FACTORS PREVENTING THE SUCCESSFUL IMPLEMENTATION OF A FALL PREVENTION PROGRAMME (FPP) IN AN ACUTE CARE HOSPITAL SETTING IN ABU DHABI, UNITED ARAB EMIRATES.

BY

VASANTHEE HARIPERSAD

Thesis presented in partial fulfilment of the requirements for the degree Master of Nursing, Division of Nursing, Department of Interdisciplinary Health Sciences, Faculty of Health Sciences at the University of Stellenbosch

Supervisor: Ms Roseanne Turner

March 2011

DECLARATION

By submitting this thesis/dissertation electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

VASANTHEE HARIPERSAD March 2011

Copyright © 2011 Stellenbosch University
All rights reserved

ACKNOWLEDGEMENTS

I acknowledge the following people who have contributed to this study.

My course supervisor, Roseanne Turner, and Oswell Khondiwe.

Prof. Martin Kidd, statistical consultant, for the analysis of the data.

All those who participated in the survey, my associates and friends, your comments were invaluable.

Dr Elwin Buchel, for being a source of inspiration and support throughout this study. For your invaluable comments and suggestions and most of all for the encouragement and motivation to go on, I thank you.

To my family, for your love and support. My daughter, Yolanda Rose, and son, Rosco Duran, thank you for your confidence in me.

Above all, I thank my Lord and Saviour, JESUS CHRIST for HIS LOVE, care and protection and for granting me patience, wisdom and understanding.

ABSTRACT

The Joint Commission International Accreditation (JCIA) has included a patient safety goal as part of the standards for the accreditation of hospitals. Goal number six states the need to "*reduce the risk of patient harm resulting from falls*". An acute care hospital setting in Abu Dhabi, United Arab Emirates had implemented a multifaceted, multidisciplinary fall prevention programme (FPP) in preparation for accreditation by the JCIA. The achievement of the above goal is dependent on compliance with JCIA standard requirements and the hospital's FPP. This study was undertaken to identify the factors preventing the successful implementation of the existing FPP in an acute care setting. The FPP is recognised to be in its development stages and therefore has opportunities for improvement for better patient safety outcomes, more so by reducing the incidence of falls and the severity of injuries from falls. Literature studies by Gowdy and Godfrey (2003:365) and Hathaway, Walsh, Lacey and Saenger (2001:172) suggests that the most successful approach to reducing falls and the severity of injuries from falls among patients in an acute care setting is that of a multifaceted, multidisciplinary approach. The nurses, who were primarily responsible for completing the initial fall risk assessment, expressed feelings of being overwhelmed by more safety standards being required for the JCIA. Patients with a high risk for falls were not referred to the physicians and physical therapists, nor were they referred to the clinical pharmacists for the review of high-risk medications. In addition, fall risk assessments were sometimes not done in the afternoon and during the night shift. The existing programme also did not consider bed-bound, long-term patients, who require less frequent assessment. There furthermore was observer evidence to suggest that the existing FPP was not being implemented correctly.

The aim of this study was to describe factors preventing the successful implementation of the existing FPP. The objectives were to identify areas being implemented successfully, to identify any barriers to successful implementation and to identify aspects of the existing FPP that may need revision.

A quantitative descriptive approach was applied. The population was healthcare providers (HCPs), including both registered and practical nurses, physicians, physical therapists and pharmacists, working in an acute care setting in the United Arab Emirates. The respondents were 118 (86%) from a stratified sample of n = 137 (20%) from 684 HCPs. A specifically developed structured questionnaire was used for data collection. Reliability and validity were

assured through the use of experts in questionnaire design and statistical consulting, in addition to pre-testing of the questionnaire. Ethical approval was obtained from the University of Stellenbosch Committee for Human Research and the Ethics Committee of the hospital where the study was undertaken. The respondents' completion of the questionnaire served as voluntary consent to participate.

The data were analysed and are presented in frequency tables. The mean and standard deviation were used for the statistical analysis. Correlational analyses were not done because of the descriptive approach to the study. It was considered most practical to focus on the professional groups and not on the variables, as the initial analysis indicated weak correlations.

The results show those aspects of the FPP that were successfully implemented and those areas that need improvement if the JCIA requirements are to be met. Policy revision to include a clearly defined referral process for the high-risk patients, in addition to consistency of the environmental safety rounds and greater involvement and support of the unit managers/supervisors, will contribute to the greater success of the FPP.

The hallmark of a successful FPP is staff education, which should be the key step in addressing the identified barriers. The human need for safety and the patient's right to safe care and a safe environment must be integrated into staff orientation, and education and safety training programmes for all HCPs. Increased compliance may occur when HCPs are more aware of the hospital's commitment to the patient's right to safety. Compliance with JCIA standards and the FPP will contribute in the achievement of the accreditation.

OPSOMMING

Die *Joint Commission International Accreditation* (JCIA) het ’n pasiëntveiligheidsdoelwit as deel van die standaarde vir die akkreditasie van hospitale ingesluit. Doelwit nommer ses lui: “*verminder die risiko vir leed aan die pasiënt as gevolg van val*”. ’n Akute sorg hospitaal in die Verenigde Arabiese Emirate het ’n veelvuldig gefasetteerde, multidissiplinêre program vir die voorkoming van val (*fall prevention programme* (FPP)) geïmplementeer ter voorbereiding vir akkreditasie deur die JCIA. Die bereiking van bogenoemde doelwit is afhanklik van nakoming van die standaardvereistes van die JCIA en die hospitaal se FPP. Hierdie studie is onderneem om die faktore wat die suksesvolle implementering van die bestaande FPP in die akute sorg omgewing verhinder, te identifiseer. Daar word erken dat die FPP nog in die ontwikkelingstadium is en dat daar dus geleenthede vir beter pasiëntveiligheidsuitkomstes is, veral deur die aantal valvoorvalle en die erns van beserings as gevolg van val te verminder. Literatuurstudies deur Gowdy en Godfrey (2003:365) en Hathaway, Walsh, Lacey en Saenger (2001:172) stel voor dat die suksesvolste benadering tot die vermindering van val en die erns van die gevolglike beserings onder pasiënte in ’n akute sorg omgewing ’n veelvuldig gefasetteerde, multidissiplinêre benadering behels. Verpleërs, wat die primêre verantwoordelikheid vir die voltooiing van die aanvanklike assessering van die risiko vir val het, het daarop gewys dat hulle oorweldig voel deur bykomende veiligheidstandaarde wat vir die JCIA vereis word. Pasiënte met ’n hoë risiko vir val is nie na die geneeshere en fisiese terapeute verwys nie, en ook nie na die kliniese aptekers vir die beoordeling van hoë-risiko medikasie nie. Assessering van die risiko vir val is soms ook nie in die middag en tydens die nagskof gedoen nie. Die bestaande program het ook nie bedlêende, langtermyn pasiënte wat minder gereelde assessering benodig, oorweeg nie. Daar is verder ook waargeneem dat die bestaande FPP nie korrek geïmplementeer word nie.

Die doel van hierdie studie was om die faktore te beskryf wat die suksesvolle implementering van die bestaande FPP verhoed. Die doelwitte was om areas wat suksesvol geïmplementeer word, te identifiseer, sowel as hindernisse tot suksesvolle implementering en aspekte van die bestaande FPP wat hersiening benodig.

’n Kwantitatiewe beskrywende benadering is gebruik. Die populasie was gesondheidsorgverskaffers, insluitend beide geregistreerde en praktiese verpleërs, geneeshere, fisiese terapeute en aptekers wat in ’n akute sorg omgewing in die Verenigde Arabiese

Emirate werk. Daar war 118 (86%) respondente uit ’n gestratifiseerde steekproef van n = 137 (20%) uit 684 gesondheidsorgverskaffers. ’n Spesiaal ontwikkelde, gestruktureerde vraelys is vir dataversameling gebruik. Betroubaarheid en geldigheid is verseker deur die gebruik van kundiges in vraelysontwerp en statistiese raadgewing, sowel as die vooraftoetsing van die vraelys. Etiese goedkeuring is van die Universiteit Stellenbosch se Komitee vir Menslike Navorsing, en die Etiekkomitee van die hospitaal waar die studie onderneem is, verkry. Die voltooiing van die vraelys deur die respondente het gedien as vrywillige toestemming om deel te neem.

Die data is geanaliseer en in frekwensietabelle voorgesit. Die gemiddelde en standaardafwyking is vir die statistiese analises gebruik. Korrelasie-analises is as gevolg van die beskrywende benadering nie onderneem nie. Daar is besluit dat die mees praktiese benadering sou wees om op die professionele groeperinge te fokus en nie op die veranderlikes nie, aangesien die aanvanklike analise swak korrelasies aangedui het.

Die resultate identifiseer daardie aspekte van die FPP wat die suksesvolste geïmplementeer is, sowel as dié gebiede wat verbetering benodig om aan die JCIA-vereistes te voldoen. Faktore wat sal bydra tot die groter sukses van die FPP is beleidshersiening wat ’n duidelik bepaalde verwysingsproses vir hoë-risiko pasiënte insluit, sowel as konsekwentheid in die omgewingsveiligheidsrondtes, en meer betrokkenheid en ondersteuning deur die eenheidsbestuurders/toesighouers

Die waarmerk van ’n suksesvolle FPP is personeelopvoeding, wat die belangrikste stap in die aanspreek van die geïdentifiseerde hindernisse moet wees. Die menslike behoefte aan veiligheid en die pasiënt se reg op veilige sorg en ’n veilige omgewing moet in personeeloriëntering, personeelopvoeding- en veiligheidsopleidingsprogramme vir alle gesondheidsorgverskaffers ingesluit word. Verhoogde nakoming sou moontlik plaasvind indien gesondheidsorgverskaffers meer bewus was van die hospitaal se verbintenis tot die pasiënt se reg op veiligheid. Nakoming van JCIA-standaarde en die FPP sal bydra tot die verkryging van die akkreditasie.

Key Concepts and Definitions

Keywords

Fall, fall prevention programme (FPP), fall risk assessment, patient safety, patient rights, healthcare providers (HCPs)

Operational Definitions

Acute care setting: a hospital which has a full complement of medical services including general medicine, general surgery, oncology and paediatrics.

Fall: An unintended event resulting in a person coming to rest on the ground/floor or other lower level (witnessed), or being reported to have landed on the floor (unwitnessed) not due to any intentional movement or extrinsic force such as stroke, fainting, seizure (Florida Hospital Association, 2010).

Patient Safety: The freedom from accidental or preventable injuries produced by medical care.

Adverse Events: An injury caused by medical care and management (rather than underlying disease) that leads to prolonged hospitalisation, disability at the time of discharge or both. It may be described as an unwanted, undesirable, or unusually unanticipated event, e.g. the death of a patient that falls.

Incidence Report: Refers to the identification of occurrences that could have led, or did lead, to an undesirable outcome. Reports usually come from personnel directly involved in the incident or events leading up to it, e.g. the nurse, pharmacist, or physician caring for a patient (Agency for Healthcare Research and Quality, 2009).

Failure Mode and Effects Analysis (FMEA): A systematic proactive method for evaluating a process to identify possible failures and to prevent them by correcting the processes proactively rather than reacting to adverse events after failures have occurred.

Physical Therapists: Health care professionals who provide physical therapy to patients; including physiotherapists and occupational therapists assigned to work in the physical rehabilitation department.

ABBREVIATIONS

UAE	United Arab Emirates
JCIA	Joint Commission International Accreditation
FPP	Fall Prevention Programme
FMS	Facilities Management and Safety
HCPs	Health Care Providers
RCA	Root Cause Analysis
MFS	Morse Falls Scale
RNs	Registered Nurses
PNs	Practical Nurses
Phys	Physicians
PTs	Physical Therapists
Pharms	Pharmacists
CME	Continued Medical Education

TABLE OF CONTENTS

FACTORS PREVENTING THE SUCCESSFUL IMPLEMENTATION OF A FALL PREVENTION PROGRAMME (FPP) IN AN ACUTE CARE HOSPITAL SETTING IN ABU DHABI, UNITED ARAB EMIRATES.

LIST OF TABLES

LIST OF ANNEXURES

CHAPTER 1

SCIENTIFIC FOUNDATION OF THE STUDY

This chapter introduces the reader to the scientific foundation of the study project

1.1 Research Title

Factors preventing the successful implementation of a Fall Prevention Programme (FPP) in an acute care hospital setting in Abu Dhabi, United Arab Emirates.

1.2 Introduction

Patient safety is a core performance indicator for many healthcare facilities. The morbidity, mortality and financial burdens attributed to patient falls are serious risk management issues facing healthcare facilities (Gowdy & Godfrey, 2003:363). The extent of the problem in the United Arab Emirates cannot be defined, as no published research studies on fall prevention programmes could be found. However, an unpublished hospital report revealed thirty-five reported falls between May 2005 and May 2008. The greatest number of these falls occurred while patients were on the way to the toilet or in the bathroom, and in the medical (male and female) wards. No other data on falls were available.

1.3 Rationale

The Joint Commission International Accreditation (JCIA), an accreditation body based in the United States of America, has included a fall prevention programme as a patient safety goal in the standards for accreditation of hospitals. Goal number six states the need to "reduce the risk of patient harm resulting from falls" (Joint Commission International, 2008:35). The researcher was a Clinic Manager seconded to the Quality Improvement Department of a hospital in Abu Dhabi, United Arab Emirates and tasked to improve the FPP, as the hospital was in the process of preparing for the JCIA, for which a fall risk assessment and prevention policy was introduced in 2009. During the researcher's safety ward rounds, the nurses expressed a feeling of being overwhelmed due to the introduction of other safety standards required for the JCIA. The current multidisciplinary programme gave the nurse the primary responsibility for completing the initial fall risk assessment on admission, and in every shift thereafter.

The researcher observed that physicians and physiotherapists were not informed about high-risk patients needing further assessment, nor were these patients referred to clinical pharmacists for the review of high-risk medications. In addition, fall risk assessments were sometimes not done in the afternoon and night shifts. Furthermore, the existing programme did not consider bed-bound long-term patients, who require less frequent assessment.

It was against this background that the researcher wished to identify factors preventing the successful implementation of the existing FPP in an acute care hospital setting in Abu Dhabi, United Arab Emirates.

1.4 Problem Statement

A successful FPP is a requirement for accreditation by JCIA. There was observer evidence to suggest that the existing fall prevention programme was not being implemented correctly. Factors preventing the successful implementation needed to be identified.

1.5 Research Question

The question to be explored in this study is: What are the possible factors preventing the successful implementation of an existing fall prevention programme?

1.6 Aim and Objectives of the Study

The aim of this study was to describe the factors preventing the successful implementation of an existing fall prevention programme.

The objectives were:

- To identify areas that are being implemented successfully
- To identify barriers to the successful implementation
- To identify aspects of the existing FPP that may need revision and/or modification

1.7 Literature Study

Robey-Williams, Rush, Bendyk, Patton, Chamberlain and Sparks (2007:86) listed the ten vital fall risk factors found in a literature survey as: history of past fall, medication, age, mental confusion, altered mental capacity, physical surroundings, altered ambulation or movement, incontinence, increased blood pressure and decreased co-ordination. According to Williams,

King, Hill, Rajagopal, Barnes, Basa, Pascoe, Birkett and Kidu (2007:316), the chances of a patient falling increase with the number of identified fall risk factors. Halfon, Eggli, Van Melle and Vagnair (2001:1258) assert that 37% of reported falls could have been prevented if environmental safety features had not been breached.

Furthermore, Barnett (2002:3) recommends that a comprehensive environmental risk assessment tool be used to identify extrinsic factors that may influence fall rates.

Fonda, Cook, Sandler and Bailey (2006:379) found that hospitals that implemented a multifaceted fall reduction programme were more effective at preventing falls. The findings of this study are supported by Vassallo, Vignaraja and Sharma (2004:335), who examined the effectiveness of multidisciplinary approach to fall prevention. These findings show that interventions decreased both the number of falls and the severity of injury following a fall.

Furthermore, Chang, Morton, Rubenstein, Mojica, Maglione and Suttorp (2004:1) evaluated the effectiveness of interventions to prevent falls in older adults and concluded that multifactorial fall risk assessments and management programmes are the most effective in reducing fall rates. Weigand and Gerson (2001:823) reviewed emergency medicine literature to assess the appropriateness of an intervention to identify, counsel and refer patients over 64 years old who are at risk for falls. A randomised controlled trial showed that a structured interdisciplinary approach significantly reduced the number of falls in elderly patients.

Kirchner, Noggoh, Prestianni and Lumia (2007:22) showed that falls constituted 43% of the incident reports and, of these, 77% occurred in the patient's room, 7% in hallways and other communal areas, and 6% in the emergency room. Most of the falls occurred in the afternoon, between 2 and 5 pm, or late at night between 11 pm and 6 am. This was partially attributed to the timing of the administration of diuretic medications. Root cause analysis in some hospitals indicated that medications were administered either late in the morning or at around bedtime. This therefore increases the need for patients to require the toilet during these hours. According to Barnett (2002:2), fall risk assessment should be done on admission, whenever there are changes in a patient's status, whenever a fall occurs, and when the patient is transferred to another patient care unit. The two most frequently used assessment tools discussed by Barnett (2002:2) are the Morse Fall Scale and the Hendrich 11 Fall Risk Model. According to Barnett, the Morse Fall Scale is an easy tool to use and is research driven.

Interventions are initiated on the basis of the patient score, which may range from low (0-24) to medium (25-44) or high risk (45 and higher). The most significant risk factors are history of falls, secondary diagnosis, ambulatory aid, IV/heparin, gait/transferring and mental status. This study found that the use of the Morse Falls Scale reduced the rate of falls by 58% when compared to the data from the previous year (Barnett, 2002:2). The Hendrich 11 Fall Risk Model is easy to use and focuses on "risk" medications and interventions for specific areas of risk, rather than on a single, general risk score. With consent, the model may be inserted into existing documentation forms or single documents, or into electronic health record (Hendrich, 2007:51). Furthermore, Mills, Waldron, Quigley, Stalhandske and Weeks (2003:25-33) conducted a quality improvement project that tracked fall and injury rates and the interventions implemented. Major injury rates from falls dropped by 62% after implementation of the interventions. Increased toileting interventions reduced major injury rates by 2.7 falls per 100. The team approach included signage, post-fall assessment, and environmental safety and toileting programmes.

McCarter-Bayer, Bayer and Hall (2005:30) emphasise that staff education and information related to falls should be included in the employee curriculum for new employees at a hospital. Schwendimann, Buhler, DeGeest and Milisen (2006:1) showed that neither the frequency of falls nor the consequent injuries decreased substantially after the implementation of an interdisciplinary falls prevention programme. This could be due to changes in trends during the study period, whereby the nursing care time per patient day increased, reflecting a higher workload for the healthcare providers. In addition, one in three patients was 80 years and older, resulting in higher risk factors for falls.

Hendrich (2006:5) concluded that ancillary departments should also include a fall risk assessment to assure the same standard of care and compliance with the JCIA patient safety goals related to falls. Hendrich (2006:5) stated further that creating a comprehensive fall prevention programme is within every hospital's reach when practical strategies and teamwork are used to provide a safe environment for care delivery. Despite the extent of various studies and strategies implemented in healthcare settings, falls continue to pose a challenge.

It was against this background that the researcher wished to identify factors preventing the successful implementation of the existing FPP in acute care hospital in Abu Dhabi, United Arab Emirates.

1.8 Research Methodology

1.8.1 Research Design

The researcher selected a quantitative descriptive study, as this was the most suitable scientific method of describing the factors preventing the successful implementation of the existing FPP. The study instrument was a self-administered questionnaire (Appendix E). The questionnaire was considered the most suitable instrument, as it is the cheapest and quickest method of collecting data due to the cost and time constraints facing the researcher (De Vos, Strydom, Fouche & Delport, 2005:168). The questionnaire consisted of a biographical section and a five-point Likert scale, with 1 = strongly disagree and 5 = strongly agree. A quality specialist with expertise in designing survey questionnaires reviewed the self-administered questionnaire. Closed-ended questions relating to falls were structured on the basis of the review of literature and the existing fall prevention policy.

1.8.2 Reliability and Validity

To enhance the validity and reliability of the instrument, the questionnaire was evaluated by five health care providers (HCPs) from the Fall Prevention Committee, who assisted in the development of the fall risk assessment policy. The questions were evaluated to ascertain whether they adequately addressed the proposed research question. In addition, the questionnaire was pre-tested on ten HCPs with previous work experience in hospitals accredited by JCIA. This provided a simulation of the actual study and ensured that the respondents understood both the instructions and the terms in the questionnaire, so that inaccuracies and ambiguity could be identified and corrected. The estimated time of completion was established. The researcher consulted a biostatistician about the reliability and validity of the instrument. Reliability was ensured using Cronbach's alpha to test if the relevant items were reliably measuring the different domains (De Vos et al., 2005:159).

1.8.3 Sample Selection and Sampling Procedures

The participants in this study were health care providers (HCPs), i.e. nurses, physicians, physical therapists and pharmacists, who worked in an acute care hospital in Abu Dhabi, United Arab Emirates. These HCPs were selected because their roles were clearly defined by

the hospital's Fall Risk Assessment and Prevention Policy. The total population of the HCPs was 684. Stoker's 1985 sampling size guidelines, cited in De Vos et al. (2005:196), suggest 20% for a population size of 500. The researcher aimed for 20% of participants in the study, as it was impractical to attempt to undertake a survey of the entire population. A stratified random sampling method was used to select the participants for this survey, allowing each individual in the population an equal chance of being selected (De Vos et al., 2005:194). Table 1.1 shows the sample size. The duty schedules were used to randomly select 137 participants. The schedules for the nurses and physicians were collected from all inpatient units and physiotherapy and pharmacy departments. The names of the nurses and physicians were written on pieces of paper, which were placed in a bowl and randomly picked by the researcher. The participants were required to be able to read and write in English.

