

**A SURVEY OF PATIENT SAFETY CULTURE IN AN
OPERATING ROOM SETTING IN ABU DHABI**

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DECLARATION

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the authorship owner thereof (unless to the extent explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Date: 6 September 2010

ABSTRACT

Patient safety remains one of the biggest challenges to healthcare organizations. With the escalation in health care costs due to medical errors, many organizations are adopting a number of strategies like the keeping of electronic medical records, the use of medication bar coding, instituting protocol for common procedures and checklists. Although each of these interventions has had a positive impact, problems of preventable medical errors still persist in many health care organizations throughout the world. In order to combat this, a small but increasing number of organizations are trying out basic technology as a low cost solution for patient safety in order to adopt this culture. Approval was given to the researcher to conduct an assessment of the safety culture in a specialized obstetric and gynecology operating room setting in Abu Dhabi.

The aim of the study was to explore the patient safety culture and the contributing factors influencing patient safety in the operating room, as part of the preparations for accreditation by the Joint Commission International. A quantitative descriptive survey as research design was implemented for this purpose.

In May 2010 the researcher surveyed the entire population of operating room staff, i.e. 250 participants, following a pilot study consisting of 10% of the total sample. The popular hospital wide survey questionnaire of the Agency for Healthcare Research and Quality (AHRQ) was adjusted and used to assess the safety culture among the operating room staff. The survey measured four common dimensions of patient safety, namely an overall perception and grade of patient safety, and the frequency and number of events reported. Further sub-dimensions were also measured in terms of leadership support, team work, and communication. A total of 118 completed questionnaires were received, which represents a 52% response rate. All of the participants had direct interaction or contact with patients.

The composite overall score for the perception of safety was 48%. Although findings of the survey indicate that the operating room has patient safety problems, the findings also show much positive strength in the operating room and the organization as a whole. The positive composite scores are reflected in the findings of 74% for hospital management support for patient safety,

70% for teamwork within the units, and 61% for teamwork across hospital units, and 60% for feedback and communication regarding medical errors.

The implications of the survey findings were taken into consideration in order for the organization to comply with the requirements for the Joint Commission International's recertification with the focus on staff education and improving safety standards.

Key words:

Patient Safety; Safety Culture; Medical Error; Near Miss; Just Culture; Adverse Events; Incidence Reports.

OPSOMMING

Pasiëntbeveiliging bly een van de grootste uitdagings vir gesondheidsorganisasies. Met die toename in onkoste vir gesondheidsorg vanweë mediese misstappe, pas baie organisasies 'n aantal strategieë toe, soos die byhou van elektroniese mediese rekords, die aanbring van strepieskodes op medisyne, die daarstelling van protokolle vir algemene prosedures en kontrolelyste. Alhoewel elkeen van hierdie intervensies 'n positiewe impak gehad het, bestaan probleme vanweë mediese misstappe nog steeds in vele gesondheidsorg organisasies dwarsoor die wêreld. Om dit te voorkom, probeer 'n klein, maar toenemende aantal organisasies om 'n kultuur van basiese tegnologie as 'n lae-koste oplossing vir pasiëntbeveiliging te kweek. Toestemming is aan die navorser gegee om 'n assessering te doen van die veiligheidskultuur in 'n gespesialiseerde verloskundige en ginekologiese operasiesaal in Abu Dhabi.

Die doel van hierdie studie is om die pasiëntveiligheidskultuur te ondersoek, asook die bydraende faktore wat pasiëntbeveiliging in die operasiesaal beïnvloed as deel van die voorbereiding vir akkreditasie deur die Gesamentlike Kommissie Internasionaal (GKI). 'n Kwantitatiewe, beskrywende opname as navorsingsontwerp is toegepas vir hierdie doel.

