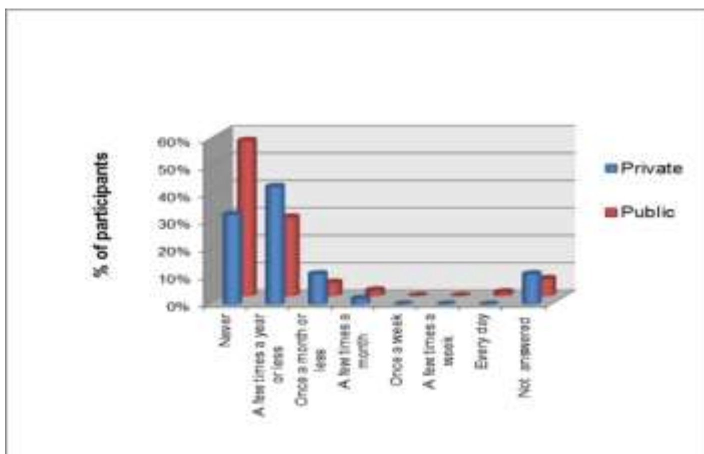


Figure 7-14: How often would you say do patients suffer an injury due to falls?

n= Private 168, Public 134

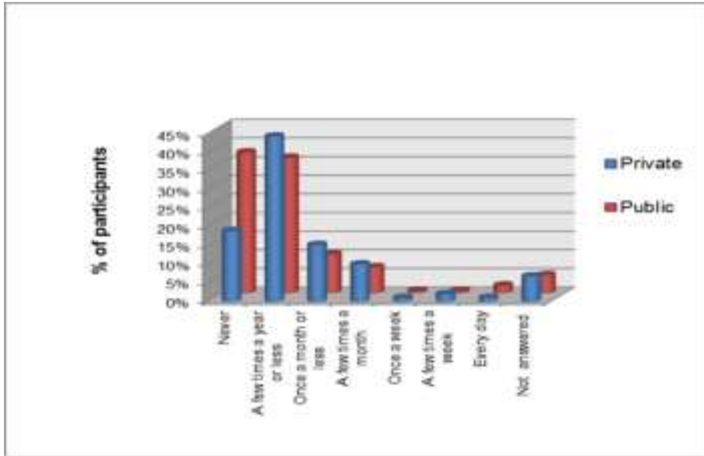


Figure 7-15: Health care-associated infection: Urinary tract infections.
n= Private 176, Public 136

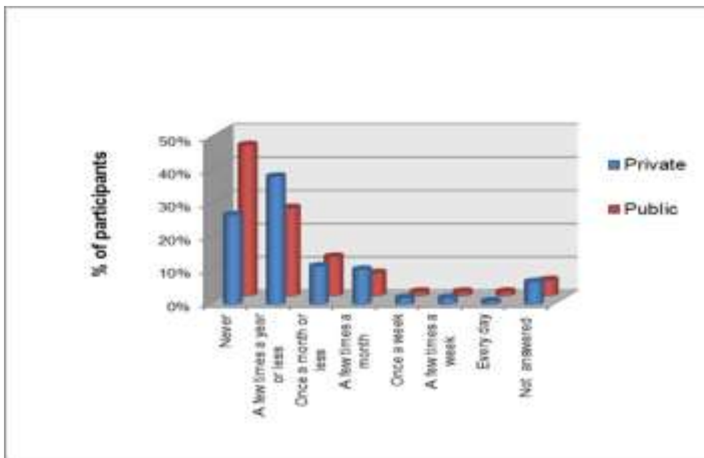


Figure 7-16: Health care-associated infection: Bloodstream infections.
n= Private 176, Public 136