Table 1.1: Sample Size

Health care providers	Total N	Total participants N
Registered nurses	375	75
Practical nurses	10	2
Physicians	261	52
Pharmacists	22	5
Physical therapists	16	3
Total participants	684	137

1.8.4 Exclusion Criterion

Health care providers that were unable to speak and write in English were excluded. In addition to the non-clinical health care providers, as they were not readily available.

1.8.5 Data Collection

The researcher handed out the questionnaire together with a self-addressed envelope to each participant. The participants were asked to complete the questionnaire before the end of their shift and place it in a dedicated box at the hospital reception desk. Before the end of the shift, the researcher reminded the participants about the questionnaire. Seventy percent was considered an acceptable return rate. If the return rate had been less than 70%, the heads of department would have been asked to remind the participants about the questionnaires.

1.8.6 Data Analysis and Interpretation

The researcher counted the returned questionnaires manually. The questionnaires were separated into complete and incomplete. The response to each question was categorised in a spreadsheet (Microsoft Excel). The distribution and interrelationships of the variables within the study groups were established. On a 95% confidence interval, the association between various variables was determined using the chi square test. A final decision on which techniques were appropriate was made once the data were available. The data were analysed with the assistance of a biostatistician. Findings are displayed in graphic illustrations to make interpretations and conclusions possible. The relationships between the variables were determined to explain the phenomena and make recommendations on the improvement of the existing FPP (De Vos et al. 2005:218). Comparisons were made between the views of the nurses, physicians, pharmacists and physical therapists on the need for multidisciplinary assessment and intervention in the FPP.

1.9 Ethical Issues

Ethical approval was obtained from University of Stellenbosch Committee for Human Research (Appendix G) prior to commencement of the study. Written approval was also obtained from the ethics committee of the hospital (Appendix H) as a requirement of the hospital policy. An information sheet (Appendix F) was attached to the questionnaire. All the raw data were to be stored in a locked cabinet for five years, and thereafter would be shredded. The management of the hospital would be informed of the findings of the survey.

1.9.1 Informed Consent

This descriptive study, will use a questionnaire to collect harmless data. Respondents' need not sign consent (Burns & Grove, 2007:219). The respondents' completion of the questionnaire will serve as voluntary consent and permission for participation (Burns & Grove, 2007:219). The instruction section and the information sheet will contain the following statement: "Your completion of this questionnaire indicates your consent to participate in this study" (Burns & Grove, 2007:219). The participants will be informed in the information sheet and the instruction section of the questionnaire that participation is voluntary.

1.10 Distribution of Results

The distribution of results will include submission of the research report to the medical director of the hospital, and a presentation to the hospital's continuous nursing education programme (CNE). Submissions would also be made for publication in international research and nursing journals.

1.11 Chapter Outline

Chapter 1: Scientific foundation of the study

Chapter 1 gives the background and motivation for the study.

Chapter 2: Literature review

This chapter includes the conceptual framework based on Maslow's hierarchy of human needs, and the review of the existing literature relating to patient falls.

Chapter 3: Research methodology and research design

In chapter 3 the research methodology as applied in the study will be discussed.

Chapter 4: Data analysis and interpretation

In chapter 4 the results of the study will be revealed, analyzed and discussed.

Chapter 5: Conclusions and recommendations

Chapter 5 will include the results according to the study objectives and recommendations are made.

1.12 Conclusion

This chapter has provided the scientific foundation of the study. An overview of the requirements of the JCIA for the FPP was also outlined. In the next chapter, the conceptual framework and literature study will be presented.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter describes the conceptual framework used in this study, as well as the literature study conducted by the researcher. The literature study includes literature related to falls and fall prevention programmes.

Literature Study

The purpose of conducting a literature study 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, 2006:57).

2.2 The Conceptual Framework

2.2.1 Definition of Conceptual Framework

A conceptual framework starts with a set of ideas, which may be vague or clearly formulated propositions, and which may determine an approach to a research topic and help determine which questions are to be answered by the research (De Vos et al., 2005:34).

Numerous studies, such as those by Barnett (2002), Fonda et al. (2006), and Gowdy and Godfrey (2003), have been conducted on various aspects of patient falls and fall prevention strategies, yet patient falls and injuries related to falls continue to be a global challenge (Koh, Hafizah, Lee, Loo & Muthu, 2009:425). The focus of this study is on the factors preventing the success of the FPP (fall prevention programme) in an acute care setting. The researcher attempted to create a conceptual framework based on Abraham Maslow's hierarchy of human needs, which will be used in this study to illustrate the necessity of safeguarding the patient's right to a safe environment in the acute care setting. An attempt will be made to demonstrate how this will facilitate the improvement of the current FPP. There were no published studies on the patient's right to safety associated with falls in an acute care setting.

2.2.2 Abraham Maslow's Hierarchy of Human Needs

According to Maslow's hierarchy of human needs, the need for safety comes second to the basic physiological needs for food, air, water, excretion, etc. Safety includes health, wellbeing, a safety net against accidents/illnesses (Maslow, 1943).

Van Deventer, Kruger, Prinsloo and Steinman (2003:151) conclude that safety and security needs include freedom from fear, anxiety, and physical or mental abuse, and for justice. Patient safety is defined as freedom from accidental or preventable injuries (Agency for Healthcare Research and Quality, 2009:21). In the researcher's opinion, the hospital should create a safe and secure environment for all patients.

2.2.3 Patient's Right to Safe Environment

The hospital's (research site) patient rights statement (Appendix D) declares that every patient has a right to a safe environment. This hospital's leadership therefore has an obligation to fulfil its commitment to the patient rights statement (Appendix D) by ensuring the hospital environment is safe for all patients at all times. Studies by Morse (2002:376) and Barnett (2002:2) indicate that patient falls can be predicted and are, therefore, preventable. The researcher concludes that, by ensuring a safe environment, accidental falls and a large number of anticipated falls and related injuries are preventable. The Health Authority of Abu Dhabi (2008:3) has adopted a policy that all hospitals have to obtain the JCIA to facilitate the way forward to better patient safety practices. This means the hospitals in Abu Dhabi are in a process of preparation for the JCIA.

The framework of this study is based on patient safety, and is associated with the patient's right to safety and Maslow's hierarchy of human needs (the need for safety). The framework has been created to demonstrate the association of the patient's right to safety with those factors that contribute to the success of the FPP. The patient's right to safety is associated with other, related standards required by the JCIA, i.e. Facilities Management and Safety (FMS). This standard requires hospitals to provide a safe and secure physical environment, to prevent accidents and injuries, and to maintain safe conditions. Effective management includes planning, educating and monitoring (Joint Commission International, 2008). The standard stipulates further that organisations inspect all patient care buildings and have a plan to reduce evident risks and provide a safe physical facility for patients, families, staff and visitors (Joint Commission International, 2008:181).

The focus of this study is on factors preventing the success of the FPP. In this context, the elements identified as most relevant for success are effective communication, leadership commitment, education, teamwork and a positive attitude to work (Gowdy & Godfrey, 2003:365; Hendrich, 2006:1; Joint Commission Resources, 2003:5; Jackson & Gleason, 2004:37; Sherrod & Good, 2006:25; Stenberg & Wann-Hansson, 2010). The researcher concludes that the patient's right to a safe environment may be regarded as the central element in the provision of safe care. This framework suggests that successful implementation may occur when healthcare providers are more aware of the hospital's commitment to the patient's right to safety, in addition to the evidence presented in the literature on the positive elements of a successful FPP, which will be discussed later in the report.

This chapter will continue with the study of the literature.

2.3 Search Strategy

The literature on falls and the prevention of falls published between 2000 and 2010 was reviewed. The search strategy sought to identify both published and unpublished research reports and covered all major medical and nursing databases, including CINAHL, MEDLINE, Cochrane Library and BioMedCentral. The literature reviewed included policies, fall prevention programmes and projects, case studies, samples of surveys, research reports, and journal articles. Individual terms and combinations, such as falls, patient safety, fall prevention and fall risk assessment, were used to search for relevant literature. One hundred and sixty-five articles were reviewed. Articles related to falls in the community setting were excluded. This literature study thus includes the 43 references that are related to adult patients in acute hospital and geriatric patients.

2.4 Literature Study

2.4.1 Overview of Falls

Fall and injury prevention continues to be a challenge in the acute care settings (Huey-Ming & Chang-Yi, 2008:179; Koh et al., 2009:425). According to Currie (2008:1), fall prevention programmes now have the potential to address fall and fall-related injuries across all care settings, due to increasing research-supporting guidelines and health care becoming more patient centred.

2.4.2 The Joint Commission International Accreditation (JCIA) Standard Requirements

Recognising the significance of patient falls, the JCIA, in its goals, included a goal (number 6) that states "reduce the risk of patient harm resulting from falls", as an international patient safety goal that should form part of the standards for the accreditation of hospitals (Joint Commission International, 2008:35). The JCIA evaluates the fall risk-reduction programme of organisations based on the appropriate policies and/or procedures implemented. The measurable elements used for the accreditation are a collaborative process used to develop policies and/or procedures that reduce the risk of patient harm resulting from falls in the organisation; the implementation of a process for the initial assessment of patients for fall risk; the reassessment of patients when indicated by a change in condition, medication, etc.; and the implementation of measures that reduce fall risk for those assessed to be at risk (Joint Commission International, 2008:35).

2.4.3 Epidemiology and Impact of Falls

According to Currie (2008:2), falls are the most frequently reported adverse events in the adult inpatient care setting. Inpatient fall rates range from 1.7 to 25 falls per 1 000 patient days, depending on the care area, with psycho-geriatric patients having the highest risk. Olivier, Daly, Martin and McMurdo (2004:122) report that injuries occur in approximately six to forty-four percent of acute inpatient falls. Serious injuries from falls, such as head injuries and fractures, occur less frequently – in two to eight percent of cases – and result in approximately 90 000 serious injuries across the United States annually. A review of the Patient Safety Initiative Summary Report for 2007 (Kirchner et al., 2007:22) shows that falls constituted 43% of the incidents reported. Of these, 77% occurred in the patient's room, 7% in hallways and other communal areas, and 6% in the emergency room. Most of the falls occurred in the afternoon, between 2 pm and 5 pm, and late at night between 11 pm and 6 am. This was attributed partially to the timing of the administration of diuretic medications. Root cause analysis (RCA) in some hospitals has indicated that medications are administered either late in the mornings or at around bedtime. This increases the need for patients to use the toilet during these hours (Kirchner et al., 2007:22).

2.4.4 Fall Risk Factors

Robey-Williams et al. (2007: 86) have listed the ten vital fall risk factors as history of past fall, medication, age, mental confusion, altered mental capacity, physical surroundings, altered ambulation or movement, incontinence, increased blood pressure and decreased co-

ordination. According to Williams et al. (2007:316), the chances of a patient falling increase with the number of identified fall risk factors. A recent study by Delbare, Close, Brodaty, Sachdev and Lords (2010:1) concluded that disparities between perceived and physiological fall risk are associated with psychological measures and influence the probability of falling. The researchers recommend that both perceived and physiological risk factors be included in the fall risk assessment to allow for the implementation of specific interventions to prevent falls among elderly patients. Hart, Chen, Rashidee and Kumar (2009) state that organisations need to study and better understand the characteristics of falls and the trends prevalent in their facility in order to institute appropriate evidence-based interventions.

2.4.5 Multidisciplinary, Multifaceted FPP

Halfon et al. (2001:1258) assert that 37% of reported falls could have been prevented if appropriate environmental safety features had not been breached. Furthermore, Barnett (2002:3) recommends that a comprehensive environmental risk assessment tool be used to identify extrinsic factors that may influence fall rates. A study by Fonda et al. (2006:379) found that hospitals that implemented a multifaceted fall-reduction programme were more effective. This is supported by Vassallo et al. (2004:335), who examined the effectiveness of a multidisciplinary approach. Vassallo and colleagues (2004:335) show that effective interventions decrease both falls and the severity of injury associated with falls. Sulla and McMyler (2006:138) chose an interdisciplinary team to address the gaps in the fall-screening process. Their team comprised physicians, pharmacist, nurses, a research analyst and a system analyst. A study by Hathaway, Walsh, Lacey and Saenger (2001:172) showed that green armbands, green stickers pasted on the patients chart, a non-slip mat adjacent to the bed and an electronic mobility sensor that emitted an alarm, along with a paging alert for high-risk patients, were more effective in reducing falls among patients aged 65 years and older. Furthermore, Chang et al. (2004:1) evaluated the effectiveness of interventions to prevent falls in older adults and concluded that multifactorial fall risk assessments and management programmes were the most effective in reducing fall rates. Weigand and Gerson (2001:823) reviewed emergency medicine literature to assess the appropriateness of an intervention to identify, counsel and refer patients over 64 years of age who are at risk for falls. A randomised controlled trial in this study demonstrated that a structured interdisciplinary approach significantly reduced the number of falls in elderly patients. In another study, researchers found that Vitamin D treatment effectively reduced the risk of falls in older adults (Kalyani, Stein, Valiyil, Manno, Maynard & Crews, 2010:1299). In a recent study by

Cameron, Murray, Gillespie, Robertson, Hill, Cumming and Kerse (2010), it was concurred that multifactorial interventions reduce falls and the risk of falling.

2.4.6 Fall Assessment and Risk Assessment Tools

According to Barnett (2002:2), fall risk assessments are done on admission, whenever there are changes in a patient's status, whenever a fall occurs, and when the patient is transferred to another patient care unit. The two most frequently used assessment tools discussed by Barnett (2002:2) are the Morse Fall Scale (MFS) and the Hendrich 11 Fall Risk Model. According to Barnett, the Morse Fall Scale is an easy-to-use tool and is research driven. The interventions are initiated on the basis of the patient score, which may be low (0-24), medium (25-44) or high risk (45 and higher). The most significant risk factors are a history of falls, secondary diagnosis, ambulatory aid such as a wheelchair, walking frame etc., patients with intravenous infusion and/or heparin, unsteady gait or transferring and mental status. This study found that the use of the MFS reduced the falls rate by 58% in comparison to data collected in the previous year (Barnett, 2002:2). In another study, Gowdy and Godfrey (2003:365) point out the benefits of using a tool developed by an interdisciplinary team. An interesting study by Hart et al. (2009:1) indicated that conducting a fall risk assessment does not necessarily lead to a reduction in falls. They state that it is important to manage patients actively to prevent falls from occurring, especially in identified high-risk patients. Fall risk assessment without acting to mitigate falls only adds to the cost of caring for patients.

2.4.7 Successful FPP Attributes

Gowdy and Godfrey (2003:365) conducted studies on root cause analysis and failure mode effects analysis. Root cause analysis and failure mode effects analysis contributed positively to a fall prevention programme. In addition, an interdisciplinary approach, leadership commitment, support, and a change from a reactive approach to prevention have all contributed to the success of fall prevention programmes. Sherrod and Good (2006:28) emphasised the value of compiling data on each fall and evaluating it on a "case-by-case basis". Furthermore, Mills et al. (2003:25) conducted a quality improvement project that tracked fall and injury rates and the interventions implemented. During the period of their study, major injury rates from falls dropped by 62%, and toileting interventions reduced major injury rates by 2.7 falls per 100. The team performance included signage, post-fall assessment, and environmental safety and toileting programmes.

McCarter-Bayer et al. (2005:30) emphasized that staff education and information related to the falls should be included in a hospital's curriculum for new employees. Other authors have also emphasised the importance of education in the prevention of falls. Joint Commission Resources (2003:5), Jackson and Gleason (2004:137) and Sherrod and Good (2006:25) have also emphasised that the orientation and education of all nursing staff must be a priority and be ongoing to keep the programme alive. These authors agree that all staff must be competent and have heightened awareness of fall risks at all times. The staff must be able to identify medication usage and the potential side effects, cognitive impairment, gait instability and other characteristics that place a patient at risk for falls. In addition, effective teamwork will enhance a safe environment for the delivery of care. The researchers stressed the implementation of these guidelines through one-on-one training, meetings, videos and effective campaigns, e.g. posters based on fall themes. Moreover, the emphasis on staff education about hospital fall policies and fall prevention programmes is an important component of fall reduction. In contrast, Schwendimann et al. (2006:1) showed that neither the frequency of falls nor the consequent injuries decreased substantially after the implementation of an interdisciplinary falls prevention programme. These researchers identified the increased workload of the healthcare providers and an increase in the number of patients 80 years and older, with the associated higher risk factor for falls, as factors influencing the fall prevention programme.

Hendrich (2006:1) identified several measurable attributes of a successful FPP, including research-based risk factors, consistent attention to environmental factors, nursing and medical interventions aligned with a reduction in fall risk factors for individual patients, continuous learning about unit-specified fall incidents derived from good fall data, effective communication of patient risk, and teamwork among all healthcare providers across the units. According to Jackson and Gleason (2004:137), a successful fall programme must begin with staff and management commitment. The emphasis of their study was on training, education and communication to increase staff and patient awareness, and staff competence and compliance. According to Sherrod and Good (2007:25), the applied data have to be unit specific when a fall prevention programme is implemented.

A number of authors, such as Halfon et al. (2001:1258), Barnett (2002:3), Fonda et al. (2006:379) and Vassallo et al. (2004:335), support a collaborative and interdisciplinary approach to falls prevention. The fall prevention team should include nurses, dieticians,

physicians, psychiatrists, pharmacists and others, and be based on multifaceted interventions. An interdisciplinary team should conduct investigations of all falls, and identify causes and contributing causes. In contrast, a study by Stenberg and Wann-Hansson (2010) found that the implementation of and compliance with clinical practice guidelines for fall prevention are complex processes. These authors identified a relationship between the experience of a high incidence of falls with negative consequences and a positive attitude and compliance with clinical practice guidelines. To assure compliance and a positive attitude requires the benefit of the clinical practice guidelines in reducing falls. These authors confirm that factors to overcome barriers to implementation and compliance seem to be a supportive leadership, systematic evaluations of the clinical practice guidelines outcome, and an effective role of the clinical facilitator.

Pelczarski and Wallace (2008) reported on a regional collaborative partnership project among hospitals. The project's goal was to accelerate the effective adoption of evidenced-based clinical practices by pooling the resources, knowledge and efforts of the hospitals and other key stakeholders researching best practices to improve patient care. These authors found that the partnership made meaningful differences in improving patient safety. Successes and failures in fall prevention were shared in workshops, after which the participants applied specific mitigating strategies that addressed their facilities' concerns. A survey before and after the workshops indicated an improvement in the approaches to reducing patient falls.

This researcher concludes from the literature study that the elements (factors) that contribute to successful FPP are the investigation of falls by conducting root cause analysis and failure mode effects analysis, a multidisciplinary (interdisciplinary) approach and leadership commitment, in addition to a multifaceted approach, teamwork, effective communication and education, including a positive attitude to patient safety.

2.5 Conclusion

This chapter discussed the conceptual framework based on Maslow's hierarchy of human needs, and then reviewed the existing literature relating to patient falls. The discussion in the literature review included an overview of falls, the JCIA requirements, the epidemiology and impact of falls, fall risk factors, multidisciplinary FPP fall risk assessment and fall assessment tools, restraints and the attributes of a successful FPP. The next chapter will describe the research methodology and research design.

CHAPTER 3

RESEARCH METHODOLOGY AND RESEARCH DESIGN

3.1 Introduction

The previous two chapters described the scientific foundation, the framework for the study and the literature reviewed. This chapter describes the research methodology and research design used. This is followed by a description of the sample and sampling procedures. The chapter also outlines the method of data collection, the plan for data analysis, issues related to reliability and validity, as well as the ethical strategies used in this study.

3.1.1 Aim and Objectives of the Study

The aim of this study was primarily to describe the factors preventing the successful implementation of an existing fall prevention programme. More specifically, this study attempted to identify areas that were being implemented successfully, to identify barriers to the successful implementation of the programme, and to identify aspects of the existing programme that needed revision and/or modification.

3.2 Selection of Research Methodology

There are two major approaches to the research used in nursing, namely the quantitative and qualitative approaches. Quantitative research is a formal, rigorous, systematic process for generating information about the world. Quantitative research is conducted to describe new situations, events or concepts (Burns & Grove, 2007:24). According to McMillan and Schumacher (2001:15), quantitative research presents statistical results in numbers; it assumes a single reality, which is stable and separated from the feelings or beliefs of individuals, and can be measured by a specially designed instrument yielding standardised tests (McMillan & Schumacher, 2001:183). Du Plooy (2006:21) states that quantitative research is also called positivist or empirical research. Positivism is a philosophical system that restricts itself to data from experiences and rejects speculation. In contrast, qualitative research is a systematic, subjective approach used to describe life experiences and give them meaning (Burns & Grove, 2007:61).

A quantitative methodology was selected as the most appropriate approach to identify factors preventing the successful implementation of an existing fall prevention programme.