Gedurende Mei 2010 het die navorser 'n opname van die totale populasie van die operasiesaalpersoneel gedoen, naamlik 250 deelnemers, na 'n loodsondersoek wat 10% van die totale steekproef uitgemaak het. Die bekende Agentskap vir Gesondheidsnavorsing en Kwaliteit (AGNK) se hospitaalwye opnamevraelys is aangepas en gebruik om die veiligheidskultuur in die operasiesaal te assesser. Die opname het vier algemene dimensies van pasiëntveiligheid gemeet, naamlik 'n algemene persepsie en gradering van pasiëntveiligheid, as ook die frekwensie en die aantal ongunstige gebeure wat plaasvind. 'n Totaal van 118 voltooides vraelyste is ontvang wat 'n 52% responskoers verteenwoordig. Al die deelnemers het direkte interaksie of kontak met pasiënte.

Die samegestelde algehele telling van persepsie van veiligheid is 48%. Alhoewel bevindinge van die opname aandui dat die operasiesaal pasiëntveiligheidsprobleme het, wys bevindinge ook baie positiewe aspekte in die operasiesaal en die organisasie as 'n geheel uit. Die positiewe samegestelde telling word gereflekteer in die bevindinge van 74% vir ondersteuning vanaf die

hospitaalbestuur vir pasiëntbeveiliging, 70% vir spanwerk binne die eenhede, 61% vir spanwerk dwarsoor die hospitaaleenhede en 60% vir terugvoering en kommunikasie ten opsigte van mediese misstappe.

Die implikasies van die opname se bevindinge is in ag geneem ten einde die organisasie in staat te stel om te voldoen aan die Gesamentlike Kommissie Internasionaal se hersertifisering met die fokus op personeelopleiding en verbetering van veiligheidstandaarde.

Sleutelwoorde:

pasiëntveiligheid; veiligheidskultuur; mediese misstap; byna raak insidente; regverdige kultuur; ongunstige gebeure; voorvalverslae.

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CHAPTER 1: SCIENTIFIC FOUNDATION OF THE STUDY

1.1 INTRODUCTION

Patient safety remains one of the biggest challenges for healthcare organizations. Studies in the United States of America show that more than two million patients are injured unnecessarily in hospitals every year, with more than 100,000 deaths (Safety Culture Pulse Report, 2009:1). With the escalation in health care costs due to medical errors, many organizations are adopting a number of strategies like electronic medical records, medication bar coding, protocols for common procedures and checklists. Although each of these interventions has had a positive impact, problems of preventable medical errors still persist in many health care organizations throughout the world. In order to combat this, a small but increasing number of organizations are trying out a basic technology, as a low cost solution for patient safety in order to adopt a culture of safety. A safety culture entails a total organizational commitment to safe patient care (Reason, Carthey & Leval, 2001:21; Sexton, 2004:5; Thomas, Sexton, Nielands, Frankel & Helmreich, 2005:8; Safety Culture Pulse Report, 2009:1).

This chapter will address the rationale and a background on patient safety and a safety culture as well as the significance of the study. The research problem statement, research question, the aim and the objectives of the research and the terms and definitions will be highlighted, and at the end of the chapter a summary will be provided.

1.2 RATIONALE

Patient safety only became a topic of interest for research since the landmark Institute of Medicine Report (IOMR) “To Err is Human: Building a Safer Health System” was published in 1999 in the United States of America (USA). It was the first report to discuss patient safety in a comprehensive way. Patient safety is defined as freedom from accidental or preventable injuries (Agency for Healthcare Research and Quality, 2009:21).

Most of the literature reviewed identified the following common themes relating to patient safety and patient safety culture, namely the establishment of an organizational safety culture, leaders in organizations driving a culture of change and patient safety, establishing a just safety culture

through awareness and policies, education and training, adequate staffing levels, effective communication, and reporting of errors (Reason et al., 2001:21; Sexton, 2004:5; Thomas et al., 2005:8; Makary et al., 2006:1; Page, 2007:2; JCI, 2008:16-34; NQF, 2009:7; IHI, 2009:1).