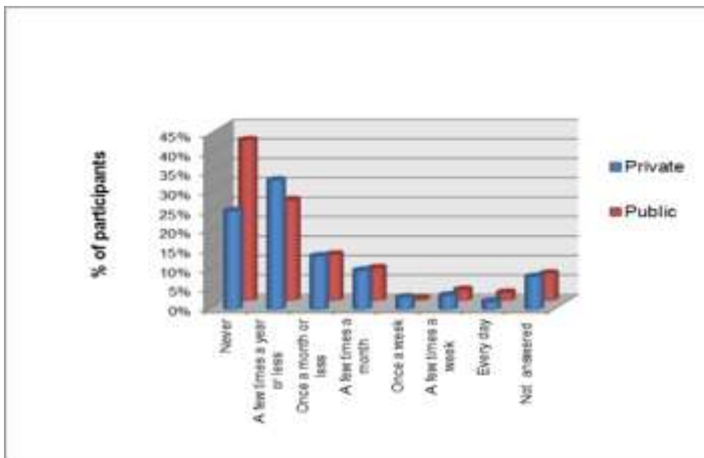


Figure 7-17: Health care-associated infection: Pneumonia.
n= Private 173, Public 133

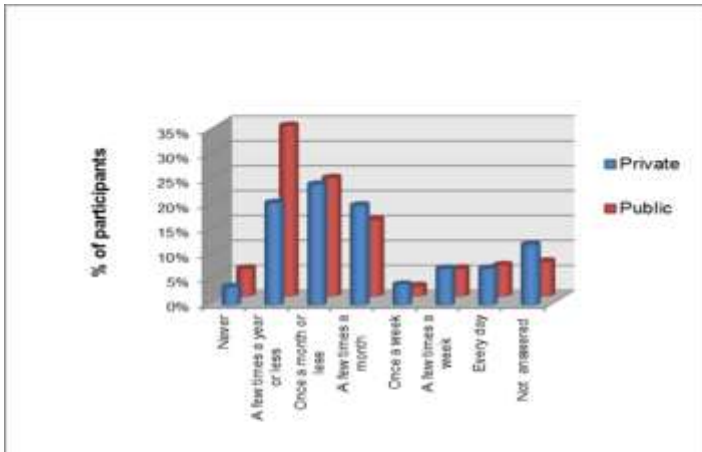


Figure 7-18: Complaints from patients or their families

n= Private 166, Public 133

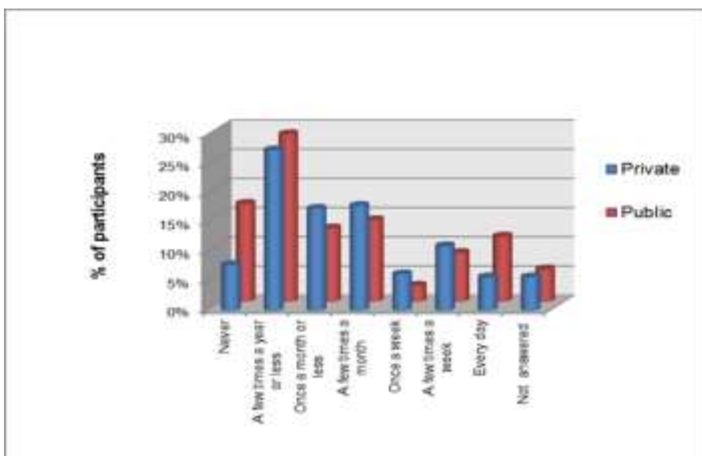


Figure 7-19: Verbal abuse towards nurses by patients and/or families.