3.2.1 Types of Quantitative Research

A quantitative design is suitable when variables are to be counted or measured. The objectives of quantitative design are to predict, describe and explain quantities, degrees and relationships, and to generalise from a sample to the population by collecting numerical data (Du Plooy, 2006:82). The four types of quantitative research are correlational, quasi-experimental, experimental and descriptive (Burns & Grove, 2007:61). Correlational research involves the systematic investigation of relationship between or among variables (Burns & Grove, 2007:25). Quasi-experimental research examines causal relationship or determines the effect of one variable on another (Burns & Grove, 2007:25). Experimental research is an objective, systematic, highly controlled investigation for the purpose of predicting and controlling phenomena. In an experimental study, causality between the independent and dependent variable is examined under highly controlled conditions (Burns & Grove, 2007:25). A descriptive approach, which is used in this study, involves the exploration and description of phenomena in real-life situations. Through descriptive studies, researchers discover new meaning, describe what exits, determine the frequency with which something occurs and categorise information. The outcomes of descriptive research include the description of concepts, the identification of relationships and the development of hypotheses that provide a basis for future quantitative studies (Burns & Grove, 2007:25). The researcher selected a quantitative descriptive approach as this study is directed towards describing the factors preventing the success of an existing fall prevention programme. The purpose of this study is to provide a picture of the situation as it happens in the clinical areas (Burns & Grove, 2007:240).

3.3 Research Design

The research design is a plan of how the research is going to be conducted, indicating who or what is involved, and where and when the study will take place (Du Plooy, 2006:81). De Vos et al. (2005:159) state that the research design is the recipe or blueprint for investigation, and that it provides a guideline for the selection of data collection method(s) that will be appropriate to the researcher's aims and to the selected research design. Quantitative data collection methods often employ measuring instruments, namely questionnaires, checklists, indexes and scales (De Vos et al., 2005:166).

3.3.1 Questionnaire

The questionnaire was considered the most suitable instrument for this study, as it is the cheapest and quickest method of collecting data in the light of the cost and time constraints facing the researcher (De Vos et al., 2005:168). Babbie and Mouton (2001:233) state that a questionnaire is a collection of questions and statements that is especially useful if the researcher is interested in determining the extent to which the respondents hold a particular attitude or perspective. There are various types of questionnaires, namely mailed questionnaires, telephonic questionnaires, self-administered questionnaires, questionnaires delivered by hand and group-administered questionnaires (De Vos et al., 2005:167). A self-administered questionnaire (Appendix E) was developed in consultation with the literature and was applied to the hospital's fall prevention policy. Babbie and Mouton (2001:250) state that there is always the possibility of error in any carefully designed data collection instrument. Pretesting the instrument protected against such error and was used to identify areas of ambiguity and misinterpretation and deficiencies. The actual pretesting of the questionnaire is discussed in Section 3.3.3.2 of this chapter.

3.3.2 Development of the Questionnaire and Information Sheet (Covering Letter)

The first page of the questionnaire (Appendix E) comprised an instruction section. In addition to stressing the importance of the study, the section gave the respondents the assurance of confidentiality and anonymity. An information sheet (covering letter – Appendix F) was attached to the questionnaire. Details of this information sheet are given later in this chapter.

3.3.2.1 Contents of the Information Sheet (Covering Letter)

The information sheet complied with recommendations given by Monette, Sullivan and De Jong (2002:169), who state that the following items should be included: the sponsor of the research, the address and telephone number of the researcher, how the respondent was selected, who else was selected, the purpose of the research, who will benefit from the research, an appeal for the respondent to complete the questionnaire, payment or any other incentive, an assurance of anonymity and confidentiality, and the deadline for returning the questionnaire.

3.3.2.2 Development of the Questionnaire

There are certain basic principles outlined by De Vos et al. (2005:171) that were observed in the development of the questionnaire. These principles include sentences being brief and clear, the vocabulary and style being understandable by the respondent, clear question and response alternatives, no researcher biases, only one thought per question and relevant questions, and that the sequence in which the questions are presented should aim to first present general, non-threatening questions, with more sensitive, personal questions coming later. The order in which the questions and statements are arranged in a questionnaire can influence individual responses and the findings of the survey (Du Plooy, 2006:173). It therefore was important that sensitivity be maintained when arranging the sequence of the questions. One example of a logical sequence is the use of the funnel pattern (Du Plooy, 2006:173). This means that one starts with general questions, followed by more specific questions. The general questions function as warm-up questions to introduce the topic and the more detailed questions that follow (Du Plooy, 2006:173). Section A of the questionnaire consisted of biographical data and had four questions, numbered 1 to 4. Sections B and E consisted of a five-point Likert scale, where 1 = strongly disagree, or the most negative response, and 5 = strongly agree, or the most positive response (Burns & Grove, 2007:388). Section B comprised 18 questions related to the current fall prevention policy practiced at the hospital. Sections C and D consisted of a five-point Likert scale, ranging through 1 = never, being the most negative, 2 = rarely, 3 = sometimes, 4 = most of the time and 5 = always, being the most positive. Section C considered more sensitive questions, focusing on the roles of supervisors or managers in fall prevention. This section consisted of five questions. Section D comprised four questions related to fall incidents and reporting, and was intended to determine the factors relating to fall incidents in the hospital. Section E comprised four questions intended to determine the role of hospital management in the fall prevention programme, and was required to be answered by all the respondents. Section F was included to allow the participants to document any additional comments relating to the fall prevention programme

In summary, the questionnaire contained a total of 35 closed-ended questions, which required the respondents to choose responses answers on a Likert scale. According to Hulley, Cummings, Browner, Grady, Heart and Newman (2001:132), closed-ended questions are quicker and easier to answer and the answers are easier to tabulate and analyse. The questionnaire was in English. The proposed questionnaire was reviewed by the quality

specialist, who has expertise in designing survey questionnaires (before submission to the Health Research Committee), and changes were made according to the recommendations of this specialist. The reliability of the questionnaire was enhanced by conducting two pre-tests prior to the research study. The details of the pre-tests are outlined below.

3.3.3 Reliability and Validity

According to Cant, Gerber-Nel, Nel and Kotze (2005:234), reliability and validity are the hallmarks of good measurement and the key to any research study. It is essential that the results be both reliable and valid to draw scientific conclusions and recommendations from a study.

3.3.3.1 Reliability

Reliability is the degree to which a measurement procedure or scale produces the same results if repeated, i.e. the extent to which the questionnaire produces consistent results if repeated (Cant et al., 2005:235). Reliability testing is thus the measure of random error in the measurement technique (Burns & Grove, 2007:552). Reliability was ensured by conducting two sets of pretesting of the questionnaire, as outlined below.

3.3.3.2 Testing of the Questionnaire

Babbie (2004:256) recommends that it is better to ask people to complete the questionnaire than to read it to them. Completion of the questionnaire helps identify possible errors that can be rectified before the actual research study. To enhance the validity and reliability of the instrument, two pre-tests were completed. The first pre-test was completed by five healthcare providers from the fall prevention committee who had assisted in the development of the fall risk assessment policy, as they better understood the programme. The questions were completed to ascertain whether they adequately addressed the proposed research question. In addition, the questionnaire was pre-tested on ten healthcare providers with previous work experience in JCIA-accredited hospitals. This provided a simulation (pilot study) of the actual study and ensured that the respondents would understand both the instructions and the terms in the questionnaire in order to timeously identify and correct any inaccuracies and ambiguity. The estimated completion time of eight to ten minutes was established during this pre-test.

3.3.3.3 Revision of the Questionnaire

The responses from pre-test one resulted in revision of the questionnaire before the second pre-test was conducted. The revisions arising from the first pre-test included amendments in the instructions section at the beginning of the questionnaire. The information was reorganised to insert the aim of the survey at the beginning, and "Kindly insert your blank questionnaire in the survey box if you decide not to take part in the survey" was included at the end of the section. The 21 questions in Section B were reduced to 18 . The comments section after Section B was also removed. The revisions after pre-test 2 were made to Section C, where the heading, "your supervisor/manager" was removed. The instruction in this section was rephrased to "Please indicate the frequency of the following statement about your immediate supervisor/manager or person to whom you directly report". In Section D, the heading "Frequency of falls reported" was removed. The instruction was rephrased to "Please indicate the frequency of the following statements about your hospital". The heading "your hospital" was also removed from Section E. The final revision of the questionnaire was based on the recommendations of the Health Research Committee, in terms of which the phrase, "All questions to be answered" on page one, prior to Section A, was removed.

3.3.3.4 Validity

Validity addresses the issue of whether what was attempted to be measured was actually measured (Cant et al., 2005:235). In this study, the validity was enhanced by Professor M. Kidd, a statistical consultant at the Centre for Statistical Consultation, University of Stellenbosch, who assisted with the analysis of both the pre-test and research results. Professor Kidd used Cronbach's alpha to determine the content validity and reliability (Burns & Grove, 2007:365) of both sets of results. A reliability coefficient of .70 or higher is considered "acceptable" in most research situations (Burns & Grove, 2007:365). Table 3.1 shows the results of the Cronbach's alpha on the pre-test of the questionnaire. The entire data collection process and data entry were done personally by the researcher, which ensured that data were collected in a consistent way and that the integrity (validity) of the study was protected (Burns & Grove, 2007:391). This process allowed for increased levels of accuracy in the data entry. All data entered in Microsoft Excel was rechecked by the researcher to identify any errors in data capturing.

Table 3.1: Cronbach's Alpha – Pre-test

Section B	0.83
Section C	0.96
Section D	0.82
Section E	0.79

Table 3.2: Survey Results (details are attached as Appendix J)

	Mean	Standard deviation	Validity, Cronbach's alpha	Standardised alpha	Average inter-item correlation
Section B	6907064	11.0599	.915951	.916842	.390961
Section C	17.6972	6.25019	.930971	.931607	.734642
Section D	16.2477	4.02114	.868290	.869923	.639663
Section E	14.0275	2.98595	.690460	.694498	.377358

Table 3.2 (Sections B to D) indicate high consistency and high correlation between measurements. Sections B to D were therefore of acceptable reliability. In Section E, the Cronbach's alpha of 0.69 is close enough to 0.7 to be regarded as reliable or having a strong tendency towards reliability.

3.4 Sampling and Sampling Process

Sarantakos (2000:139) states that the major reason for sampling is feasibility, as a complete coverage of the total population is seldom possible. Cant et al. (2005:235) state that a sample is a subgroup of the population that is selected to participate in the research. Cant et al. (2005:264) state further that the target population is the collection of people from whom information is to be gathered to solve the research problem. In this study, the target population was healthcare providers working in an acute care hospital in the United Arab Emirates (UAE). The sample of participants was selected from a group of 684 healthcare providers, i.e. practical nurses (nurses with limited clinical nursing skills, working under the direct supervision of a registered nurse), registered nurses, physicians (in this context a physician is referred to as a doctor being a resident or consultant in any specialty of medicine), physical therapists and pharmacists. These categories of healthcare providers were

selected because their roles were clearly defined in the hospital's Fall Risk Assessment and Prevention Policy.

3.4.1 Sample Frame

A sample frame represents the elements (people) of the target population. Examples from which samples can be drawn include telephone books, employee rosters and listings of students attending a university (Cant et al., 2005:164). For the purpose of this study, the healthcare provider's monthly duty rosters were used as the sample frame, as this was easier than rewriting the names. These schedules were collected from the various heads of the departments. The researcher ensured that the sample frame was representative of the population in that no names were excluded or repeated on the lists. This was checked against the physicians' list obtained from the medical secretary.

3.4.2 Sample Size

Sample size is the total number of participants included in the study (Cant et al., 2005:177). Stoker's 1985 sample size guidelines, quoted in De Vos et al. (2005:196), suggest twenty percent for a population size of 500. The researcher extrapolated that twenty percent (137) of the total population (684) would be adequate for this study, as it was impractical to attempt to undertake a survey of the entire population.

3.4.3 Selecting a Sample Technique

The researcher selected the sample technique from five basic alternatives discussed by Cant et al. (2005:165-176), i.e. probability and non-probability sample methods, single unit sampling and cluster sampling, unstratified and stratified sampling methods, equal unit probability and unequal probability sampling, and single stage and multistage sampling methods. A stratified sampling method was selected, as the population was a heterogeneous group of healthcare providers, including nurses, physicians, physical therapists and pharmacists, working in an inpatient acute care setting.

3.4.3.1 Stratified Sampling

Stratified sampling is a two-step process in terms of which the population is divided into subgroups or strata. A stratum in a population is a group within that population that has one or more common characteristics (Cant et al., 2005:172). The population in this study was healthcare providers, nurses, physicians, physical therapists and pharmacists working in an

inpatient acute care setting. They can be described as different categories of the healthcare groups with different healthcare roles, whilst all working in the same healthcare profession (Cant et al., 2005:172). The random sampling technique allows every member (element) of the population the probability of being selected for a sample, which increases the sample's representatives of the target population (Burns & Grove, 2007:551).

3.4.3.2 Selecting the Sample Population

The researcher used random sampling to select the participants in this survey, allowing each individual of the population an equal chance of being selected to increase the extent to which the sample is representative (De Vos et al., 2005:196). The duty schedules were used to randomly select 137 participants, i.e. twenty percent of the total population (684). The names on the various duty rosters were cut out and placed in a bowl and then randomly drawn by the researcher. Table 3.3 below indicates the population and the sample size.

Table 3.3: Population Sample

Healthcare providers	Total N	Total participants n
Registered nurses	375	75
Practical nurses	10	2
Physicians	261	52
Pharmacists	22	5
Physical therapists	16	3
Total participants	684	137

The non-clinical healthcare providers, such as physicians working in the hospital administration department, were excluded.

3.5 Data Collection Strategies

3.5.1 Distribution of Questionnaires

Appointments were set up with the heads of department of the Pharmacy, Physical Therapy, Medicine and Nursing Departments to outline the purpose of the survey. The heads of departments were informed that:

1. The Health Research Ethics Committee, Faculty of Health Sciences, Stellenbosch University, South Africa, had approved the study for a Master's Degree in Nursing, and that approval had also been obtained from the Ethics Committee of the hospital.
2. The aim of the survey was to identify factors preventing the successful implementation of the existing fall prevention programme in the hospital.
3. The questionnaire would take about 10 to 15 minutes to complete.

The researcher handed the questionnaires, together with an information sheet (Appendix F) and a self-addressed envelope, to each selected participant.

3.5.2 Introduction and Explanation to Participants

The participants were informed that completion of the questionnaire constituted consent to participate in the survey. They were also informed that their participation was voluntary, i.e. they had a right to refuse participation. The participants were requested to return the blank questionnaire if they decided not to participate. The participants were also urged to complete the questionnaire before the end of their shift and place it in the dedicated box marked "survey box" at the hospital reception desk. The participants were guaranteed confidentiality and were made to understand that they could refuse to participate without prejudice. The researcher reminded the participants about the questionnaire before the end of the shift.

3.5.3 Collection of the Questionnaires

The questionnaires were collected at the end of the shift from the survey box daily for three days, and were counted manually by the researcher. A return rate of 86% (118) was acceptable. According to Burns and Grove (2007:382), a response rate of less than 50% would not have been representative of the sample. The refusal rate was one (1%). The 19 (14%) unreturned questionnaires were probably due to the limited time allowed by the hospital management for the collection of the questionnaires, and was taken as refusal to participate as the completion of the questionnaire could have infringed on their work routine.

3.6 Data Analysis and Interpretation

Data analysis in the quantitative paradigm does not in itself provide the answers to research questions. Answers are found by way of interpreting the data and the results. To interpret is to explain and find meaning. It is difficult or impossible to explain raw data. One must first describe and analyse the data and then interpret the results of the analysis. Analysis means the

categorising, ordering, manipulating and summarising of data to obtain answers to research questions. The purpose of analysis is to reduce data to an intelligible and interpretable form so that the relations of research problems can be studied and tested and conclusions can be drawn (De Vos et al., 2005:218).

3.6.1 Data Handling

The collected data were prepared for data entry into Microsoft Excel by the researcher, as the researcher is familiar with the software. The spreadsheet consisted of columns that represented the question responses according to the sections in the questionnaire, e.g. Section A, Q1, Q2, Q3, Q4, and so on. Each row represented the responses from the respondents. Different spreadsheets were used for each of the different strata (i.e. professional categories). The codes for the respondents were according to their subgroups and respective professions, listed as follows: practical nurses – PN1, PN2, etc; registered nurses – RN1, RN2; physical therapists – PT1, PT2; pharmacists – P1, P2; and physicians – Phy1, Phy2, as described in the sample population.

3.6.2 Data Interpretation

During this phase, which is described in detail in Chapter 4, the researcher identified trends from the collected data. Each section was dealt with in detail and emerging patterns were compared to the findings from the literature study and patterns from the other sections of the questionnaire. Special attention was paid to data that gave insight into the study objectives. Once the emerging patterns had been identified, these were reduced to meaningful units that were relevant to the stated research problem. Similarities and differences that emerged from the data were carefully noted, analysed and interpreted so that the researcher could make recommendations for the revision of the fall prevention programme and reflect upon aspects for further research.

3.7 Ethical Issues

Ethics deal with beliefs about what is right or wrong, proper, improper, good or bad (McMillan & Schumacher, 2001:196). Ethical approval was obtained from the University of Stellenbosch Committee for Human Research (Appendix G) prior to commencement of this study. Written approval was also obtained from the Ethics Committee of the hospital where the study was undertaken (Appendix H) as a requirement of the hospital policy. An information sheet (Appendix F) was attached to the questionnaire, indicating the aim of the

study, the giving of consent and the time required to complete the questionnaire, as well as the participant's right to refuse without prejudice and a guarantee of confidentiality (Monette et al., 2002:169).

3.7.1 Informed Consent

Informed consent is a written document that includes the elements of disclosure of the specific essential information of the study in an easily understandable language. The respondent giving the consent must be competent and consent voluntarily to participant in the research study (Burns & Grove, 2007:216). This descriptive study, which used a questionnaire to collect harmless data, did not need signed consent from the respondents (Burns & Grove, 2007:219). The respondents' completion of the questionnaire served as voluntary consent and permission for participation (Burns & Grove, 2007:219). The instruction section and the information sheet contained the following statement: "Your completion of this questionnaire indicates your consent to participate in this study" (Burns & Grove, 2007:219). The participants were informed in the information sheet and the instruction section of the questionnaire that participation was voluntary. The participants were also reminded that participation was voluntary when the questionnaires were issued to them for completion.

3.7.2 Anonymity and Confidentiality

Anonymity is based on the respondent's right to privacy and the fact that the data collected will be kept confidential (Burns & Grove, 2007:212). Anonymity was limited to omitting names from the questionnaires. No names were linked to the respondents at any stage in the research process. As indicated earlier in this chapter, codes were assigned to each questionnaire (McMillan & Schumacher, 2001:233). Confidentiality is the researcher's management of the information provided by the respondents (Burns & Grove, 2007:212). All questionnaires were collected and the raw data were captured in the Microsoft Excel spreadsheet by the researcher. Data obtained from the respondents remained confidential. No persons except the researcher, supervisors and the statistical consultant from the University of Stellenbosch had access to the raw data. All the raw data were scanned and saved as soft copies on the external hard drive of the researcher's computer. The hard drive will be retained for five years by the researcher. The original hard copies were shredded and discarded because of the researcher's personal circumstance. The researcher had to travel between various countries in the Middle East, and travelling with them was impossible.

3.8 Limitations of the Study

Limitations are theoretical and methodological restrictions in a research study that may decrease the credibility and generalisation of the findings (Burns & Grove, 2007:37). The research methodology in the study was executed as planned, with no limitations. However, the study was restricted to a single acute care setting, and therefore the findings cannot be generalised to all acute care settings.

3.9 Conclusion

This chapter dealt with the research methodology and research design. The rationale for choosing the research approach and the quantitative data collection method was outlined. The data analysis process and ethical issues considered for this research study were also outlined. In the next chapter, a description of the responses to the survey will be presented.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

The previous chapter outlined the purpose of the data analysis and the data handling by the researcher. It also gave a brief introduction to the interpretation of the data. This chapter presents the analysed data and the interpretations. Data analysis provides answers by way of interpretation of the data and the results. To interpret data is to explain and find meaning. Raw data must first be described, analysed and then interpreted. Analysis means the categorising, ordering and summarising of the data to obtain answers to the research question. The purpose of analysis is to reduce data to an intelligible and interpretable form so that the relations of research problems can be studied and tested and conclusions can be drawn (De Vos et al., 2005:218). The most important findings are discussed in this chapter. Further discussion, together with the recommendations, will be presented in Chapter 5.

4.2 Description of Statistical Analysis

The findings are displayed in frequency distribution tables to make interpretations and conclusions possible (De Vos et al., 2005:222). The mean and standard deviations were used to summarise and represent the data. The mean is the sum of measurements divided by the number of measurements used, and specifies the distribution. A mean is the most accurate measure of central tendency (De Vos et al., 2005:233). The standard deviation was used to emphasise the value of the measures of variance or spread. The measures of variance are indicators of dispersion of how a group of data is distributed around the mean (De Vos et al., 2005:236). A low standard deviation indicates that the data points tend to be very close to the mean, while a high standard deviation indicates that the data are spread out over a large range of values, far from the mean (De Vos et al., 2005:236). In this study, all means and standard deviations have been rounded up or down to two decimal points. Correlational analyses, which determine the direction (positive or negative) and the strength of the relationships between the variables (De Vos et al., 2005:535), were not done because of the nature of this study, which was descriptive in nature. It was considered most practical to focus on professional groups and not the other variables, as the initial analysis indicated weak correlations.

4.3 Section A – Biographical Data

Section A comprised the biographical data of the participants, relating to their primary work area, current work position and number of years worked in the hospital and in their profession. These data were collected to identify any relationships between these variables and aspects of the existing fall prevention programme, which include the assessment and re-assessment of patients, the referral of high-risk patients, education of the staff, patients and their families, a multidisciplinary approach, communication and teamwork, reporting and investigation of fall incidents, the manager's role and leadership support. In this study, the target population was healthcare providers (HCPs) working in an acute care hospital in the United Arab Emirates (UAE). One hundred and thirty-seven (137), or 20%, of the HCPs were randomly selected from a population of 684. One hundred and eighteen (86%) questionnaires were returned. The responses shown in this chapter are from the returned questionnaires.