An organizational safety culture contributes to patient safety. Reason et al. (2001:21) focused their study on the diagnosis of “vulnerable systems syndrome”. The authors related it to the “Swiss cheese” model of accident causation, described as “successive layers of defenses, barriers and safeguards in an organization that renders them vulnerable to adverse events”. Page (2007:2) recommends a blame free and just safety culture in which staff feel free to report errors. Unreported medical errors are found to impact negatively on patient safety (The Joint Commission International Accreditation Standards, 2008:16). Promoting effective communication in an organization is an important aspect of patient safety. In high-risk areas the quality of human interaction is critical to minimizing human error (Sexton, 2004:5). Briefings to plan activities in critical care environments such as operating rooms and intensive care units, as well as feedback, are widely recommended (Makary et al., 2006:5; Pronovost et al., 2006:1). Operating room briefing prior to skin incision, especially regarding patient identification, correct procedure and correct site, were found to be valuable communication channels between physicians and nurses (JCI, 2008:34). Vincent et al. (2004:4) identified that surgical adverse events may be due to poor communication, bad operative techniques, malfunctioning or improperly used equipment, cognitive errors due to stress and inattention, all of which are compounded by resource and organizational problems.

It seems to be imperative that patient safety and a culture of change be driven by senior leaders in organizations. ‘Executive walk around’ (EWR) are found to positively influence patient safety through direct interaction with staff (Thomas et al., 2005:8). Today senior leaders in health care organizations are also joining clinicians at unit level in safety initiatives such as comprehensive unit based safety programs (CUSP), where staff see how senior executives embrace problems and facilitate solutions (Pronovost et al., 2010:96).

Despite the emphasis on patient safety in healthcare, few organizations have evaluated the extent to which patient safety is a strategic priority or if their culture supports patient safety. The Health Authority of Abu Dhabi (HAAD) (2008:3), is highly focused on patient safety and has adopted a

policy that all government hospitals should work towards the Joint Commission International Accreditation. HAAD Hospital Standards (2008:3) identifies five patient safety goals, namely Patient Safety and Quality Improvement, Communication, High Risk Care Processes, Leadership involvement and Facility Safety.

The researcher is a staff member in the operating room in Abu Dhabi, United Arab Emirates. The hospital offers specialized obstetric and gynecological services and has a birth rate of 10,000 deliveries per annum. The caesarian section rate averages 25% per month. In December 2007, the hospital acquired a Joint Commission International Accreditation status. In 2010, the organization is scheduled for re-certification. The researcher is concerned that Joint Commission International (JCI) re-certification may be difficult to obtain in 2010 due to the continuous lack of safety standards in the operating room.

From the above discussion, it becomes clear that a safety culture should start with an investigation of the current safety culture of frontline personnel, including senior staff in the organization. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) also recommends an annual survey of quality health care in organizations (Makary et al., 2006:5).

Quality health care is defined as the delivering of care that has the ability to satisfy the needs of patients, is safe (avoiding injuries), effective (care that is scientifically based), patient centered (providing care that is individualized), timely (reducing waiting and harmful delays), efficient (avoiding wasting of valuable resources, supplies, equipment, ideas and energy) and equitable (available to all) (Institute of Medicine Report, 1999:1; Searle, 2008:393).

The researcher envisioned assessing the current safety culture, as well as factors influencing patient safety standards in an operating room setting in Abu Dhabi, United Arab Emirates, and to use this information to improve patient safety standards in the operating room. To the researcher's knowledge, there are no published research articles on a culture of patient safety in an operating room environment in Abu Dhabi or in South Africa.

1.3 PROBLEM STATEMENT

In the light of the previous discussion, the researcher identified the need for a scientific assessment of the current safety culture, as well as the contributing factors to patient safety in an operating room setting in Abu Dhabi in order to obtain Joint Commission recertification in December 2010.

1.4 RESEARCH QUESTION

The following research question therefore arises:

What are the current safety culture and contributing factors towards patient safety in an operating room setting in Abu Dhabi?

1.5 AIM

The aim of this study was to investigate the current safety culture and the contributing factors influencing patient safety in an operating room setting in Abu Dhabi.