n= Private 178, Public 135

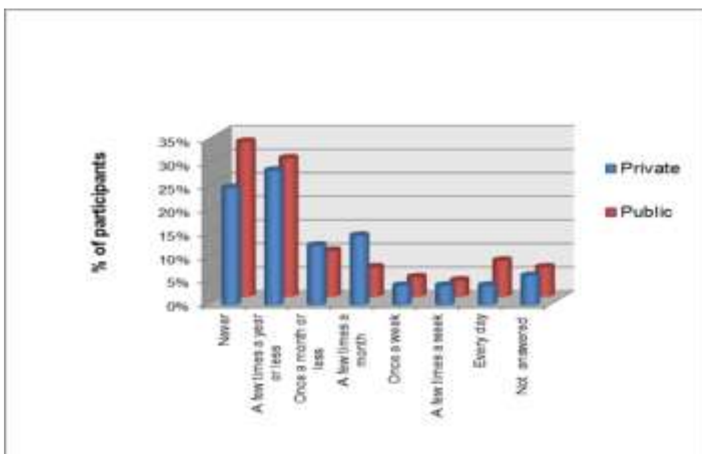


Figure 7-20: Verbal abuse towards nurses by staff

n= Private 177, Public 134

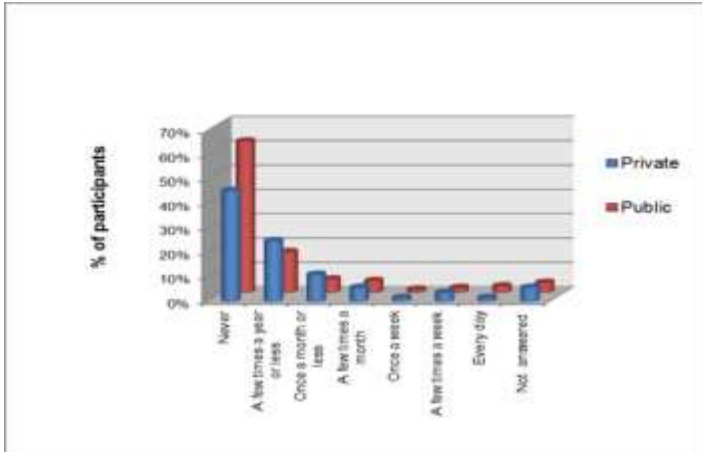


Figure 7-21: Physical abuse towards nurses by patients and/or families

n= Private 178, Public 137

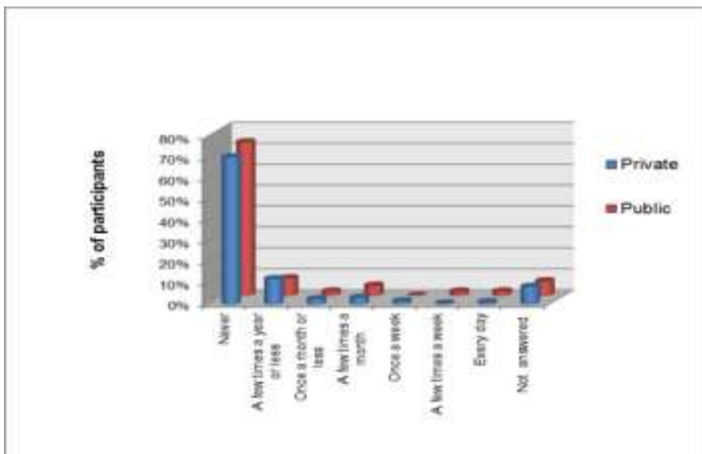


Figure 7-22: Physical abuse towards nurses by staff.

n= Private 173, Public 133

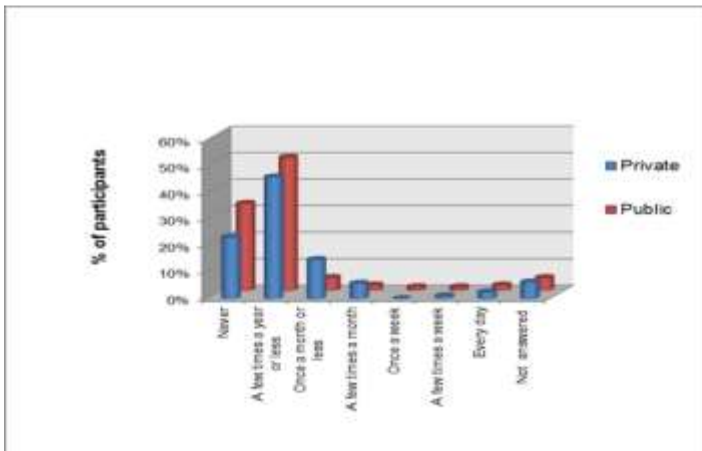
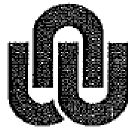


Figure 7-23: Work related physical injuries to nurses.

n= Private 177, Public 136

7.6 Annexure F: Statistical Assessment



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To whom it may concern

23 April 2013

Re: Dissertation Ms. J. W. Clase, student number: 22557040

We hereby confirm that the Statistical Consultation Service of the North-West University has analysed the data and assisted with the interpretation of the results.

Kind regards

Mrs E Fourie