Table 4.1 show the biographical data are shown in the following three tables. The number of participants, followed by the percentage, are given per category. The percentage calculations throughout this chapter are rounded up to no decimal points for values 0.5 and higher, and rounded down for values less than 0.5. Throughout this chapter, the abbreviations for the various HCP categories are reflected as RNs for registered nurses, PNs for practical nurses, Phys for physicians, PTs for physical therapists and Pharms for pharmacists. Seventy (91%), n=70 of the nurses returned questionnaires compared to n= 40 (77%) of the physicians, which was the lowest response rate by professional category. All the pharmacists and physical therapists responded. The response rate was 86%, n=118

Table 4.1: Response Rate

Profession of participants	Number selected to participate	Number of participants who responded	%
RNs	75	68	91
PNs	2	2	100
Phys	52	40	77
PTs	3	3	100
Pharms	5	5	100
TOTALS	**137**	**118**	**86**

Table 4.2 shows the number of participants and their distribution in the hospital according to the work area or unit. The number and percentage of specific professionals per work area are presented in each column. The majority of the participants were RNs n=68 (58%). Practical nurses are nurses with limited clinical nursing skills, working under the direct supervision of a RN, and therefore assist in the assessment and implementation of the fall prevention protocols. The number of practical nurses is proportionally lower in this hospital and other hospitals in the UAE, as RNs provide the nursing care. A distinction was made between registered nurses and practical nurses during data collection to identify any differences between the two groups. However, the difference was negligible and the data collected from these two groups will be combined. Physicians in this context refer to doctors, who may be residents, registrars or consultants, including anaesthetists. There were more physicians working in medicine n=16 (40%) than in surgery n=13 (33%). All the pharmacists and physical therapists responded. Thirty-two percent (32%) n=22 of the nurses who responded worked in the medical ward and n=24 (35%) worked in the surgical ward, while n=11(16%) were from the intensive care unit (ICU). The areas under "Other" included RNs, n=11 (16%) from oncology, orthopaedics and recovery room.

Table 4.2: Work Areas of the Participants

Work area of participants	**RNs n (%)**	**PNs n (%)**	**Phys n (%)**	**PTs n (%)**	**Pharms n (%)**	**Total n**
Medicine	22 (32)	1 (50)	16 (40)	0 (0)	0 (0)	39
Surgery	24 (35)	1 (50)	13 (33)	0 (0)	0 (0)	38
Anaesthesiology	0 (0)	0 (0)	5 (13)	0 (0)	0 (0)	5
ICU	11 (16)	0 (0)	0 (0)	0 (0)	0 (0)	11
Pharmacy	0 (0)	0 (0)	0 (0)	0 (0)	5 (100)	5
Rehabilitation	0 (0)	0 (0)	0 (0)	3 (100)	0 (0)	3
Other	11 (16)	0 (0)	6 (15)	0 (0)	0 (0)	17
Total (%)*	**68 (58)**	**2 (2)**	**40 (34)**	**3 (2)**	**5 (4)**	**118**

*Percentage of total number of participants

Table 4.3 indicates the years of experience of the participants in their various professions. The HCP categories are listed vertically and the years worked are grouped in ranges of less than one year, to five years, six to 10 years, 11 to 15 years, 16 to 20 years and 21 years and above.

A large percentage of the participants n=55 (46%) had between six and 15 years' work experience in their current profession, while 8% (n = 10) had worked for less than one year. Six (5%) participants did not respond to the question.

Table 4.3: Number of Years Worked in Current Profession (n = 118)

Category	< 1 yr n (%)	1-5 yrs n (%)	6-10 yrs n (%)	11-15 yrs n (%)	16-20 yrs n(%)	21 yrs + n (%)	No response n (%)
RNs – n=68	5 (7)	10 (15)	21 (31)	17 (25)	6 (9)	3 (4)	6 (9)
PNs – n=2	0 (0)	1 (50)	0 (0)	1 (50)	0 (0)	0 (0)	0 (0)
Phys– n=40	5 (13)	2 (5)	7 (18)	5 (13)	7 (18)	14 (35)	0 (0)
PTs –n= 3	0 (0)	0 (0)	0 (0)	1 (33)	1 (33)	1 (33)	0 (0)
Pharms–n= 5	0 (0)	0 (0)	3 (60)	0 (0)	1 (20)	1 (20)	0 (0)
TOTAL-n–118	**10 (8)**	**13 (11)**	**31 (26)**	**24 (20)**	**15 (13)**	**19 (16)**	**6 (5)**

Table 4.4 shows the response to the question, "How long have you worked in this hospital?" Nineteen percent (n = 23) had worked in the hospital for less than one year, while the majority of the participants n = 73 (62%) had worked in the hospital being studied for one to 10 years, and some n = 5 (4%) had worked there for 21 years or more.

Table 4.4: Number of Years Worked in the Current Hospital

Category	< 1 yr n (%)	1-5 yrs n (%)	6-10 yrs n (%)	11-15 yrs n (%)	16-20 yrs n (%)	21 yrs + n (%)	No response n (%)
RNs n=68	10 (15)	25 (37)	19 (28)	6 (9)	4 (6)	4 (6)	0 (0)
PNs n=2	1 (50)	1 (50)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Phys n=40	11 (28)	13 (33)	9 (23)	5 (13)	1 (3)	1 (3)	0 (0)
PTs n=3	0 (0)	1 (33)	2 (67)	0 (0)	0 (0)	0 (0)	0 (0)
Pharms n=5	1 (0)	1 (20)	2 (40)	0 (0)	0 (0)	0 (0)	0 (0)
TOTALn=118	**23 (19)**	**41 (35)**	**32 (27)**	**11 (9)**	**5 (4)**	**5 (4)**	**0 (0)**

4.4 Section B – Fall Prevention Policy

Section B relates to potential barriers to the success of the current FPP. A five-point Likert scale was used, where 1 = strongly disagree, being the most negative, 2 = disagree, 3 = unsure, 4 = agree and 5 = strongly agree, being the most positive.

4.4.1 Importance of the FPP

The results shown in Table 4.5 are responses to the question in which the participants were asked if they considered the FPP to be an important aspect of their work. All the nurses agreed, while all of the physical therapists disagreed or were unsure. Most of the pharmacists were also unsure, with only one n=1 (20%) agreeing (mean = 65.32, std. deviation = 10.53).

Table 4.5: Importance of the FPP

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	0 (0)	0 (0)	0 (0)	19 (28)	49 (72)	0 (0)
PNs n=2	0 (0)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)
Phys n=40	1 (3)	2 (5)	2 (5)	23 (58)	12 (30)	0 (0)
PTs n=3	1 (33)	0 (0)	2 (67)	0 (0)	0 (0)	0 (0)
Pharms n=5	0 (0)	1 (20)	3 (60)	1 (20)	0 (0)	0 (0)
TOTALn=118	**2 (2)**	**3 (3)**	**7 (6)**	**43 (36)**	**63 (53)**	**0 (0)**

Additional comments made by the physicians, such as "*Most questions not applicable to my work*" and "*Some questions not applicable to my job*", suggest that some do not consider the FPP as an important part of their job.

4.4.2 Fall Assessment and Re-assessment

The current fall prevention policy states that patients must be assessed on admission and re-assessed at each shift, on a change in their medical condition, after a fall and when the patient is transferred to another patient care setting. Assessment is done using the modified Morse Fall Scale (MFS). The MFS risk factors include recent history of falling, secondary diagnosis, need for ambulatory aid, intravenous therapy, gait characteristics and impaired mental status. A total score of 45 or more indicates that the patient is at high risk of falling.

Table 4.6 indicates responses to the statement, "All patients are assessed on admission to determine risk factors for falls". Two participants did not respond to the question. Most of the nurses n = 67 (96%) agreed, while only 21 (53%) of the physicians agreed (mean = 65.59, std. deviation = 10.30).

Table 4.6: Assessments on Admission

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	0 (0)	1 (1)	1 (1)	22 (32)	43 (63)	1 (1)
PNs n=2	0 (0)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)
Phys n=40	1 (3)	6 (15)	11 (28)	18 (45)	3 (8)	1 (3)
PTs n=3	1 (33)	0 (0)	2 (67)	0 (0)	0 (0)	0 (0)
Pharms n=5	1 (20)	0 (0)	2 (40)	1 (20)	1 (20)	0 (0)
TOTAL n=118	**3 (3)**	**7 (6)**	**16 (14)**	**41 (35)**	**49 (42)**	**2 (2)**

The nurses are primarily responsible for completing the initial fall risk assessment on admission. Although the other HCPs are not responsible for the initial fall risk assessment, they need to be aware of the requirements of the FPP to enhance the multidisciplinary approach.

Table 4.7 shows the responses to the statement, "All patients are re-assessed on each shift to determine risk factors for falls". Most of the nurses n = 63 (90%) agreed, while only n=5 (13%) of the physicians agreed. Nineteen (48%) of the physicians were unsure. Three participants did not respond to the question (mean = 65.97, std. deviation = 10.13).

Table 4.7: Re-assessment on Each Shift

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	0 (0)	2 (3)	4 (6)	25 (37)	36 (53)	1 (1)
PNs n=2	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)
Phys n=40	3 (8)	11 (28)	19 (48)	3 (8)	2 (5)	2 (5)
PTs n=3	1 (33)	0 (0)	2 (67)	0 (0)	0 (0)	0 (0)
Pharms n=5	1 (20)	1 (20)	1 (20)	2 (40)	0 (0)	0 (0)
TOTAL n=118	**5 (4)**	**14 (12)**	**26 (22)**	**32 (27)**	**38 (32)**	**3 (3)**

These results indicate an apparent lack of awareness of the requirements of the FPP amongst the physicians and physical therapists. The comment from a participant that "*No need to assess stable patient in every shift"* supports this assumption. Re-assessment in each shift is not a mandatory requirement by the JCIA, and no studies were found to support that fall risk assessment in each shift reduced fall rates or the severity of injuries from falls. This finding may support the removal of this requirement from the current FPP.

Table 4.8 shows the responses to "All patients are re-assessed to determine risk factors for falls upon change on their medical condition". Most of the nurses n = 67 (96%) agreed, while most of the physicians disagreed or were unsure n = 27 (68%). Five participants did not respond to the question (mean = 65.74, std. deviation = 10.21).

Table 4.8: Re-assessment of patient on change of medical condition

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs – 68	0 (0)	0 (0)	1 (1)	27 (40)	38 (56)	2 (3)
PNs – 40	0 (0)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)
Phys – 40	4 (10)	6 (15)	17 (43)	9 (23)	2 (5)	2 (5)
PTs – 3	0 (0)	1 (33)	0 (0)	2 (67)	0 (0)	0 (0)
Pharms – 5	0 (0)	0 (0)	1 (20)	3 (60)	0 (0)	1 (20)
TOTAL – 118	**4 (3)**	**7 (6)**	**19 (16)**	**41 (35)**	**42 (36)**	**5 (4)**

The requirement by JCIA is that all patients be assessed on admission, and when their medical condition changes because of high-risk medications, anaesthesia or any procedure that alters the mental status or mobility of the patient. This requirement is supported by research undertaken by Barnett (2002:5), who recommended that fall risk assessments be done on admission, whenever the medical condition changed and after a patient's fall. This finding suggests that this is an area in need of improvement if the JCIA requirements are to be met.

Table 4.9 indicates the responses to the statement, "All patients that fall are re-assessed for further fall risk factors". Participants that agreed were n=92 (78%), although n=9 (23%) of the physicians were unsure. Five participants did not respond to the question (mean = 65.63, std. deviation = 10.47)

Table 4.9: Re-assessment After a Fall

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	1 (1)	0 (0)	3 (4)	35 (51)	27 (40)	2 (3)
PNs n=2	0 (0)	0 (0)	1 (50)	0 (0)	1 (50)	0 (0)
Phys n=40	0 (0)	2 (5)	9 (23)	22 (55)	4 (10)	3 (8)
PTs n=3	0 (0)	3 (100)	0 (0)	0 (0)	0 (0)	0 (0)
Pharms n=5	1 (20)	0 (0)	1 (20)	3(60)	0 (0)	0 (0)
TOTAL n=118	**2 (2)**	**5 (4)**	**14 (12)**	**60 (51)**	**32 (27)**	**5 (4)**

4.4.3 Fall Risk Assessment Tool

The tool used to assess patients for falls is the modified Morse Fall Scale (MFS). In the current FPP, the primary responsibility for completing the MFS rests with the registered nurse. Barnett (2002:2) states that the MFS is an easy-to-use, research-driven tool, and that the reliability and validity of the form have been determined.

Table 4.10 shows the responses to the statement that "The fall risk assessment tool is easy to use". Nurses n=63 (93%) who are responsible for using this scale agreed, while the majority

of physicians n=23 (58%) were unsure, while n=3 (8%) disagreed. Six participants did not respond to the question (mean = 65.81, std. deviation = 10.53).

Table 4.10: Fall Risk Assessment Tool

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	0 (0)	0 (0)	3 (4)	42 (62)	21 (31)	2 (3)
PNs n=2	0 (0)	0 (0)	0 (0)	1 (50)	1(50)	0 (0)
Phys n=40	0 (0)	3 (8)	23 (58)	9 (23)	2 (5)	3 (8)
PTs n=3	0 (0)	0 (0)	3 (100)	0 (0)	0 (0)	0 (0)
Pharms n=5	0 (0)	0 (0)	1 (20)	2 (40)	1 (20)	1 (20)
TOTAL n=118	**0 (0)**	**3 (3)**	**30 (25)**	**54 (46)**	**25 (21)**	**6 (5)**

Table 4.11 shows the responses to the statement, "The current Morse Fall Scale (MFS) assists you to identify high-risk patients". Although n=62 (89%) of the nurses agreed with the statement, the physicians were mainly unsure n=27 (68%). Seven (96%) participants did not respond to the question (mean = 65.89, std. deviation = 10.46).

Table 4.11: Modified Morse Fall Risk Assessment Tool

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	0 (0)	0 (0)	6 (9)	39 (57)	21 (31)	2 (3)
PNs n=2	0 (0)	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)
Phys n=40	1 (3)	1 (3)	27 (68)	7 (18)	0 (0)	4 (10)
PTs n=3	0 (0)	0 (0)	3 (100)	0 (0)	0 (0)	0 (0)
Pharms n=5	0 (0)	0 (0)	1 (20)	2 (40)	1 (20)	1 (20)
TOTAL n=118	**1 (1)**	**1 (1)**	**37 (31)**	**49 (42)**	**23 (19)**	**7 (6)**

4.4.4 Referral of High-Risk Patients

The nurse is responsible for referring the identified high-risk patient to the physician, who will then make the necessary referral to the physical therapists or pharmacists for further assessment.

Table 4.12 shows the responses to the statement, "All patients with high risk for falls are referred to the physician". Although most of the nurses agreed or strongly agreed n=50 (73%) that high-risk patients were being referred, only n=18 (45%) of the physicians agreed (mean = 65.92, std. deviation = 10.52). The inconsistency in the responses suggests a gap in the referral process, which is not clearly outlined in the current FPP.

Table 4.12: Referral to the Physician

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	0 (0)	6 (9)	11 (16)	28 (41)	22 (32)	1 (3)
PNs n=2	0 (0)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)
Phys n=40	3 (8)	5 (13)	13 (33)	14 (35)	4 (10)	1 (3)
PTs n=3	0 (0)	0 (0)	3 (100)	0 (0)	0 (0)	0 (0)
Pharms n=5	0 (0)	0 (0)	0 (0)	1 (20)	4 (80)	0 (0)
TOTAL n=118	**3 (3)**	**11 (9)**	**27 (23)**	**43 (36)**	**32 (27)**	**2 (2)**

Table 4.13 shows the responses to the statement, "All patients with high risk for falls are referred to the physical therapists". All of the PTs n=3 (100%) were unsure if these groups of patients were being referred to them, yet most nurses n=44 (64%) agreed or strongly agreed that this referral was occurring. The physicians, who are responsible for referring patients to the physical therapists, were either unsure n=23 (58%) or disagreed n=9 (23%) that this was being done. Not all the participants answered this question (mean = 66.29, std. deviation = 10.34).

Table 4.13: Referral to the Physical Therapist

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	0 (0)	12 (18)	10 (15)	26 (38)	18 (26)	2 (3)
PNs n=2	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)	0 (0)
Phys n=40	3 (8)	6 (15)	23 (58)	5 (13)	1 (3)	2 (5)
PTs n=3	0 (0)	0 (0)	3 (100)	0 (0)	0 (0)	0 (0)
Pharms n=5	1 (20)	0 (0)	0 (0)	4 (80)	0 (0)	0 (0)
TOTAL n=118	**4 (3)**	**18 (15)**	**37 (31)**	**36 (31)**	**19 (16)**	**4 (3)**

Table 4.14 shows the responses to the statement, "All patients with high risk for falls are referred to the clinical pharmacists". Fifty-five percent n=47 (55%) of the registered nurses agreed or strongly agreed that the physicians referred high-risk patients to the pharmacists. This is less than those who agreed/strongly agreed that these high-risk patients were referred to physicians (73%) and physical therapists (64%), which appears to indicate a lack of communication with regard to the referral process, given that n= 33 (83%) of physicians and n=3 (60%) of pharmacists agreed/strongly agreed that these referrals do occur (mean = 66.38, std. deviation =10.51).

Table 4.14: Referral to the Clinical Pharmacist

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	2 (3)	9 (13)	19 (28)	27 (40)	10 (15)	1 (1)
PNs n=2	0 (0)	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)
Phys n=40	3 (8)	9 (23)	16 (40)	8 (20)	25 (63)	2 (5)
PTs n=3	0 (0)	0 (0)	3 (100)	0 (0)	0 (0)	0 (0)
Pharms n=5	0 (0)	1 (20)	1 (20)	1 (20)	2 (40)	0 (0)
TOTAL n=118	**5 (4)**	**19 (16)**	**39 (33)**	**37 (31)**	**38 (32)**	**3 (3)**

4.4.5 Staff Education

An additional, associated requirement for the JCIA is that each staff member receives ongoing education and training to maintain or advance his or her skills and knowledge. Staff deficits in skills and knowledge are identified by various sources, including the results of quality and safety monitoring, such as fall rates, through the review of job performance, and through the evaluation of new clinical procedures such as the FPP. This ensures that the education provided is relevant to the needs of individual staff members and, in turn, ensures their ability to meet patient needs (Joint Commission International, 2008:202).

Table 4.15 shows the responses to the statement, "Staff were educated about the FPP". Most nurses n=60 (88%) agreed or strongly agreed, while just over half n=21 (53%) of the physicians, 33% (n = 1) of the physical therapists and n=4 (80%) of the pharmacists agreed or strongly agreed with this statement. Six (5%) participants did not respond to the question (mean = 65.58, std. deviation = 10.43).

Table 4.15: Staff Education on FPP

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	0 (0)	1 (1)	3 (4)	28 (41)	32 (47)	4 (6)
PNs n=2	0 (0)	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)
Phys n=40	1 (3)	3 (8)	13 (33)	14(35)	7 (18)	2 (5)
PTs n=3	0 (0)	0 (0)	2 (67)	1 (33)	0 (0)	0 (0)
Pharms n=5	0 (0)	0 (0)	1 (20)	2 (40)	2 (40)	0 (0)
TOTAL n=118	**1 (1)**	**4 (3)**	**19 (16)**	**46 (39)**	**42 (36)**	**6 (5)**

The comments from the participants, such as "*Increase awareness*", "*Educate staff to assess and deal with falls with or without injury*" and "*Working less than 1 month, unable to answer*" suggest a need for additional education and training in this area, especially amongst physicians and PTs.

Table 4.16 shows the responses to the statement, "Updates and education in the current trend of the falls prevention is important in the FPP". Eighty-six percent (n=59) of the registered

nurses and n=27 (68%) of the physicians agreed/strongly agreed (mean = 65.56, std. deviation = 10.53).

Table 4.16: Educational Updates and Current Trends

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	0 (0)	0 (0)	6(9)	31 (46)	28 (41)	3 (4)
PNs n=2	0 (0)	0 (0)	0 (0)	1 (50)	1(50)	0 (0)
Phys n=40	1 (3)	1 (3)	9 (23)	21 (53)	6 (15)	2 (5)
PTs n=3	0 (0)	0 (0)	1 (33)	2 (67)	0 (0)	0 (0)
Pharms n=5	0 (0)	0 (0)	2 (40)	1 (20)	2 (40)	0 (0)
TOTAL n=118	**1 (1)**	**1 (1)**	**18 (15)**	**56 (47)**	**37 (31)**	**5 (4)**

A comment from a physician that "*Working less than 1 month, unable to answer*" may indicate a gap in the current staff orientation programme, which is inconsistent and unstructured for the HCPs other than nurses.

Table 4.17 indicates responses to the statement, "Patients and their families are involved in the FPP". HCPs n=82 (69%) agreed or strongly agreed. Of note is that registered nurses n=55 (81%), who are the HCPs who spend most time with the patients, agreed/strongly agreed. Five participants did not respond to the question (mean = 65.76, std. deviation = 10.27).