1.6 OBJECTIVES

The researcher envisioned to explore:

- hospital leadership support for patient safety,
- the relationship between teamwork and patient safety,
- if communication affects patient safety and
- the level of incident reporting.

1.7 CONCEPTUAL FRAMEWORK

The history of quality assurance activities in nursing can be traced back to Florence Nightingale's attempts to improve the conditions of care to the soldiers of the Crimean War in 1858. Her standards to assess the care of the soldiers have been established as one of the first documented efforts of quality improvement work. Since then, assurance of quality nursing care has remained a priority for nurses throughout the world. Nightingale's work has been used by individuals in management and leadership positions to influence issues affecting nursing today around the world (George, 2002:57). Subsequently, nursing has developed into a profession with an

emerging unique body of knowledge and this has resulted in a growing interest in the improvement of quality nursing care. Florence Nightingale's environmental model can be used to influence or modify a culture of patient safety in health care organizations. Using a survey which is a quantitative method to express the assumptions of a positivist paradigm, whereby behavior can be explained through objective facts, the researcher planned to assess the safety culture within an operating room environment.

1.8 RESEARCH METHODOLOGY

In the following section a short overview of the research design and method will be presented.

1.8.1 Research design

A quantitative descriptive survey was implemented to assess the current safety culture and the contributing factors that influence the patient safety culture in an operating room setting in Abu Dhabi.

1.8.2 Research method

The research method included population and sampling, instrumentation, data collection, data analysis and reliability and validity.

1.8.3 Population and sampling

In this study, the target population was all the clinical staff and users of the operating theatre. Almost all the staff were English speaking. The survey and questionnaire were therefore presented in English. A purposive sampling technique was employed, which was representative of the setting, the characteristics of the subjects and distribution of values on the variables being measured (Burns et al., 2007:327). This was allowed for a more representative sample population which could be applied to other operating theatre staff in the group.

The research setting was a specialized obstetric and gynecological theatre in a hospital in Abu Dhabi with a population of 208 theatre users and 42 full time nursing staff from the operating room, thus a total population of 250 staff. All staff members who complied with the criteria were included in the survey.

Inclusion criteria

- Full time staff involved in direct patient care activities in the operating room, namely surgeons, anaesthetists, pediatricians, midwives and nursing staff (staff nurses and charge nurses) involved in clinical activities of the surgical patient.
- Participants had to be able to read and understand English.

Exclusion criteria

- Non-clinical staff which included the nurse managers.
- Part-time staff.
- Staff who could not understand or could not read English.
- Staff who participated in the pilot study.

1.8.4 Instrumentation

The survey was conducted by means of a questionnaire. The questionnaire was developed by a private research company: The Agency for Healthcare Research and Quality (AHRQ) for research in a general hospital. The questionnaire was adapted to satisfy the requirements of the operating room environment (Appendix 1). The questionnaire had a five point Likert scale to measure participants' responses and covered several domains like the current state of safety culture, hospital leadership support, teamwork, communication, and incident reporting underpinned by literature. Demographic data were also included. The questionnaire comprised of close questions and one open-ended question. As English is the common language spoken by most, the questionnaire was presented in English.

1.8.5 Data collection

In this study a survey questionnaire as technique of data collection was used. The researcher consulted with nursing experts, as well as the quality manager and obtained the advice of a statistician on the research instrument to be used. The researcher handed the consent and questionnaire with a self-addressed envelope to the participants herself. The instruction sheet of the questionnaire informed the participants to complete the questionnaire within a week. Consent was obtained from management for the questionnaire to be completed during work hours. The completed questionnaire was sealed in the self-addressed envelope and placed in a box marked "Survey Box" in the operating room reception. A follow up was done 3 days after

the issuing of the questionnaire. After ten days, a reminder was placed on the staff notice boards in the operating room and in the cafeteria. Data were kept in a locked cupboard in the manager's office in the operating room for which the researcher held the keys. The researcher was the only person to have access to the questionnaires. After the data analysis, the data was sealed in boxes and stored in this office.