Table 4.17: Patient and Family Education and Participation in the FPP

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	1 (1)	1 (1)	8 (12)	25 (37)	30 (44)	3 (4)
PNs n=2	0 (0)	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)
Phys n=40	3 (8)	4 (10)	11 (28)	16 (40)	4 (10)	2 (5)
PTs n=3	0 (0)	0 (0)	2 (67)	1 (33)	0 (0)	0 (0)
Pharms n=5	1 (20)	**0 (0)**	**0 (0)**	2 (40)	2 (40)	0 (0)
TOTAL n=118	**5 (4)**	**5 (4)**	**21 (18)**	**45 (38)**	**37 (31)**	**5 (4)**

The fall prevention protocol states that families and caregivers should be included in the FPP, e.g. they should know how to assist the patient with routine activities such as toileting and know what they could do to prevent falls. The significant comments from the participants were "*Family and escorts to be educated more*" and "*Escort education is important*".

4.4.6 Multifaceted, Multidisciplinary Team Approach

The hospital has implemented a multifaceted, multidisciplinary approach to fall prevention. Literature studies by Gowdy and Godfrey (2003:365) and Hathaway et al. (2001:172) suggests that this is the most successful approach to reduce falls and the severity of injuries from falls among patients in an acute care setting.

Table 4.18 shows the responses to the statement, "FPP need multidisciplinary assessment and interventions", and is supported by the majority n= 98 (83%) of the HCPs. Five (4%) of the participants did not respond to the question (mean = 65.55, std. deviation =10.78).

Table 4.18: Multidisciplinary Assessment and Interventions

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	0 (0)	1 (1)	4 (6)	36 (53)	23 (34)	4 (6)
PNs n=2	0 (0)	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)
Phys n=40	0 (0)	1 (3)	8 (20)	21 (53)	9 (23)	1 (3)
PTs n=3	0 (0)	0 (0)	1 (33)	1 (33)	1(33)	0 (0)
Pharms n=5	0 (0)	0 (0)	0 (0)	3 (60)	2 (40)	0 (0)
TOTAL n=118	**0 (0)**	**2 (2)**	**13 (11)**	**62 (53)**	**36 (31)**	**5 (4)**

Table 4.19 shows the responses to the statement, "All items required for FPP are always available in the unit e.g. green identification bracelets". These bracelets are used to identify high-risk patients for falls. Sixty-one percent n=72 (61%) agreed with this statement, although the percentage agreement was much higher amongst nurses than amongst physicians and physical therapists. This is not unexpected, given that the nurses are responsible for this

aspect of the fall prevention programme. Fifteen participants did not respond to the question (mean = 65.92, std. deviation = 10.44).

Table 4.19: Items for Fall Prevention

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	0 (0)	6 (9)	6 (9)	30 (44)	24 (35)	2 (3)
PNs n=2	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)	0 (0)
Phys n=40	1 (3)	2 (5)	9 (23)	10 (25)	5 (13)	13 (33)
PTs n=3	0 (0)	0 (0)	3 (100)	0 (0)	0 (0)	0 (0)
Pharms n=5	1 (20)	0 (0)	2 (40)	2 (40)	0 (0)	0 (0)
TOTAL n=118	**2 (2)**	**8 (8)**	**21 (18)**	**43 (36)**	**29 (25)**	**15 (13)**

In-house audits conducted by the researcher on the existing FPP indicated 25% compliance with the use of the green identification bracelets, mainly due to logistical problems related to the procurement of these items. Hathaway et al. (2001:172) argued that an FPP that included green armbands, green stickers pasted on the patient's chart, a non-slip mat adjacent to the bed and an electronic mobility sensor, decreased fall rates in high-risk patients.

4.4.7 Environmental Safety Rounds

The patient safety goal related to patient falls is associated with other JCIA standards, such as the Facilities Management and Safety (FMS), in addition to the hospital's patient rights statement, which states that the patient has a right to safe environment (Appendix D). This standard requires healthcare organisations to provide a safe and secure physical environment, to prevent accidents and injuries and to maintain safe conditions. Furthermore, the organisation is required to inspect all patient care buildings and have a plan to reduce evident risks and provide a safe physical facility for patients, families, staff and visitors (Joint Commission International, 2008:181).

Table 4.20 shows the responses to the statement, "Environmental rounds were conducted by the safety officer to identify unsafe areas that contribute to a fall". Forty-two percent n=49 (42%) of the HCPs agreed/strongly agreed that these rounds were being done, while n=47

(40%)were unsure. Seven (6%) of the participants did not respond to the question (mean = 66.34, std. deviation = 10.57).

Table 4.20: Environmental Safety Rounds

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	4 (6)	3 (4)	28 (41)	19 (28)	11 (16)	3 (4)
PNs n=2	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)
Phys n=40	2 (5)	5 (13)	15 (38)	10 (25)	4 (10)	4 (10)
PTs n=3	0 (0)	0 (0)	3 (100)	0 (0)	0 (0)	0 (0)
Pharms n=5	1 (20)	0 (0)	1 (20)	3 (60)	0 (0)	0 (0)
TOTAL n=118	**7 (6)**	**8 (7)**	**47 (40)**	**34 (29)**	**15 (13)**	**7 (6)**

These results would appear to suggest that, if rounds are being done, not many of the HCPs are aware of them or their function. Barnett (2002:3) recommended that a comprehensive environmental risk assessment tool be used to identify extrinsic factors that may influence fall rates.

4.4.8 Communication and Teamwork

In the next few questions, effective communication between team members was explored. Hendrich (2006:1) identified effective communication of patient risk and teamwork as positive attributes in a successful FPP. Jackson and Gleason (2004:137) emphasised communication to increase staff and patient awareness and staff competence and compliance in a successful FPP.

Table 4.21 shows the responses to the statement, “High-risk patients are handed over to you during shift changes”. Although the majority of registered nurses n=63 (92%) agreed/strongly agreed, this rate of agreement was much lower among other categories of HCP. Six (5%) participants did not respond to the question (mean = 65.95, std. deviation = 10.20).

Table 4.21: Handover Between Shifts

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	0 (0)	2 (3)	1 (1)	37 (54)	26 (38)	2 (3)
PNs n=2	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)
Phys n=40	6 (15)	7 (18)	12 (30)	10 (25)	2 (5)	3 (8)
PTs n=3	0 (0)	0 (0)	3 (100)	0 (0)	0 (0)	0 (0)
Pharms n=5	1 (20)	0 (0)	3 (60)	0 (0)	0 (0)	1 (20)
TOTAL n=118	**7 (6)**	**9(8)**	**19 (16)**	**49 (46)**	**28 (24)**	**6 (5)**

Failure to hand over the high-risk patients is a barrier to continuity of safe patient care, resulting in inconsistent implementation of intervention protocols that may contribute to negative patient outcomes. This question relates to a team approach to preventing falls and indicates fragmented, ineffective communication between the different categories of HCP. Improved communication and teamwork may contribute positively to reducing falls and the severity of injuries from falls (Hendrich 2006:1).

Table 4.22 indicates responses to the statement, "A team approach is used in the unit to prevent falls". Sixty-seven percent (n=79) of the HCPs agreed, and the percentage agreement was even higher amongst the nurses n=55 (79%). Five participants did not respond to the question (mean = 65.82, std. deviation = 10.38).

Table 4.22: Team Approach

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	0 (0)	3 (4)	10 (15)	27 (40)	26 (38)	2 (3)
PNs n=2	0 (0)	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)
Phys n=40	0 (0)	5 (13)	11 (28)	16 (40)	5 (13)	3 (8)
PTs n=3	0 (0)	2 (67)	1 (33)	0 (0)	0 (0)	0 (0)
Pharms n=5	0 (0)	2 (40)	0 (0)	2 (40)	1 (20)	0 (0)
TOTAL n=118	0 (0)	**12 (10)**	**22 (19)**	**46 (39)**	**33 (28)**	**5 (4)**

The nurses' response to this statement was much lower n=5 (4%) than the statement above on the handover of patients between shifts. In addition, a larger number n=22 (19%) of participants were uncertain about the team approach in their unit/department.

Table 4.23 shows the responses to the statement, "Important patient care information was often lost during shift change". Most HCPs n=53 (45%) indicated that important patient care information was never or rarely lost. The percentage disagreement was even higher amongst registered nurses n=45 (67%). Interestingly, the practical nurses indicated sometimes or most of the times. Eight (7%) participants did not complete the question (mean = 10.68, std. deviation = 2.21).

Table 4.23: Important Patient Care Information is Often Lost During Shift Change

Category	Never n (%)	Rarely n (%)	Sometimes n (%)	Most of the time n (%)	Always n(%)	No response n (%)
RNs n=68	16 (24)	29 (43)	9 (13)	6 (9)	6 (9)	2 (3)
PNs n=2	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)	0 (0)
Phys n=40	2 (5)	4 (10)	18 (45)	8 (20)	2 (5)	6 (15)
PTs n=3	0 (0)	0 (0)	3 (100)	0 (0)	0 (0)	0 (0)
Pharms n=5	0 (0)	2 (40)	2 (40)	1 (20)	0 (0)	0 (0)
TOTAL n=118	**18 (15)**	**35 (30)**	**33 (28)**	**16 (14)**	**8 (7)**	**8 (7)**

4.5 Section C – Manager's/Supervisor's Role

This section comprised five questions using a five-point Likert scale, with 1 = never, being the most negative, 2 = rarely, 3 = sometimes, 4 = most of the time and 5 = always, being the most positive. The questions explored the role of the unit managers/supervisors and the extent of their perceived involvement in the FPP.

Table 4.24 shows the responses to the statement, "Managers/supervisors give feedback on fall rates and injuries from falls". The responses from all HCPs seem spread across all options. Unlike their responses to the other questions, practical nurses were not in agreement with registered nurses, and none responded that they received feedback. Similarly, all physical

therapists n=3 (100%) and n=22 (55%) of the physicians indicated never or rarely. Nine (8%) of the participants did not respond to the question (mean = 14.51, std. deviation = 5.01).

Table 4.24: Fall Rates and Injuries from Falls

Category	Never n (%)	Rarely n (%)	Sometimes n (%)	Most of the time n (%)	Always n(%)	No response n (%)
RNs n=68	2 (3)	6 (9)	13 (19)	19 (28)	26 (38)	2 (3)
PNs n=2	1 (50)	1 (50)	0 (0)	0 (0)	0 (0)	0 (0)
Phys n=40	14 (35)	8 (20)	3 (8)	6 (15)	3 (8)	6 (15)
PTs n=3	3 (100)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Pharms n=5	3 (60)	0 (0)	1 (20)	0 (0)	0 (0)	1 (20)
TOTAL n=118	**23 (19)**	**15 (13)**	**17 (14)**	**25 (21)**	**29 (25)**	**9 (8)**

It would appear that the feedback if given is inconsistent. The FPP clearly defines the role of the manager in this regard (Appendix A). The role includes to ensure effective communication and transfer of information between all healthcare providers and to keep a record of all falls in their respective units. Managers must review the FPP and be more actively involved. They must work towards improving communication with their staff. The data and trends on falls must be shared with the units.

Table 4.25 indicates the responses to the statement, "Managers seriously consider the staff's suggestions for improving the FPP". Just over half n=65 (55%) of all HCPs compared to n=50 (73%) of registered nurses indicated that their managers consider the staffs suggestions for improving the FPP most of the time or always, while n=24 (20%) of HCPs indicated sometimes. Nine (8%) of the participants did not respond to the question (mean = 14.03, std. deviation = 5.10).

Table 4.25: Suggestions for Improvement of the FPP

Category	Never n (%)	Rarely n (%)	Sometimes n (%)	Most of the time n (%)	Always n(%)	No response n (%)
RNs n=68	2 (3)	0 (0)	13 (19)	18 (26)	32 (47)	3 (4)
PNs n=2	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)
Phys n=40	6 (15)	8 (20)	10 (25)	4 (10)	7 (18)	5 (13)
PTs n=3	2 (67)	0 (0)	0 (0)	1 (33)	0 (0)	0 (0)
Pharms n=5	1 (20)	1 (20)	1 (20)	1 (20)	0 (0)	1 (20)
TOTAL n=118	**11 (9)**	**9 (8)**	**24 (20)**	**26 (22)**	**39 (33)**	**9 (8)**

There appears to be a perception amongst the physicians, physical therapists and pharmacists that their supervisors or managers do not consider suggestions to improve the FPP.

Table 4.26 shows responses to the question in which the participants were asked if their managers investigated incidents of falls. Sixty-five percent (n=77) indicated their managers investigate most of the time or always. Nine(8%) of the participants did not respond to the question (mean = 13.87, std. deviation = 5.06).

Table 4.26: Fall Investigations

Category	Never n (%)	Rarely n (%)	Sometimes n (%)	Most of the time n (%)	Always n(%)	No response n (%)
RNs n=68	1 (1)	2 (3)	8 (12)	19 (28)	36 (53)	2 (3)
PNs n=2	0 (0)	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)
Phys n=40	8 (20)	5 (13)	3 (8)	7 (18)	11 (28)	6 (15)
PTs n=3	2 (67)	0 (0)	0 (0)	0 (0)	1 (33)	0 (0)
Pharms n=5	2 (40)	1 (20)	0 (0)	0 (0)	1 (20)	1(20)
TOTAL n=118	**13 (11)**	**8 (7)**	**11 (9)**	**27 (23)**	**50 (42)**	**9 (8)**

Table 4.27 shows the responses to the question asking if feedback is given to staff on changes put into place based on the basis of fall investigation reports. Eighty-six percent n=60 (86%) of the nurses indicated most of the time or always, compared to only n=11 (28%) of the

physicians. All of the PTs n=3 (100%) indicated never or rarely. Again, the problem in feedback seems to lie with professional groups other than nurses. Ten (8%) participants did not respond to the question (mean = 14.24, std. deviation = 4.96).

Table 4.27: Communication on Changes Due to Fall Investigations

Category	Never n (%)	Rarely n (%)	Sometimes n (%)	Most of the time n (%)	Always n(%)	No response n (%)
RNs n=68	2 (3)	1 (1)	1 (1)	11 (16)	48 (71)	5 (4)
PNs n=2	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)	0 (0)
Phys n=40	10 (25)	8 (20)	7 (18)	6 (15)	5 (13)	4 (10)
PTs n=3	2 (67)	1 (33)	0 (0)	0 (0)	0 (0)	0 (0)
Pharms n=5	2 (40)	1 (20)	0 (0)	0 (0)	1 (20)	1 (20)
TOTAL n=118	**16 (14)**	**11 (9)**	**9 (8)**	**18 (15)**	**54 (46)**	**10 (8)**

Table 4.28 shows responses to the question in which participants were asked if discussions were held on ways to prevent fall from happening in their units. Although the majority of the nurses n=60 (88%) indicated most of the time or always, n=18 45% of the physicians indicated never or rarely and n=7 (18%) sometimes. Eleven (9%) of the participants did not respond to the question (mean = 14.15, std. deviation = 4.97).

Table 4.28: Ways to Prevent Fall from Happening Again

Category	Never n (%)	Rarely n (%)	Sometimes n (%)	Most of the time n (%)	Always n(%)	No response n (%)
RNs n=68	2 (3)	1 (1)	1 (1)	11 (16)	48 (71)	5 (7)
PNs n=2	0 (0)	0 (0)	1 (50)	0 (0)	1 (50)	0 (0)
Phys n=40	10 (25)	8 (20)	7 (18)	6 (15)	5 (13)	4 (10)
PTs n=3	2 (67)	0 (0)	0 (0)	0 (0)	1 (33)	0 (0)
Pharms n=5	2 (40)	1 (20)	0 (0)	0 (0)	0 (0)	2 (40)
TOTAL n=118	**16 (14)**	**10 (8)**	**9 (8)**	**17 (14)**	**55 (47)**	**11 (9)**

The comments from the participants, such as "*Programme needs strict monitoring*" and "*Rarely there is incidence of falls*", "*Programme not implemented in pharmacy*", appear to indicate inadequate communication at various levels. Another comment, "*Monthly reason for falls*", indicates that some staff may be enthusiastic to learn more about falls data in their units and in the hospital. This question is associated with Table 4.24 above, regarding fall rates and injuries from falls. The role of the manager also includes to make fall and fall related-injury prevention a standard of care and to ensure compliance with the fall prevention protocol by all HCPs within their unit. The effective role of the manager/supervisor may contribute to the success of the FPP.

4.6 Section D – Reporting of Falls

This section comprised four questions using a five-point Likert scale, with 1 = never, being the most negative, 2 = rarely, 3 = sometimes, 4 = most of the time and 5 = always, being the most positive. These questions explored the trend of reporting fall incidents in the hospital, as required by the FPP.

Table 4.29 shows the responses to the question of how often witnessed falls without obvious injuries were reported. The majority of the nurses n=58 (82%) indicated most of the times or always that these falls were reported, compared to n=23 (58%) of physicians. Interestingly, none of the physical therapists responded to this question, which was omitted by a total of n=14 (12%) participants (mean = 12.18, std. deviation = 2.98).

Table 4.29: Witnessed Falls with no Injuries

Category	Never n (%)	Rarely n (%)	Sometimes n (%)	Most of the time n (%)	Always n(%)	No response n (%)
RNs n=68	5 (7)	1 (1)	2 (3)	13 (19)	43 (63)	4 (6)
PNs n=2	0 (0)	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)
Phys n=40	3 (8)	4 (10)	4 (10)	14 (35)	9 (23)	6 (15)
PTs n=3	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (100)
Pharms n=5	0 (0)	0 (0)	1 (20)	2 (40)	1 (20)	1 (20)
TOTAL n=118	**8 (7)**	**5 (4)**	**7 (6)**	**30 (25)**	**54 (46)**	**14 (12)**

Table 4.30 indicates the responses to the reporting of unwitnessed falls (falls reported by the patient/family but not seen by the HCP). Sixty-one percent (n=71) of the HCPs agreed or strongly agreed with this statement. Twelve percent (12%) did not answer (mean = 12.39, std. deviation = 2.90.

Table 4.30: Unwitnessed Falls

Category	Never n (%)	Rarely n (%)	Sometime n (%)	Most of the time n (%)	Always n(%)	No response n (%)
RNs n=68	5 (7)	1 (1)	3 (4)	13 (19)	42 (62)	4 (6)
PNs n=2	0 (0)	0 (0)	1 (50)	0 (0)	1 (50)	0 (0)
Phys n=40	3 (8)	7 (18)	10 (25)	9 (23)	5 (13)	6 (15)
PTs n=3	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (100)
Pharms n=5	1 (20)	0 (0)	1 (20)	1 (20)	1 (20)	1 (20)
TOTAL n=118	**8 (7)**	**8 (7)**	**15 (13)**	**23 (19)**	**49 (42)**	**14 (12)**

Table 4.31 shows the responses to the statement that "Falls are reported via the hospital incident reporting process to the quality management department". Sixteen (14%) of the participants did not respond to the question, probably indicating that they did not know how reports are processed – those who did not respond were mostly physicians n=7 (18%) and all the physical therapists n=3 (100%). Eighty-nine percent n=62 (89%) of the nurses, who primarily do the reporting, indicated most of the time or always with this statement. (mean = 12.15, std. deviation = 3.20).

Table 4.31: Incident Reporting Process

Category	Never n (%)	Rarely n (%)	Sometime n (%)	Most of the time n (%)	Always n(%)	No response n (%)
RNs n=68	1 (1)	1 (1)	1 (1)	15 (22)	45 (66)	5 (7)
PNs n=2	0 (0)	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)
Phys n=40	1 (3)	6 (15)	8 (20)	13 (33)	5 (13)	7 (18)
PTs n=3	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (100)
Pharms n=5	1 (20)	1 (20)	0 (0)	2 (40)	0 (0)	1 (20)
TOTAL n=118	**3 (3)**	**8 (7)**	**9 (8)**	**31 (26)**	**51 (43)**	**16 (14)**

Table 4.32 indicates responses to the statement that patients were monitored to identify possible post- fall injury. Most participants n=87 (73%) from all groups indicated most of the time or always with this statement, except for the physical therapists n=3 (100%), who all did not answer. Sixteen (14%) of the participants did not respond to the question (mean = 12.01, std. deviation = 3.18).

Table 4.32: Post-fall Injury

Category	Never n (%)	Rarely n (%)	Sometime n (%)	Most of the time n (%)	Always n(%)	No response n (%)
RNs n=68	2 (3)	1 (1)	1 (1)	11 (16)	48 (71)	5 (80
PNs n=2	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)	0 (0)
Phys n=40	2 (5)	1 (3)	5 (13)	17 (43)	8 (20)	7 (18)
PTs n=3	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (100)
Pharms n=5	1 (20)	1 (20)	0 (0)	2 (40)	0 (0)	1 (20)
TOTAL n=118	**5 (4)**	**3 (3)**	**7 (6)**	**31 (26)**	**56 (47)**	**16 (14)**

4.7 Section E – Hospital Management

Section E comprised four questions using a five-point Likert scale, with 1= strongly disagree, being the most negative, 2 = disagree, 3= unsure, 4 = agree and 5 = strongly agree, being the most positive. These questions explored the staff's perception of the role of the hospital management committee and the extent of their involvement in the FPP.

Table 4.33 shows the responses to the statement that hospital management provides a work environment that promotes fall prevention. Sixty-seven percent n=79 (67%) of the participants felt that management provided an environment that promoted fall prevention (mean = 10.18, std. deviation = 2.55).

Table 4.33: Work Environment that Promotes Fall Prevention

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	1 (1)	1 (1)	7 (10)	40 (59)	14 (21)	3 (4)
PNs n=2	0 (0)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)
Phys n=40	1 (3)	1 (3)	14 (35)	16 (40)	4 (10)	4 (10)
PTs n=3	0 (0)	0 (0)	3 (100)	0 (0)	0 (0)	0 (0)
Pharms n=5	0 (0)	0 (0)	2 (40)	2 (40)	1 (20)	0 (0)
TOTAL n=118	**2 (2)**	**2 (2)**	**26 (22)**	**58 (49)**	**21 (18)**	**7 (6)**

Table 4.34 shows the responses to the statement, "Actions of the hospital management show that fall prevention is a top priority". Participants seemed less certain about this statement than the one above, with n=68 (58%) agreeing. Seven participants did not answer this question (mean = 10.29, std. deviation = 2.41).

Table 4.34: The Priority of FPP

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	2 (3)	2 (3)	10 (15)	37 (54)	14 (21)	3 (4)
PNs n=2	0 (0)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)
Phys n=40	0 (0)	4 (10)	19 (48)	9 (23)	4 (10)	4 (10)
PTs n=3	0 (0)	0 (0)	3 (100)	0 (0)	0 (0)	0 (0)
Pharms n=5	0 (0)	1 (20)	2 (40)	1 (20)	1 (20)	0 (0)
TOTAL n=118	**2 (2)**	**7 (6)**	**34 (29)**	**47 (40)**	**21 (18)**	**7 (6)**

Table 4.35 indicates the responses to the statement that "hospital management seemed interested in fall prevention only after a major injury has occurred". Thirty-four percent (34%) n= 40 agreed, while n=25 (21%) were uncertain. Fifty-one percent (n-36) of the nurses, who are more actively involved in the FPP, disagreed. Eight participants did not respond to the question (mean = 10.93, std. deviation = 2.17).

Table 4.35: Hospital Management have Reactive Response to Falls

Category	Strongly disagree n (%)	Disagree n (%)	Unsure n (%)	Agree n (%)	Strongly agree n (%)	No response n (%)
RNs n=68	11 (16)	24 (35)	11 (16)	12 (18)	6 (9)	4 (6)
PNs n=2	0 (0)	1 (50)	1 (50)	0 (0)	0 (0)	0 (0)
Phys n=40	2 (5)	7 (18)	9 (23)	16 (40)	2 (5)	4 (10)
PTs n=3	0 (0)	0 (0)	3 (100)	0 (0)	0 (0)	0 (0)
Pharms n=5	0 (0)	0 (0)	1 (20)	2 (40)	2 (40)	0 (0)
TOTAL n=118	**13 (11)**	**32 (27)**	**25 (21)**	**30 (25)**	**10 (8)**	**8 (7)**

4.8 Conclusion

This chapter presented the data analysis and interpretations. The use of descriptive analysis enabled the researcher to identify the elements of non-compliance and barriers to the success of the FPP. These findings will be discussed in the next chapter, where recommendations will also be made.

CHAPTER 5

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter includes a discussion of the findings of this study, the conclusions that can be drawn and recommendations for more effective strategies for the FPP in an acute care setting.

5.2 Background and Context

The Joint Commission International Accreditation (JCIA) has included a patient safety goal as part of its standards for the accreditation of hospitals. Goal number six states that hospitals should "*reduce the risk of patient harm resulting from falls*". The achievement of this goal is dependent on compliance with the JCIA standard requirements and the hospital's FPP. This study was undertaken to identify the factors preventing the successful implementation of the existing FPP in an acute care setting, areas of the existing FPP that were being implemented successfully, any barriers that may exist, and aspects of the programme that need revision.

The hospital in question implemented a multifaceted FPP using a multidisciplinary approach. The FPP is recognised as being in its developmental stages, which means that there are opportunities for the improvement of patient safety outcomes by reducing the incidence of falls and the severity of injuries from falls. Gowdy and Godfrey (2003:365) and Hathaway et al. (2001:172) suggest that a multifaceted, multidisciplinary approach is the most successful approach to reducing falls and the severity of injuries from falls among patients in an acute care setting.

5.3 The Planning and Development of the Existing FPP

The planning and development stages of the current FPP commenced with the formation of a multidisciplinary committee in January 2009 to oversee the development and implementation of the programme. The committee initially comprised RNs, PTs, a nurse educator and a representative from the quality management department. Later, a physician and a pharmacist were included in the committee. According to Koh et al. (2009: 425), implementing change involves an active, well-planned process that includes a combination of interventions, tailors strategies to the needs of the target audience and overcomes barriers to behavioural change.

The committee therefore spent two months, namely January and February 2009, researching falls, fall prevention, fall risk factors and risk assessment tools. A fall prevention programme was developed and submitted to the hospital management for approval. The Fall Committee met monthly to complete the FPP (Annexure A), the fall risk assessment tool (Annexure B – modified Morse Fall Scale, MFS) and intervention protocols (Annexure C). The FPP was accepted in May 2009.

The policy stated that the patient must be assessed on admission and re-assessed on each shift, on change of medical condition, after a fall and on patient transfer to another patient care setting. The assessment involves completing a modified MFS. The risk factors included in the MFS are recent history of falling, secondary diagnosis, need for ambulatory aid, intravenous therapy, gait characteristics and impaired mental status. The fall risk assessment is required to be completed within four hours of a patient's admission. Barnett (2002:2) states that the MFS is an easy-to-use, research-driven tool that is both reliable and valid. The current FPP gives the nurse the primary responsibility for completing the initial fall risk assessment.

5.4 Implementation of the FPP

Education sessions on the FPP were conducted for the nursing staff from May to August 2009. A pilot programme was conducted in the female medical ward in June 2009, and the MFS and protocol interventions were revised on the basis of feedback from this programme. The programme was later extended to the male orthopaedic and female surgical wards, and all the other in-patient wards implemented the programme in September 2009.

5.5 Evaluation of the FPP

The FPP was informally evaluated during safety and quality rounds and audits were conducted by the researcher, who worked in the quality department. These audits were undertaken to evaluate the FPP. Areas of non-compliance included patients not always being assessed on admission or on the afternoon and night shifts, green identification bracelets not always being placed on the wrist of high-risk patients, and the icon, "a star poster", was not always on the patient's door, as is required by the policy. During these safety rounds, the nurses expressed feelings of being overwhelmed by the FPP and the other safety standards that are required for JCIA accreditation. In addition, it was observed that high-risk patients were not being referred to the physicians, physiotherapists and pharmacists. Furthermore, the existing FPP did not consider bed-bound, long-term patients who required less frequent assessment.

5.6 Discussions and Recommendations

This report will continue with discussions of the data analysed in chapter 4, with recommendations.

5.6.1 Perceived Importance of the FPP [Table 4.5]

All of the nurses n=70 (100%) and n=35 (88%) of the physicians who participated in this study agreed that the fall prevention programme was an important aspect of their work. Yet none of the physical therapists and only one (20%) of the pharmacists agreed. Vassallo et al. (2004:335-339) and other authors, including Sulla and McMyler (2006:138), Chang et al. (2004:1), Halfon et al. (2001:1258), Barnett (2002:3), Fonda et al. (2006:379), have argued that the effectiveness of a fall prevention programme in decreasing both the number of falls and the severity of injury associated with falls is dependent on a multidisciplinary approach. The FPP clearly stipulates the role and responsibilities of the pharmacists and the PTs. Pharmacists are required to review medications and supplements to notify the physician if any drugs or drug interactions will increase the likelihood of a fall, while the physical therapists are required to conduct balance assessments on high-risk patients and develop an intervention programme for these patients to reduce their fall risk. Unless these professional groups are aware that they play a vital role in the FPP and acknowledge this as an important aspect of their work, the FPP will be not be implemented successfully.

Recommendations

Firstly, the PTs and pharmacists should review the FPP, after which educational programmes should be targeted at these professional groups. This increased awareness will make them understand the important role they play.

In addition, it is recommended that both the pharmacy and physical therapy departments develop departmental policy that outlines their involvement in fall prevention in order to complement the hospital-wide FPP.

5. 6.2 Fall-Risk Assessments and Fall-Risk Assessment Tool [Tables 4.6–4.11]

The majority of nurses agreed that patients are assessed for fall risks on admission n=66 `(96%), on each shift n=63 (90%), when their medical condition changed n=67 (96%) and after a fall n=63 (90%). Nurses are the professionals tasked with doing these assessments, and these data would appear to indicate successful implementation of the FPP by this group. The findings show that n=63 (93%) of nurses who are responsible for using the scale, agreed that

the fall risk assessment tool is easy to use, while the majority of physicians n=23 (58%) were unsure. Nurses n=62 (89%) agreed that the Morse Fall Scale (MFS) does assist them to identify high-risk patients.

Sixty-five percent, n=29 of the physicians agreed that patients were assessed following a fall, while fewer n=21 (53%) agreed that assessments were done on admission. However, n=19 (48%) were unsure whether assessments were done during each shift or when the medical condition changed n=17 (43%).

Sixty-seven percent, n=2 of the physical therapists were unsure whether patients were assessed on admission and in each shift. All n=3 (100%) of them disagreed that patients were assessed after a fall, although n=2 (67%) agreed that patients were assessed when their medical condition changed.

These results appear to indicate a lack of awareness of the requirements of the FPP amongst the physicians and physical therapists. It may also indicate a lack of communication with regard to risk assessment between the nurses and the physicians and physical therapists. These results are associated with the referral of high-risk patients, and will be discussed in Section 5.6.3

One participant commented, "*No need to assess stable patient in every shift*". Re-assessment during each shift is not a mandatory requirement by the JCIA and no studies were found to support the notion that more frequent fall risk assessment reduced fall rates or the severity of injuries from falls. However, this aspect was included in the FPP to ensure that the primary nurse in that specific shift who is responsible for completing the risk assessment implements the appropriate interventional protocols.

The requirement by the JCIA is that all patients should be assessed on admission, when their medical condition changes because of high-risk medications or anaesthesia, or after any procedure that alters the mental status or mobility of the patient. This requirement is supported by Barnett (2002:5). An interesting study by Hart et al. (2009:1) indicated that conducting a fall risk assessment does not necessarily lead to a reduction in falls. These authors state that it is important to manage patients actively to prevent falls from occurring,

especially in identified high-risk patients. Fall risk assessment without appropriate interventional protocols is ineffective in a FPP.

These findings again appear to indicate a lack of knowledge about the fall prevention programme by groups of HCPs other than nurses. The ways in which different professional groups inform one another of high-risk patients need to be formalised. The requirement that all patients must be assessed on every shift should be reviewed. Nurses are primarily responsible for completing the initial fall risk assessment on admission. Although the other HCPs are not responsible for the initial fall-risk assessment, they need to be aware of the requirements of the FPP in order to enhance the multidisciplinary approach.

Recommendations

Discontinue the fall risk assessment on every shift for those patients identified as high risk on admission. This additional time would be directed more effectively at the implementation of the prevention protocol for these patients identified as high-risk patients. Revise the policy to reduce the frequency of assessments for chronic long-term patients. This will free up nurses and allow more time for other patient safety activities. Screening of the patient should include injury risk, not only fall risk, to meet with the JCIA requirements, thereby ensuring that the programme is oriented to both reducing falls and reducing injuries.

5.6.3 Referral of High-Risk Patients [Tables 4.12–4.14]

Most of the nurses agreed that patients were referred to the physicians, physical therapists and clinical pharmacists. This is expected, as the nurses are primarily responsible for referring the identified high-risk patients to the physician, who will then make the necessary referral to the physical therapists or pharmacists for further assessment. Less than half of the physicians agreed and 33% were unsure that these high-risk patients were referred to them. All n=3 (100%) of the PTs were unsure whether these patients were referred to them as well as to the physicians, yet most n=45 (65%) of the nurses agreed that this referral was occurring. The physicians who are responsible for referring patients to the physical therapists were either unsure n=23 (58%) or disagreed n=9 (23%) that this was being done. The results were similar for the pharmacist, which appears to indicate inconsistency and a lack of communication with regard to the referral process, which is not clearly outlined in the current FPP.

Recommendations

Revision of the FPP should include a clearly defined referral process between the different HCPs included in this study, as well as to the other HCPs such as the audiologist and optometrist. This will further enhance the effectiveness of the multidisciplinary approach and thereby ensure effectiveness of the FPP.

5.6.4 Multifaceted, Multidisciplinary Team Approach [Tables 4.18–4.19, 4.23]

The majority (83%) of the HCPs supported the need for multidisciplinary assessments and interventions in the FPP. Sixty-one percent (61%) of the HCPs (79% of the nurses) indicated that all items for the implementation of the FPP readily available. This finding was unexpected, as the in-house audits showed a 25% compliance rate in the use of the green identification bracelets, mainly because of logistical problems related to the procurement of these items. These findings suggest that some of the responses to this questionnaire may have been based on theoretical rather than practical application of the FPP. HCPs n=53 (45%) indicated that important patient care information was never or rarely lost during shift change. This percentage was much higher amongst nurses n=45 (67%).

Recommendations

Managers/supervisors should ensure that all the items required for the FPP are always available timeously to ensure success. They should also continue with the audits of the FPP to monitor compliance levels. Further discussion on this issue is included in Section 5.6.6, on communication and teamwork.

5.6.5 Environmental Safety Rounds [Table 4.20]

The findings in Table 4.20 show that n=49 (42%) of HCPs agreed/strongly agreed that these rounds were being done, while n=47 (40%) were unsure. This would appear to suggest that if the rounds are being done, not many HCPs are aware of them or their function, which is to expected, as the reports for these rounds are submitted to the unit managers/supervisors and the risk management committee. It is of great concern that less than half of the participants indicated that these rounds were being done. The patient safety goal related to patient falls is associated with other JCIA standards, such as Facilities Management and Safety (FMS), in addition to the hospital's patient rights statement, which states that the patient has a right to a safe environment (Appendix D). This standard requires hospitals to inspect all patient care buildings and have a plan to reduce evident risks and to provide a safe and secure physical

environment for the patients, their families, the staff and visitors, to prevent accidents and injuries and to maintain safe conditions. The findings show that this requirement for the JCIA is unmet (Joint Commission International, 2008:181).

Barnett (2002:3) recommended that a comprehensive environmental risk assessment tool be used to identify extrinsic factors that may influence fall rates. In addition, Halfon et al. (2001:1258) supported the need for appropriate environmental safety precautions to prevent falls. A safety checklist should assist unit managers/supervisors to conduct the environmental safety rounds whenever the safety officer is unavailable.

Recommendations

Unit managers/supervisors must be involved more actively to ensure that the environmental safety rounds are conducted monthly or at least bi-monthly. The introduction of a checklist will assist the unit manager/supervisor in conducting the environmental safety rounds even in the absence of the safety officer. The hospital management must investigate the reasons for the safety officer not conducting regular environmental safety rounds.

5.6.6 Communication and Teamwork [Tables 4.21–4.23]

The findings from these tables show that the majority of the registered nurses n-63 (92%), more so than other categories of HCP, were confident that high-risk patients were handed over to them during shift changes. Failure to hand over the high-risk patients is a barrier to the continuity of safe patient care, resulting in inconsistent implementation of interventional protocols, which may contribute to negative patient outcomes. In addition, a larger number of participants were uncertain about the team approach in their unit/department. These findings indicate fragmented, ineffective communication between the different categories of HCPs, which is a barrier to collaboration and teamwork that may contribute to an inability to provide safe and effective care, and thereby resulting in omissions and medical errors. Improved communication and teamwork may contribute positively to reducing falls and the severity of injuries from falls. Hendrich (2006:1) identified effective communication of patient risk and teamwork as positive attributes in a successful FPP. Jackson and Gleason (2004:137) emphasised communication to increase staff and patient awareness and staff competence and compliance for a successful FPP.

Recommendations

Implementation of a standardised approach to communication between HCPs, such as the "SBAR", is recommended. SBAR is an acronym for **S**ituation, **B**ackground, **A**ssessment, **R**ecommendation, which is a standardised communication format recommended by the Joint Commission International for the accreditation of hospitals in the United States. SBAR is a new communication format that ensures that information is shared between HCPs in a consistent and reliable way, and leads to improved communication and teamwork.

Enhancement of the effectiveness of teamwork by hosting awareness campaigns, e.g. a "Fall Poster Competition", which could promote greater awareness and participation by all HCPs in the FPP, and also help to develop a positive attitude towards the programme.

5.6.7 Staff Education [Tables 4.15–4.16]

Most nurses (89%) agreed or strongly agreed that the staff were educated about the FPP, while just over half n=21 (53%) of the physicians, 33% (n = 1) of the physical therapists and 80% of the pharmacists agreed or strongly agreed. Eighty-six percent n=59 (86%) of the registered nurses and n=29 (68%) of the physicians agreed/strongly agreed that updates and education on current trends in falls prevention are important in the FPP. Although the findings indicate a positive response, the comment from a physician that "*Working less than 1 month, unable to answer*" may indicate a gap in the current staff orientation programme, which is inconsistent and unstructured for the HCPs other than nurses. McCarter-Bayer et al. (2005:30) emphasise that staff education should be included in a hospital's orientation curriculum for new employees. Joint Commission Resources (2003:5), Jackson and Gleason (2004:37) and Sherrod and Good (2006:25) have also emphasised the importance of orientation and education. An additional, associated requirement for the JCIA is that each staff member receives ongoing education and training to maintain or advance his or her skills and knowledge. Staff deficits in skills and knowledge are identified by various sources, including the results of quality and safety monitoring, such as fall rates, through the review of job performance and through the evaluation of new clinical procedures such as the FPP. This ensures that the education provided is relevant to the needs of individual staff members and in turn ensures their ability to meet patient needs (Joint Commission International, 2008:202). A more structured orientation programme for the physicians, physical therapists and pharmacists may improve the FPP.

Recommendations

Greater awareness of, orientation to and education on the FPP are required.

The hallmark of a successful FPP is staff education and awareness, which must be the primary focus of addressing the identified barriers in the FPP. The patient rights statement (Appendix E) and safety programme, including the FPP, must be integrated into the staff orientation, education and training programme for physicians, physical therapists and clinical pharmacists. Priority should be given to the education of the physicians, PTs and pharmacists.

5.6.8 Patient and Family Education: [Table 4.17]

Table 4.17 indicates the participants' responses to whether the patients and their families were involved in the FPP. Sixty-nine percent n=82 (69%) of the HCPs agreed or strongly agreed with this statement. Of note is that the registered nurses n=55 (81%), who are the HCPs who spend the most time with the patients, agreed/strongly agreed. The fall prevention protocol states that families and caregivers should be included in the FPP, e.g. they should know how to assist the patient with routine activities such as toileting and know what they could do to prevent falls. The significant comments from the participants, such as "*Family and escorts to be educated more*" and "*Escort education is important*", suggests that further education may be required. "Escort" in this context refers to a caregiver employed by the patient's family. The JCIA standards for patient education and family education state that HCPs must collaborate to provide patient education (Joint Commission International, 2008:135).

Recommendation

Education of patients, their families and "escorts" should be continued routinely to sustain the programme. The responsible members of the multidisciplinary team providing care for the high-risk patient must collaborate with each other with respect to the involvement of patients and their families in the FPP, and the education must be targeted appropriately to the needs of the patients.

5.6.9 Manager's/Supervisor's Role [Tables 4.24–4.28]

The responses from all the HCPs concerning the manager's role in relation to fall rates and injuries from falls show that the practical nurses were not in agreement with the registered nurses, and none of them responded that they received feedback. Similarly, all the PTs n=3 (100%) strongly disagreed and n=22 (55%) of the physicians never or rarely that they received feedback. It would appear that feedback, if given, is inconsistent.

There appears to be a perception amongst the physicians, physical therapists and pharmacists that their supervisors or managers do not consider suggestions to improve the FPP. Just over half n=65 (55%) of all HCPs, compared to n=50 (73%) of registered nurses, indicated that the managers seriously considered the staff's suggestions for improving the FPP most of the time or always, while n=24 (20%) of the HCPs indicated sometimes. Sixty-five percent n=77 (65%) of the participants indicated that their managers/supervisors investigated incidents of falls most of the time or always. Eighty-six percent n=60 (86%) of the nurses, compared to only n=11 (28%) of the physicians, indicated that feedback is given to them on changes put into place on the basis of fall investigation reports most of the time or always. All of the PTs n=3 indicated never. Again, the problem with feedback seems to lie with the professional groups other than nurses. These analyses indicate the limited involvement of the managers/supervisors in the FPP. In addition, communication at various levels seems to be inadequate and ineffective. These findings are supported by the following comments from participants: "*Programme needs strict monitoring*" and "*Rarely there is incidence of falls*," "*Programme not implemented in pharmacy*". However, HCPs n=77 (65%) indicated their managers investigate incidents of fall while n=60 (88%) of nurses indicated that discussions on ways to prevent fall from happening in their units occurs most of the time or always.

The FPP clearly defines the role of the manager (Appendix A) with regard to falls. This includes: making fall and fall-related injury prevention a standard of care; ensuring compliance with the fall prevention protocol by all HCPs within his/her unit; ensuring equipment in the unit is working properly and that the maintenance programme is completed on schedule; ensuring that all nursing staff are educated about the FPP and understand the importance of complying with FPP interventions; ensuring environmental safety rounds are done collaboratively with a safety officer; ensuring effective communication and the transfer of information between all HCPs; as well as keeping records of all falls in their respective units. Gowdy and Godfrey (2003:365) confirmed that strategies such as root cause analysis (RCA) and failure mode effects analysis (FMEA) made a positive contribution towards the FPP. This type of investigation will result in proactive correction rather than the current reactive response to adverse events. An emphasis on prevention will reduce the risk of harm to the patients.

Managers must work towards improving communication with their staff. The data and trends on falls should be shared with the various units. By comparing rates among the units, staff could strive together to reduce fall rates and injuries from falls.

Recommendations

Managers must review the FPP and be more actively involved.