1.8.6 Data analysis and interpretation

Data was statistically analyzed by means of MS Office Excel, premier-culture-tool-xls software, as recommended by The Agency for Healthcare Research and Quality (AHRQ). The researcher had made contact with the Agency for Healthcare, Research and Quality to obtain the software for data analysis (Appendix 2). The tool has macros that allow you to enter your survey data and it will automatically produce charts displaying the survey results. For descriptive purposes mean, standard deviations and frequency tables were used. Scores were analyzed using cronbach alphas and summary statistics. The researcher was further assisted by a statistician in the hospital, as well as researchers from the Centre for Statistical Consultation, University of Stellenbosch, during data analysis. A thematic framework was used to analyze the data from the open-ended question.

1.8.7 Reliability and validity

Reliability consisted of using cronbach alphas to test if the relevant items were reliable for measuring the different domains. Furthermore, a pilot study was conducted to identify any inaccuracies or ambiguities regarding the sampling method and the survey questionnaire.

1.9 PILOT STUDY

A pilot study was conducted on 10% of the total sample to test the feasibility of the study. This was done to ensure that people understood the instructions and to check for any other confusing issues. The pilot study was also to reveal any ambiguities or inaccuracies pertaining to the questionnaire. The time taken to complete the survey, which was aimed at 10-15 minutes, was also determined. Participants in the pilot study were excluded from the study sample. Feedback was to be given to the Health Research Ethics Committee, Faculty of Health Sciences, and Stellenbosch University, South Africa, about any changes in the methodology.

1.10 ETHICAL CONSIDERATIONS

The research proposal was submitted for approval to the Human Research Council of the University of Stellenbosch in order to obtain written approval to proceed with the study. Written approval was obtained from the chairman of the ethics committee of the hospital where the study was performed (Appendix 3). Informed consent was obtained from all the participants after the researcher had informed the respondents of the purpose of the study (Appendix 5). Participation was voluntary and anonymity and confidentiality were maintained. Participants were also informed that they could withdraw from the study at anytime should they so wish. Confidentiality was maintained by keeping the consent form separate from the questionnaire so that it could not be used to identify the respondents. Although there were no unforeseen risks anticipated in the study, participants might have felt that the survey could be traced back to them. The participants were therefore informed that the data would be confidential and that the questionnaires would not be used to identify individuals. To put them at ease, the participants were further informed that no identifying information of participants would be collected.

1.11 LIMITATIONS

The fairly low response rate of 52% could be seen as a limitation. Many of the staff did not participate actively in the survey.

Another significant limitation was that the survey was done in the English language only. The majority of the staff has English as a second language. This could be a limiting factor in fully understanding the questions, especially the reverse worded questions. The ideal situation would have been to have the questionnaire translated into more relevant languages.

1.12 OPERATIONAL DEFINITIONS:

The definitions have been taken from the United States Department of Health and Human Sciences, available at: <http://psnet.ahrq.gov/glossary.aspx>

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

Safety Culture: The safety culture of an organization is the product of individual and group values, attitudes, competencies and patterns of behavior that determine the commitment to an organization's health and safety programs.

Medical Error: Medical errors happen when something that was planned as part of medical care does not work out or the wrong plan was used in the first place.

Near Miss - An event or situation that did not produce patient injury, but only because of chance. This good fortune might reflect robustness of the patient (e.g., a patient with penicillin allergy receives penicillin, but has no reaction). This definition is identical to that of a close call.

Just Culture – In a “just culture” personnel feel comfortable disclosing errors, including their own, while maintaining professional accountability.

Adverse Events: An injury caused by medical care, e.g. Pneumothorax from central venous catheter placement, Anaphylaxis to penicillin, Postoperative wound infection.

Incidence Reports: 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 when a medication error occurred) rather than floor managers, for example.

1.13 DURATION OF THE STUDY

Data collection for the pilot and main study took place in April and May 2010. Data analysis took place during May and June 2010. The study was finalized and completed in August 2010. The completed study was submitted on the 1st of September 2010.