The involvement of the unit managers/supervisors is paramount in the fall investigation process, and this includes active involvement in RCAs and FMEA. A multidisciplinary team should conduct an investigation of all reported falls to identify the causes and contributing causes (RCA), as well as to evaluate possible areas of failure to prevent them reoccurring (FMEA).

Promote stronger leadership by senior nursing staff, which is essential for establishing a patient safety culture and improving the work environment. Unit managers should play a more significant role in resolving logistical issues to ensure that all resources, such as the green identification bracelets, are provided timeously so that interventions can be implemented for the specific high-risk patients according to the FPP.

5.6.10 Reporting of falls [Tables 4.29–4.32]

The findings show that n=84 (71%) of HCPs indicated that witnessed falls with no injuries while n=72 (61%) of HCPs indicated that unwitnessed falls (falls reported by the patient/family but not seen by an HCP) were reported most of the time or always. The findings also show that falls were reported via the hospital incident reporting process to the quality management department. Eighty-nine percent n=62 (89%) of the nurses, who primarily do the reporting, supported this statement compared to only n=18 (45%) of the physicians. Almost half of the participants did not respond to these questions, probably indicating that they did not know how reports were processed – those who did not respond were mostly physicians n=26 (65%). None of the physical therapists n=3 (100%) answered, indicating their uncertainty.

Hart et al. (2009) state that organisations need to study and better understand the characteristics of falls and the trends prevalent in their facility in order to institute appropriate evidence-based interventions. Sherrod and Good (2006:28) emphasised the value of compiling data on each fall and evaluating it on a “case-by-case basis”.

Recommendations

Managers/supervisors must collaborate with the Quality Management Department to monitor the consistency of the reporting of falls. In addition, the managers must actively monitor and measure the fall rates and distribute these data in tables and graphs to all departments. This process will improve staff awareness and alertness, allowing them to implement strategies specific to their units and to be more vigilant. This increased collective awareness will improve compliance with the FPP.

5.6.11 Hospital Management [Tables 4.33–4.35]

Sixty seven percent, n=79 agreed that management provided an environment that promoted fall prevention, compared to n=68 (58%) of the respondents that agreed the actions of the hospital management showed that fall prevention was a top priority. Thirty-four percent, n=40 agreed that the hospital management seemed interested in fall prevention only after a major injury has occurred. Fifty-one percent of the nurses, who are more actively involved in the FPP, disagreed while n=25 (21%) were unsure. These findings indicate that the staff perceive the hospital management to be committed to the FPP. Regular safety walk rounds, and quality and safety initiatives, may motivate the staff.

Recommendations

The hospital management committees should ensure that safety walk rounds are more visible and evident to all staff. Management at all levels must participate in quality initiatives. A Patient Safety Week should be held annually. This will contribute to a positive patient safety culture in the workplace, creating greater awareness.

5.7 Limitations of the Study

Limitations are theoretical and methodological restrictions in a research study that may decrease the credibility and generalisation of the findings (Burns & Grove, 2007:37). The research methodology in the study was executed as planned, with no limitations. However, the study was restricted to a single acute care setting, and therefore the findings cannot be generalised to all acute care settings

5.8 Recommendations for Future Studies

Further studies on the impact of fall rates and the severity of injuries on the revised FPP are recommended. A research study on a larger scale, extended to multiple JCIA-accredited

hospitals, is needed, in addition to ongoing evaluation of the FPP to ensure that the programme is aligned with evidence-based practice.

5.9 Conclusion

This study identified areas that were successfully implemented, as well as barriers to the policy and areas that required revision in the existing FPP in an acute care hospital Recommendations were made above.

In summary, the FPP will achieve success once the recommendations have been implemented. These recommendations include a clearly defined referral process for high-risk patients, consistency of the environmental safety rounds and greater involvement of and support from the unit managers/supervisors. Compliance with JCIA standards and the FPP will contribute to the achievement of accreditation.

REFERENCES

Agency for Healthcare Research and Quality. (2009) **AHRQ, Patient Safety Network, Glossary**. Available from: http://psnet.ahrq.gov/glossaryaspx [Accessed 27 July 2010].

Babbie, E. (2004) **The practice of social research**. 10th ed. Belmont: Wadsworth.

Babbie, E. & Mouton, J. (2001). **The practice of social research**. Cape Town: Oxford University Press.

Barnett, K. (2002) Reducing patient falls in an acute general hospital. **Foundation of Nursing Studies Dissemination Series**, 1 (1) pp. 1-4.

Burns, N. & Grove, S.K. (2007) **Understanding nursing research**. 4th ed. St Louis: Saunders Elsevier Publishers.

Cameron, I.D., Murray, G.R., Gillepsie, L.D., Robertson, M.C., Hill, K.D., Cumming, R.G. & Kerse, K. (2010) **Interventions for preventing falls in older people in nursing care facilities and hospitals.** Available from: http://onlinelibrary.wiley.com/o/Cochrane/clsysrev/articles/CD005465/abstract.html [Accessed 30 August 2010].

Cant, M., Gerber-Nel, C., Nel, D & Kotze, T. (2005) **Marketing research**. 2nd ed. Claremont: New Africa Books.

Chang, J.T., Morton, S.C., Rubenstein, L.Z., Mojica, W.A., Maglione, M. & Suttorp, M.J. (2004) Interventions for the prevention of falls in older adults: systematic review and meta-analysis of randomized clinical trials. **British Medical Journal**, 328 pp. 1-7.

Currie, L. (2008) Fall injury prevention. In: Hughes, R.G. (ed.). **Patient safety and quality: an evidence-based handbook for nurses**. AHRQ Publication No. 08-0043. Rockville, MD: Agency for Healthcare Research and Quality.

Delbare, K., Close, C.T.J., Brodaty, H., Sachdev, P. & Lords, S.R. (2010) Determinants of disparities between perceived and physiological risk of falling among elderly people: cohort study. Available from: **BMJ 341 C4165doi;10.1136/bmj** [Accessed 31 August 2010].

De Vos, A.S., Strydom, H., Fouche, C.B. & Delport, C.S.L. (2005) **Research at grass roots: for the social sciences and human service professions**. 5th ed. Pretoria: Van Schaik Publishers.

Du Plooy, G.M. (2006) **Communication research**. 1st ed. Lansdowne: Juta & Co. Ltd.

Florida Hospital Association. (2010) Fall prevention. Available from: www.premierinc.com/safety/topics/falls [Accessed 24 April 2009].

Fonda, D., Cook, J., Sandler, V. & Bailey, M. (2006) Sustained reduction in serious fall related injuries in older people in hospital. **Medical Journal of Australia**, 184 (88) pp. 379-382.

Gowdy, M. & Godfrey, S. (2003) Using tools to assess and prevent inpatient fall. **Joint Commission Journal on Quality and Safety**, 29 (7) pp. 363-368.

Halfon, P., Eggli, Y., Van Melle, G. & Vagnair, A. (2001) Risk of falls for hospitalized patients: a predictive model based on routinely available data. **Journal of Clinical Epidemiology**, 54 (12) pp. 1258-1266.

Hart, J., Chen, J., Rashidee, AH & Kumar, S. (2009) Epidemiology and impact of patient falls in healthcare facilities. **Patient Safety & Quality Healthcare**. Available from: mhtml:file://F:\Patient%20Safety%20and%20Quality%20Healthcare%20Data%20Trends%202009.mht [Accessed 7 April 2009].

Hathaway, J., Walsh, J., Lacey, C. & Saenger, H. (2001) Insights obtained from an evaluation of a falls prevention program set in a rural hospital. **Australian Journal Rural Health**, 9 (4) pp. 172-177.

Health Authority of Abu Dhabi. (2008) **Hospital Standards.** 1st ed. Abu Dhabi, U.A.E.

Hendrich, A. (2006) **Inpatient falls: lessons from the field**. Available from: http://www.psqh.com/mayjun/falls.html [Accessed 18 July 2009].

Hendrich, A. (2007) How to try this: predicting patient falls, using the Hendrich 11 Fall Risk Model in clinical practice. **AJN**, 107 (11) pp. 50-58.

Hulley, S.B., Cummings, S.R., Browner, W.S., Grady, D., Hearst, N & Newman T.B. (2001) **Designing clinical research**. 2nd ed. Philadelphia: Lippincott Williams & Wilkins.

Huey-Ming, T. & Chang-Yi, Y. (2008) Nurses' solutions to prevent inpatient falls in hospital patient rooms. **Nursing Economics**, 26 (3) pp. 179-187 [Online]. Available from: http://www.medscape.com/viewarticle/576954_print [Accessed 19 April 2009].

Jackson, L. & Gleason, J. (2004) Proactive management breaks the fall cycle. **Nursing Management**, 35 (6) pp. 37-38.

Joint Commission International. (2008) **Joint Commission International Accreditation Standards for Hospitals.** 3rd ed. U.S.A. Joint Commission Resources, p. 35.

Joint Commission Resources. (2003) Root causes: tips and strategies for addressing the top three root causes of falls. **Joint Commission Perspectives on Patient Safety**, 3 (6) pp. 5-8.

Kalyani, R.R., Stein, B., Valiyil, R., Manno, R., Maynard, J.M. & Crews, D.C. (2010) Vitamin D treatment for prevention of falls in older adults: systematic review and meta-analysis. **Journal of American Geriatrics Society**, 58 (7) pp. 1299-1310.

Kirchner, C.M., Noggoh, E., Prestianni, F. & Lumia, M.E. (2007) **Patient Safety Initiative 2007 Summary Report Health Care Quality Assessment.** New Jersey Department of Health and Senior Services. pp. 22-28.

Koh, S.L.S., Hafizah, N., Lee, J.Y., Loo, Y.L. & Muthu, R. (2009) Impact of a fall prevention programme in acute hospital settings in Singapore. **Singapore Medical Journal**, 50 (4) pp. 425-432.

Maslow, A.H. (1943) A theory of human motivation. Available from: http://psychclassics.yorku.ca/Maslow/motivation.htm [Accessed 27 July 2010].

McCarter-Bayer, A., Bayer, F. & Hall, K. (2005) Preventing falls in acute care: an innovative approach. **Journal of Gerontological Nursing**, 31 (3) pp. 25-33.

McMillan, J.H. & Schumacher, S. (2001) **Research in education, a conceptual introduction**. 5th ed. New York: Longman.

Mills, P.D., Waldron, J., Quigley, P.A., Stalhandske, E. & Weeks, W.B. (2003) Reducing falls and fall-related injuries in the VA System. **Journal of Healthcare Safety**, 1 pp. 25-33.

Monette, D.R., Sullivan, T.J. & DeJong, C.R. (2002) **Applied social research: tool for human service**. 5th ed. Orlando: Harcourt College Publishers.

Morse, J.M. (2002) Enhancing the safety of hospitalization by reducing patient falls. **American Journal of Infection Control**, 30, pp. 376-380.

Oliver, D., Daly, F., Martin, F.C. & McMurdo, M.E. (2004) Risk factors and risk assessment tools for falls in hospital in-patients: a systematic review. **Age and Ageing,** 33 (2) pp. 122-130.

Pelczarski, K. & Wallace, C. (2008) Hospitals collaborate to prevent falls [Online]. Available from: http://www.psqh.com/novemberdecember-2008/91-november-december-2008/277-hospita [Accessed 25 August 2010].

Robey-Williams, C., Rush, K.L., Bendyk, H., Patton, L.M., Chamberlain, C. & Sparks, T. (2007) Spartanburg Fall Risk Assessment Tool: a simple three-step process. **Applied Nursing Research**, 20 (2) pp. 86-93.

Sarantakos, S. (2000) **Social research.** 2nd ed. Sydney: Macmillan.

Schwendimann, R., Buhler, H., De Geest, S. & Milisen, K. (2006) Falls and consequent injuries in hospitalized patients: effects of an interdisciplinary falls prevention program. **BioMedCentral.** [Online]. Available from: www.biomedcentral.com/1471-2318/9/53

Sherrod, M.M. & Good, J.A. (2006) Crack the code of patient falls. **Nursing Management,** 37 (8) pp. 25-29.

Stenberg, M. & Wann-Hansson, C. (2010) Health care professionals' attitudes and compliance to clinical practice guidelines to prevent falls and fall injuries. Worldviews on Evidence-Based Nursing, no. doi: 10.1111/j.1741-6787.2010.00196.x

Sulla, S.J. & McMyler, E. (2006) Falls prevention at Mayo Clinic Rochester: a path to quality care. **Journal of Nursing Quality Care**, 22 (2) pp. 138-144.

Van Deventer, I., Kruger, A.G., Prinsloo, I. J & Steinman, C. F. (2003) **An Educators' Guide to School Management Skills**. Pretoria, Van Schaik Publishers.

Vassallo, M., Vignaraja, R. & Sharma, J.C. (2004) The effect of changing practice on fall prevention in a rehabilitative hospital: the hospital injury prevention study. **Journal of American Geriatric Society**, 52 (3) pp. 335-339.

Weigand, J.V. & Gerson, L.W. (2001) Prevention care in emergency department: should emergency departments institute falls prevention programme for elder patients? **Academic Emergency Medicine**, 8 (8) pp. 823-826.

Williams, T.A., King, G., Hill, A.M., Rajagopal, M., Barnes, T., Basa, A., Pascoe, G., Birkett, K. & Kidu, H. (2007) Evaluation of a falls prevention programme in an acute tertiary care hospital. **Journal Clinical Nursing**, 16 (2) pp. 316-324.

Policy Documents:

Zayed Military Hospital. (2009) **Falls Prevention and Management.**

Zayed Military Hospital. (2010) **Patient Rights Statement.**

Appendix A

ZAYED MILITARY HOSPITAL	**Policies & Procedures Manual** **Document Title**: Fall Risk Assessment and Prevention
	Effective Date: 21 May 2009
	Revision Due Date: May 2011

1. Purpose:

To provide guidelines on patient fall risk assessment, fall prevention and strategies to reduce fall related injuries.

2. Policy:

All ZMH employees are expected to provide assistance and expertise within their scope of practice to minimize the risk of patients' fall.

It is the responsibility of the registered nurses to communicate patient's risk for falls to all members of the multidisciplinary team as appropriate.

3. Scope:

All staff

4. Definitions:

Fall: is an unexpected, uncontrolled, unintentional downward displacement of the body which may or may not result in injury.

Near Fall: is a sudden loss of balance that does not result in a fall or injury. This can include a person who slips, stumble or trips but is able to regain control prior to falling.

Anticipated Physiological/Intrinsic Fall: patient diagnosis or characteristics that may predict patient's likelihood of falling.

Unanticipated physiological/Intrinsic: unpredictable if no previous history is present and no risk factors identified from assessment.

Extrinsic/Accidental: an accidental fall is defined when a patient is oriented (low risk) but rolls out of bed or trips/slips due to environmental risk factors; or an infant is dropped by a caregiver

Developmental: non-injurious falls that are common to infants/toddlers as they are learning to walk.

5. Responsibility:

Falls Prevention Committee

Heads of Departments

Falls Liaison Nurses.

6. Procedure:

6.1 Role of Managers/Head Nurses:

6.1.1 Make fall and fall related-injury prevention a standard of care

6.1.2 Ensure compliance of the Fall Prevention protocol by all health care providers within their unit.

6.1.3 Ensure equipment in the unit is working properly and the preventive maintenance program is completed on schedule.

6.1.4 Ensure all nursing staff is educated about The Falls Prevention Program and understand the importance of complying with the interventions.

6.1.5 Ensure effective communication and transfer of information between all health care providers.

6.1.6 Ensure environmental safety rounds are done collaboratively with safety officer.

6.1.7 Keep a record of all falls in their respective units.

6.2 Role of Fall Liaison Nurse

6.2.1 Assist in the education of the fall prevention protocol.

6.2.2 Provide support/mentor to nurses in the clinical areas.

6.2.3 Create greater awareness of The Fall Prevention Program.

6.3 Role of the Nurse: In-Patient

6.3.1 Complete the Fall Risk Assessment form, using the Morse Fall Scale (Appendix 1) at the following times:

- On admission (within 24 hours of admission.)
- On every shift
- On transfer in or out within department or another facility.
- Following any change in patient condition after any intervention or change in medication that may put the patient at risk for fall.
- Following a fall

6.3.2 Notify all team members on patient risk status.

6.3.3 Implement ZMH Fall Prevention protocol. (Appendix 2).

6.3.4 Conduct environmental safety check.

6.3.5 Complete documentation in Fall Risk Assessment form and nurse progress notes.

6.3.6 If a Patient Falls:

- Do not move the patient until potential injuries are identified and safety is assured
- Assess the patient for potential injuries, level of consciousness, cause of falling and the environment.
- Transfer the patient to the bed and assess vital signs
- Notify the nursing supervisor and resident on call
- The registered nurse will plan and implement appropriate fall prevention plan of care
- The following should be completed once the patient's immediate needs are met:
- The ZMH incident report by nurse who witnessed the fall.
- Document specific facts in the nursing notes.
- Update the falls prevention plan of care.

- Physician's progress notes.
- Re-assess the patient using the Fall Risk Assessment Form.

6.4. Role of the Physician:

6.4.1 Identify and implement medical interventions to reduce fall and fall-related injuries and risk.

6.4.2 Conduct assessment, plan treatment interventions on patients post fall.

6.4.3 If appropriate refer patient to:

- Pharmacist to review medications that increase the likelihood of falls.
- Physical or Occupational therapist to conduct assessment of fall risk.
- Audiologists and Optometrists for hearing and vision assessments.

6.5. Role of the Pharmacist:

6.5.1 Review medications and supplements to ensure that the risk of fall is reduced.

6.5.2 Notify the physician if drug interaction level increases the likely-hood of falls.

6.6. Role of Physical and Occupational Therapists:

6.6.1 Conduct balance assessments for all high-risk patient referrals.

6.6.2 Develop an intervention program for patients to reduce their fall risk.

6.7. Role of Audiologists and Optometrist

6.7.1 Perform hearing and vision assessments on patients to reduce the risk of falls.

6.8. Role of Biomedical Technologists:

6.8.1 Ensure assistive equipment such as wheelchairs, walkers and canes are checked regularly and equipped with devices to prevent falls.

6.9. Role of Fall Prevention Committee:

6.9.1 Develop Fall Prevention Program.

6.9.2 Assist with implementation and evaluation of Fall Prevention Program.

6.9.3 Investigate Fall Incident as recommended by Quality Specialist.

6.9.5 Document investigation in post fall assessment tool.

6.10. Role of Quality Department:

6.10.1 Refer identified issues from fall incidents to members of Fall Committee for investigation and resolution.

6.10.2 Collect and submit all fall-related data to the Fall Committee.

6.11. Role of Facility Department:

6.11.1 Conduct Environmental assessments to ensure a safe environment of care in collaboration with person in charge of departments or delegate.

6.11.2 Ensure safe housekeeping practice to reduce environmental fall risk factors.

6.12. Role of Education Department:

6.12.1. Develop a comprehensive education program related to falls and fall prevention.

6.12.2. Include educational program in staff orientation program.

7. Appendix:

7.1. Fall Risk Assessment Form (Appendix 1)

7.2. Fall Prevention Protocol (Appendix 2)

7.3. Fall Prevention Sign (Appendix 3)

7.4. Fall Prevention Flow Sheet (Appendix 4)

8. References:

8.1. Gowdy M. & Godfrey S. (2003) Using Tools to Assess and Prevent In-Patient Falls. *Joint Commission Journal on Quality & Safety*. Vol.29, No.7, Pgs. 363-368 http://www.ncbi.nlm.nih.gov/pubmed/12856558

8.2. Conner et al. (2008) Policy for the Prevention and Management of Falls in Inpatient Facilities. NHS, County Durham Primary Care Trust http://www.countydurham.nhs.uk/Files/C014Falls_policy.pdf

8.3. JCI International Accreditation Standards (2008) International Patient Safety Goals.

8.4. NCPS (2004). Fall Prevention Tool Kit. http://www.va.gov/ncps/SafetyTopics/fallstoolkit/index.html

9. Approval:

	Name	Designation	Signature	Date
Prepared By	Wkl. Zainab Al Khanjari	Nursing Development/Training Manager		21.05.09
Reviewed By	Vacee Haripersad	Quality Department		21.05.09
Approved By	Dr. Michael Dagher	Medical Director		26.05.09
Approved By	Col. Dr Ahmed Faisal Farhood	Deputy Commander, ZMH		27.05.09

Appendix B. Adult Fall Risk Assessment Form

ADULT FALL RISK ASSESSMENT FORM

Every patient to be assessed:

- On Admission
- Every Shift
- When a patient's condition changes after any intervention or a change in medication that could put the patient at risk for fall
- Before a patient is transferred out of the department
- After a fall

Patient's Label

Primary Diagnosis…….. Admission Date…….. Ward/Unit ……..……

Modified Morse Fall Risk Assessment Tool (November 2009)

RISK FACTOR		POINTS	DATE												
			TIME												
			SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE
History of Falling	Yes:	25													
	No:	0													
Secondary Diagnosis	Yes:	15													
	No:	0													
Ambulatory Aids															
	Furniture:use support of furniture	30													
	Crutches / Walker / Cane:	15													
	None / Bed Rest / Wheelchair / Nurse:	0													
IV or IV Access and / or taking 1 or More High Risk Medication:	Yes:	20													
	No:	0													
Anesthesia (within last 48 hrs) Narcotic / Opioid Antihypertensive / Diuretic Psychiatric: Neuroleptic / Antidepressant Benzodiazepine / Sedative / Hypnotic / Anticonvulsant Laxative Anticoagulant															
Gait															
	Weak:	10													
	Normal / Bed-rest / Bedridden:	0													
Mental Status															
Overestimates or forgets limitations :(overconfident/unaware of self limitations).		15													
Orientated to own abilities / Complies to bed-rest/ Bedridden:		0													
Total Score:															
Fall prevention implemented as per ZMH Fall Protocol:		Yes													
		No													
RISK LEVEL:		*Nurse Sign.*													
		ID. No.													

High	Moderate	Standard
45 and over	25 - 44	0 - 24

Appendix C. Fall Prevention Protocol

ZMH –ADULT FALL PREVENTION PROTOCOL

NOTE: **All PRN interventions and/or any other preventative measures unlisted in the protocol to be documented in Nurses' Progress Notes**

Patient's Label

November 2009	Please Review ZMH Fall Risk Assessment & Prevention Policy	Score		
	Interventions	**0-24 (standard)**	**25-44 (moderate)**	**45 and over (high)**
1.Communication	Orient patient to surroundings and hospital routines – Point out location of the bathroom if patient is confused, reinforce information – Call bell and light in easy reach – make sure patient is able to use it, instruct patient to call for help before getting out of bed. – Ensure safe and proper use of mobility devices (request assistance of physiotherapist if required) – Document in nursing notes and Patient and Family Education(PFE)form	**YES**	**YES**	**YES**
	Patient/Family/Sitter Education – Verbally inform patient and family of fall prevention interventions. – Document in nursing notes and PFE form	**YES**	**YES**	**YES**
	Place Falls Green Star on room door and above patient bed, place Green Band on patient wrist and Green Dot on file	*NO*	*NO*	**YES**
	Shift Report: Communicate the patient's "at risk" status to multidisciplinary team and document in nursing notes	**YES**	**YES**	**YES**
	Make rounds Q 2 hourly and include change of position and ensure that patient is warm and dry.	*PRN*	*PRN*	**YES**
	Consider obtaining physician order for physiotherapy consultation.	*PRN*	*PRN*	**YES**
2. Toileting	Discuss needs with patient/sitter and encourage regular toileting as appropriate	**YES**	**YES**	**YES**
	Provide a commode at bedside (if appropriate)	*PRN*	*PRN*	*PRN*
	Urinal/bedpan should be within easy reach (if appropriate)	*PRN*	*PRN*	**YES**
3. Medication	Evaluate medications for potential side effects	**YES**	**YES**	**YES**
	Consider peak effect that affects level of consciousness, gait and elimination when planning patient's care.	**YES**	**YES**	**YES**
	Consider having physician / pharmacist review medications and supplements to reduce fall risk.	*PRN*	*PRN*	**YES**
4. Environment	Bed in low position with all furniture wheel brakes locked.	**YES**	**YES**	**YES**
	Bedside table and personal belongings within reach.	**YES**	**YES**	**YES**
	Consider use of side rails (side rails up on patient's weak or non dominant side) Ensure all side rails are up during patient transfer (safety straps for ambulance stretchers)	**YES**	**YES**	**YES**
	Room "clutter" - Remove unnecessary equipment and furniture and ensure room is clear of spills (housekeeping)	**YES**	**YES**	**YES**
	Ensure pathway to the bathroom is free of obstacles and is lighted / Use a night light as appropriate	**YES**	**YES**	**YES**
	Provide foot rest when patient is sitting on chair (if appropriate)	*PRN*	**YES**	**YES**
5. Safety	Do not leave patients unattended in diagnostic or treatment areas.	**YES**	**YES**	**YES**
	Assist / Supervise ambulation as appropriate	*PRN*	**YES**	**YES**
	Ensure non skid (non-slip) footwear	**YES**	**YES**	**YES**
	Consider mattress on floor (e.g. psychiatric and rehabilitation wards)	*PRN*	*PRN*	**YES**
	Consider placing the patient in a room near the nursing station for close observation (if applicable)	*PRN*	*PRN*	**YES**
	Consider one-to-one nursing care	*PRN*	*PRN*	**YES**

Appendix D ZAYED MILITARY HOSPITAL

Patients/ Family Rights/Responsibilities	حقـــوق وامتـــيازات المـــريض والأسرة
As patient at Zayed Military Hospital, you have the right to:	عزيزي المريض : يتمنى لك مستشفى زايد العسكري الشفاء العاجل ويطلعك على الحقوق التي تتمتع بها في المستشفى وهي:
• Respect your personal values and beliefs, dignity, and privacy.	• احترام قيمك ومعتقداتك الشخصية, والتقدير والخصوصية.
• Receive Compassionate care respecting your unique needs in critical situations.	• تلقي الرعاية الطبية المناسبة مع اعتبار الاحتياجات الخاصة في الحالات الحرجة.
• Confidentiality of your medical information.	• سرية المعلومات الطبية الخاصة بك.
• Pain assessment and control .	• تشخيص الألم وعلاجه.
• A uniform standard of care.	• الحصول على الرعاية الطبية المتكاملة ذات الجودة العالية.
• Have access to your medical record and receive a copy of the medical report.	• الحصول على تقرير عن حالتك الصحية والإطلاع على ملفك الطبي.
• A clear and understandable explanation of the benefit and risk of treatment.	• شرح واضح ومفهوم لكل ما يتعلق بحالتك الصحية وما يلزم حيالها من إجراءات .
• Know the name and professional status of your care providers.	• معرفة أسماء ووظائف الطاقم الذي يقدم لك الرعاية والعلاج.
• The right to have informed consent.	• الحصول على شرح وافي لأي إجراء طبي قبل الموافقة عليه.
• Receive emergency care irrespective of illegibility status.	• الحصول على الرعاية الطبية العاجلة في الحالات الطارئة بغض النظر عن أحقيتك للعلاج أو عدمه.
• Participate in care decision making, obtain a second opinion, refuse treatment or medications, or discharge yourself from the hospital.	• أن تشارك مشاركة فعالة في خطة العلاج وان تحصل على رأي طبي أخر وان ترفض تلقي المعالجة جزئياً أو كلياً.
• Receive or restrict visitors and telephone calls.	• استقبال أو تحديد من يزورك أو يتصل بك هاتفياً أثناء وجودك في المستشفى.
• A safe, clean environment.	• أن تتلقى العلاج في بيئة نظيفة وآمنة.
• To be protected from physical or psychological assault.	• أن لا تتعرض لأي اعتداءات جسدية أو نفسية.
• Have your valuables protected in an emergency situation.	• حماية ممتلكاتك الخاصة أثناء تلقيك العلاج في الحالات الطارئة فقط.
• Receive feedback on your complaints and concerns.	• رفع الشكاوي وتلقي الإفادات حولها.
In addition, you have responsibility to :	إضافة إلى ذلك فانه يتوجب عليك ما يلي:
• Provide complete information about your past medical history.	• تزويد الطاقم الطبي بالمعلومات الوافية عن التاريخ المرضى لحالتك من أجل دقة التشخيص والعلاج وسرعة الشفاء بإذن الله.
• Alert us to issues that may affect your care .	• تنبيه الطاقم الطبي المعني بحالتك إلى أي شئ قد يساعد على شفائك ومعافاتك.
• Make sure you understand the treatment you are receiving, know what is expected of you, and follow the instructions.	• التأكد من انك على علم وإدراك للعلاج المقدم لك، ومعرفة ما هو متوقع منك، والتأكد من إتباع تعليمات الطاقم المعني بحالتك الصحية .
• Conduct yourself in polite and courteous manner.	• المعاملة الحسنة لمقدمي الخدمة.
• Respect hospital safety rules.	• مراعاة الأمن والسلامة بالمستشفى.
• Keep your medical appointments.	• المحافظة على دقة المواعيد الطبية مع الطاقم الطبي باستمرار.
• Avoid bringing valuables to the Hospital .	• تجنب إحضار أي متعلقات أو أشياء ثمينة إلى المستشفى .

Appendix E. SURVEY ON FALL PREVENTION PROGRAMME

INFORMATION:

The aim of this survey is to identify factors preventing the successful implementation of existing fall prevention programme in your hospital.

Completion of this questionnaire constitutes consent to participate in this survey.

The completion of this questionnaire will take 10-15 minutes of your time.

Please note your participation is voluntary, you have a right to refuse participation.

Your responses to this survey will be confidential therefore; your name is not required on the questionnaire. Responses will not be linked to any participant.

Minimal risks are anticipated in this survey and should they occur you will be assisted as far as possible with counselling. Arrangement for counselling will be done by the researcher.

INSTRUCTIONS:

Please place your completed questionnaire in the envelope provided to ensure confidentiality. Insert your envelope in the" SURVEY BOX" at the hospital reception desk.

Kindly insert you blank questionnaire in the survey box if you decide not to take part in the survey.

Place a √ in the relevant box.

SECTION A

1. What is your primary work area or unit in this hospital? Select ONE answer.

1. Medicine ☐
2. Surgery ☐
3. Obstetrics ☐
4. Paediatrics ☐
5. Rehabilitation ☐
6. Pharmacy ☐
7. Emergency department ☐
8. Anaesthesiology ☐
9. Intensive care unit (any type) ☐
10. Other ☐Please specify:_____

2. What is your position in this hospital? Select ONE answer that best describes your position.

1. Registered Nurse	☐	Pharmacist	☐
Practical Nurse	☐	Physical Therapist	☐
Physician	☐		

3. How long have you worked in your current profession?

1. Less than 1 year	☐	4. 11 to 15 years	☐
2. 1 to 5 years	☐	16 to 20 years	☐
3. 6 to 10 years	☐	21 years or more	☐

4. How long have you worked in this hospital?

1. Less than 1 year	☐	4. 11 to 15 years	☐
2. 1 to 5 years	☐	5. 16 to 20 years	☐
3. 6 to 10 years	☐	6. 21 years or more	☐

SECTION B *Please indicate your* ***agreement or disagreement*** *with the following statements about your work area/unit.*

	Strongly Disagree ▼	**Disagree** ▼	**Unsure** ▼	**Agree** ▼	**Strongly Agree** ▼
1. Fall prevention is an important aspect of my job.	☐1	☐2	☐3	☐4	☐5
All patients are assessed on admission to determine risk factors for falls.	☐1	☐2	☐3	☐4	☐5
All patients are re-assessed each shift to determine risk factors for falls.	☐1	☐2	☐3	☐4	☐5
All patients are re-assessed to determine risk factors for falls upon change on their medical condition.	☐1	☐2	☐3	☐4	☐5
The fall prevention programme needs multidisciplinary assessment and interventions.	☐1	☐2	☐3	☐4	☐5
All patients with high risk for falls are referred to the physician.	☐1	☐2	☐3	☐4	☐5
All patients with high risk for falls are referred to the physiotherapist.	☐1	☐2	☐3	☐4	☐5
All patients' with high risk medications for falls are referred to the clinical pharmacist.	☐1	☐2	☐3	☐4	☐5
9. Staff are educated about the falls prevention program.	☐1	☐2	☐3	☐4	☐5

The patient and their families are involved in the fall prevention program.	☐1	☐2	☐3	☐4	☐5
. Updates and education in the current trend of the falls prevention is important in the fall prevention programme.	☐1	☐2	☐3	☐4	☐5
. All items required for fall prevention are always available in your unit e.g.Green Identification Bracelet.	☐1	☐2	☐3	☐4	☐5
. High-risk patients are handed over to you during shift changes.	☐1	☐2	☐3	☐4	☐5
. The fall risk assessment tool is easy to use.	☐1	☐2	☐3	☐4	☐5
. The present, modified Morse Fall Risk assessment tool assists you to identify high risk patients.	☐1	☐2	☐3	☐4	☐5
. All patients that fall are re-assessed for further fall risk factors.	☐1	☐2	☐3	☐4	☐5
. Team approach is used in your unit to prevent falls.	☐1	☐2	☐3	☐4	☐5
. Environmental safety rounds are conducted by safety officer to identify unsafe areas that contribute to a fall.	☐1	☐2	☐3	☐4	☐5

SECTION C Please indicate the **frequency** of the following statements about your immediate supervisor/manager or person to whom you directly report.

	Never ▼	Rarely ▼	Some-times ▼	Most of the time ▼	Always ▼
1. My supervisor/manager gives us feedback on fall rates and injuries from falls.	☐1	☐2	☐3	☐4	☐5
. My supervisor/manager seriously considers staff suggestions for improving the fall prevention programme.	☐1	☐2	☐3	☐4	☐5
My supervisor/manager investigates incidents of falls.	☐1	☐2	☐3	☐4	☐5
We are given feedback about changes put into place based on fall investigations reports.	☐1	☐2	☐3	☐4	☐5
5. In this unit, we discuss ways to prevent falls from happening again.	☐1	☐2	☐3	☐4	☐5

SECTION D Please indicate the **frequency** of the following statements about your hospital.

	Never ▼	Rarely ▼	Some-times ▼	Most of the time ▼	Always ▼
When a patient fall is witnessed by staff and has no obvious injuries, how often is this reported?	☐1	☐2	☐3	☐4	☐5
When a patient reports a fall, but is not witnessed by staff, how often is this reported?	☐1	☐2	☐3	☐4	☐5
All incidents of falls are reported via the hospital incident reporting process to the quality management department	☐1	☐2	☐3	☐4	☐5
Patients are monitored to identify possible post fall injury.	☐1	☐2	☐3	☐4	☐5

SECTION E Please indicate your **agreement or disagreement** with the following statements about your hospital.

	Strongly Disagree ▼	**Disagree** ▼	**Unsure** ▼	**Agree** ▼	**Strongly Agree** ▼
Hospital management provides a work environment that promotes fall prevention.	☐1	☐2	☐3	☐4	☐5
Important patient care information is often lost during shift change	☐1	☐2	☐3	☐4	☐5
The actions of hospital management show that Fall Prevention is a top priority	☐1	☐2	☐3	☐4	☐5
Hospital management seems interested in Fall Prevention only after a major injury has occurred.	☐1	☐2	☐3	☐4	☐5

SECTION F Please write any **comments to improve** the current fall risk assessment and prevention programme

THANK YOU FOR COMPLETING THIS SURVEY

Appendix F. Information Sheet

FACTORS PREVENTING THE SUCCESSFUL IMPLEMENTATION OF FALL PREVENTION PROGRAMME (FPP) IN AN ACUTE CARE HOSPITAL SETTING IN UNITED ARAB EMIRATES.

Information:

- The Health Research Ethics Committee, Faculty of Health Sciences, Stellenbosch University, South Africa has approved this study for a Masters Degree in Nursing. Approval to conduct this study has also been obtained from the Ethics Committee of Zayed Military Hospital.
  The aim of this survey is to identify factors preventing the successful implementation of the existing fall prevention programme in your hospital.

  Completion of this questionnaire constitutes consent to participate in this survey.
  Please note your participation is voluntary, i.e. you have a right to refuse participation. If you decide not to take part please return your blank questionnaire. Your responses to this survey will be confidential therefore your name is not required on the questionnaire. Responses will not be linked to any participant. Minimal risks are anticipated in this survey and should they occur you will be assisted as far as possible with counselling. Arrangements for counselling will be undertaken by the researcher.
  The questionnaire will take about 10-15 minutes to complete.
  Please place your questionnaire in the envelope provided to ensure confidentiality. Insert your envelope in the box marked 'survey box' placed at the reception desk

  You may contact me**: VACEE HARIPERSAD on 0503395481**

  THANK YOU.

Appendix G. Human Research Approval

MAILED

14 April 2010

Mrs V Haripersad
Department of Nursing
2nd Floor
Clinical Building
Tygerberg Campus

Dear Mrs Haripersad

Factors preventing the successful implementation of a Fall Prevention Programme (FPP) in an Acute Care Hospital setting in the United Arab Emirates

ETHICS REFERENCE NO: N10/03/094

RE : APPROVAL

It is a pleasure to inform you that a review panel of the Health Research Ethics Committee has approved the above-mentioned project on 14 April 2010, including the ethical aspects involved, for a period of one year from this date.

This project is therefore now registered and you can proceed with the work. Please quote the above-mentioned project number in ALL future correspondence. You may start with the project. Notwithstanding this approval, the Committee can request that work on this project be halted temporarily in anticipation of more information that they might deem necessary.

Please note a template of the progress report is obtainable on www.sun.ac.za/rds and should be submitted to the Committee before the year has expired. The Committee will then consider the continuation of the project for a further year (if necessary). Annually a number of projects may be selected randomly and subjected to an external audit.

Translations of the consent document in the languages applicable to the study participants should be submitted.

Federal Wide Assurance Number: 00001372
Institutional Review Board (IRB) Number: IRB0005239

The Health Research Ethics Committee complies with the SA National Health Act No.61 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 Part 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health).

Please note that for research at primary or secondary healthcare facility permission must still be obtained from the relevant authorities (Western Cape Department of Health and/or City Health) to conduct the research as stated in the protocol. Contact persons are Ms Claudette Abrahams at Western Cape Department of Health (healthres@pgwc.gov.za Tel: +27 21 483 9907) and Dr Hélène Visser at City Health (Helene.Visser@capetown.gov.za Tel: +27 21 400 3981). Research that will be conducted at any tertiary academic institution requires approval from the relevant hospital manager. Ethics approval is required BEFORE approval can be obtained from these health authorities.

Verbind tot Optimale Gesondheid · Committed to Optimal Health
Afdeling Navorsingsontwikkeling en -steun · Division of Research Development and Support
Posbus/PO Box 19063 · Tygerberg 7505 · Suid-Afrika/South Africa
Tel.: +27 21 938 9075 · Faks/Fax: +27 21 931 3352

Approval Date: 14 April 2010

Expiry Date: 14 April 2011

Yours faithfully

MS CARLI SAGER
RESEARCH DEVELOPMENT AND SUPPORT
Tel: +27 21 938 9140 / E-mail: carlis@sun.ac.za
Fax: +27 21 931 3352

Appendix H. Hospital Approval

Zayed Military Hospital
Ethic Committee

Date: November 4, 2009
To: Ms. Vasanthee Haripersad

Your study: *Fall prevention program in a hospital care setting*, had been evaluated and approved by the Ethic committee regard to patient information and confidentiality issue. Please update the committee if there is any future change.

Sincerely Yours,
ZMH - Medical Director

Dr. Abdulla El Tom

Head of internal Medicine Dept

Chair of Ethic Committee

Appendix I. Reliability

Section B

variable	Summary for scale: Mean=69.7064 Std.Dv.=11.0599 Valid Cronbach alpha: .915951 Standardized alpha: .916842 Average inter-item corr.: .390961				
	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
Section B(Q1)	65.32110	110.8785	10.52989	0.556379	0.912278
Section B(Q2)	65.58716	106.0039	10.29582	0.694977	0.908462
Section B(Q3)	65.96330	102.5858	10.12847	0.734423	0.907070
Section B(Q4)	65.74312	104.2092	10.20829	0.721769	0.907531
Section B(Q5)	65.55046	116.2658	10.78266	0.291165	0.917606
Section B(Q6)	65.91743	110.7547	10.52400	0.422721	0.916187
Section B(Q7)	66.29358	106.9964	10.34391	0.596532	0.911255
Section B(Q8)	66.37614	110.4732	10.51062	0.431683	0.915988
Section B(Q9)	65.57798	108.8127	10.43133	0.650977	0.909998
Section B(Q10)	65.76147	105.4844	10.27056	0.692461	0.908463
Section B(Q11)	65.55963	110.7969	10.52601	0.599763	0.911449
Section B(Q12)	65.91743	108.9198	10.43646	0.561281	0.912112
Section B(Q13)	65.95413	104.0438	10.20018	0.721846	0.907515
Section B(Q14)	65.80734	110.8344	10.52779	0.606545	0.911345
Section B(Q15)	65.88991	109.5108	10.46474	0.667458	0.909913
Section B(Q16)	65.63303	109.5901	10.46853	0.646309	0.910298
Section B(Q17)	65.81651	107.6911	10.37743	0.630847	0.910263
Section B(Q18)	66.33945	111.6738	10.56758	0.393726	0.916796

Section C

variable	Summary for scale: Mean=17.6972 Std.Dv.=6.25019 Valid Cronbach alpha: .930971 Standardized alpha: .931607 Average inter-item corr.: .734642				
	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
Section C(Q1)	14.50459	25.09402	5.009393	0.774353	0.923944
Section C(Q2)	14.02752	25.99007	5.098045	0.826309	0.914129
Section C(Q3)	13.87156	25.56149	5.055837	0.800103	0.918383
Section C(Q4)	14.23853	24.62200	4.962056	0.847935	0.909196
Section C(Q5)	14.14679	24.73075	4.973002	0.843740	0.910026

Section D

variable	Summary for scale: Mean=16.2477 Std.Dv.=4.02114 Valid N Cronbach alpha: .868290 Standardized alpha: .869923 Average inter-item corr.: .639663				
	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
Section D(Q1)	12.18349	8.86542	2.977485	0.764540	0.813073
Section D(Q2)	12.39450	8.42235	2.902129	0.765257	0.814682
Section D(Q3)	12.15596	10.24173	3.200270	0.644558	0.860415
Section D(Q4)	12.00917	10.10083	3.178181	0.723510	0.833394

Section E

variable	Summary for scale: Mean=14.0275 Std.Dv.=2.98595 Valid N: Cronbach alpha: .690460 Standardized alpha: .694498 Average inter-item corr.: .377358				
	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
Section E(Q1)	10.18349	6.498443	2.549204	0.383224	0.678505
Section E(Q2)(reversed)	10.67890	4.878546	2.208743	0.530745	0.587402
Section E(Q3)	10.29358	5.822069	2.412896	0.492401	0.618372
Section E(Q4)(reversed)	10.92661	4.728558	2.174525	0.514390	0.602510