1.14 CHAPTER OUTLAY

Chapter 1: Scientific Foundation of the study

Chapter 2: Patient safety culture in an operating room: A literature review

Chapter 3: Research Methodology

Chapter 4: Data analysis, interpretation and discussion

Chapter 5: Conclusions, limitations and recommendations

1.15 CONCLUSION

The safety culture of an organization may be the key factor of its ability to achieve high levels of patient safety. The creation and maintenance of a strong safety culture within an organization is an important responsibility of management. Achieving a culture of safety requires an understanding of the values, beliefs and norms about what is important in an organization about safety and frontline personnel who demonstrate attitudes that are appropriate to patient safety. In the following chapter an overview of the literature regarding patient safety and a patient safety culture will be presented.

CHAPTER 2: PATIENT SAFETY CULTURE IN AN OPERATING ROOM: A LITERATURE REVIEW

2.1 INTRODUCTION

In the last few years the amount of literature found on patient safety is huge. Many scholars are conducting research all around the world on patient safety. However, patient safety did not become a major topic for research until the landmark Institute of Medicine Report (IOM) “To Err is Human: Building a Safer Health System”, was published in 1999 in the USA. It was the first report to discuss patient safety in a comprehensive way. Currently a number of published articles/reports focus attention on this landmark report.

This specific report draws attention to the staggering number of deaths resulting from medical errors in the USA. At least 44,000 people and perhaps as many as 98,000 people die from medical errors that could have been prevented. The report also called for a reduction in medical errors over five years and made recommendations for comprehensive approaches to improve patient safety (IOM Report, 1999:5). This report lays the foundation for building safer health care systems, which is now used internationally by organizations to build safety into their health care systems. Since this report, the sporadic interest in patient safety has become a priority in other parts of the world with improvements in reporting of medical adverse incidences.

2.2 ADVERSE INCIDENCES

In the U.K, complication rates for major operations are currently 20-25%, with an acceptable mortality rate of 5-10%. However, 30-35% of major complications occurring in patients undergoing general surgical procedures are thought to be avoidable (Vincent et al., 2004:2). The Canadian Medical Association Journal published in 2004, reported that the “Canadian Adverse Events Study” found that adverse events occurred in over 7% of hospital admissions, and estimated that 9,000 to 24,000 Canadians die annually after an avoidable medical error. (Ross et al., 2004: 1678).

Today, in the Middle- East, many health care organizations are seeking accreditation or are already accredited for the health care services they render. The Joint Commission International

Accreditation (JCIA), the International Standards Organizations (ISO), Six Sigma and other organizations all emphasize the concept of patient safety.

2.3 ELIMINATION OF ADVERSE INCIDENTS

In 2003, the Joint Commission made the elimination of wrong site surgeries a national patient safety goal and in 2004 required compliance with ‘Universal Protocol for the preventing of wrong site, wrong procedure and wrong person surgery’. The three steps of the Universal Protocol which are to ensure patient safety in the operating room are now implemented in the UAE. The preoperative verification, marking of the operative procedure site and “Time-Out” (preoperative operation room (OR) briefings) immediately before starting a procedure are associated with improved safety culture in the operating room and reduces wrong site and wrong procedure surgery. Broader patient safety practices called “Expanded Time-Out” further ensures the surgical team verifies preventive steps for antibiotic prophylaxis, thrombo-prophylaxis, the use of a neutral zone for the handling of sharps, correct and safe patient positioning and proper functioning of medical equipment prior to skin incision. Debriefing after surgical procedures to ensure the safe care of patients during the recovery period is also important. Further literature supporting ‘timeout’, briefings and debriefing procedures have been supported by the World Health Organization (World Alliance for Patient Safety). In its first edition of introducing the “WHO Surgical Checklist”, it reported that it is a useful tool in many different patient care settings and can be used successfully, especially in hospitals with a range of resource constraints (WHO Press, 2008:5). All the above quality organizations advocate the creation of a safety culture within health care organizations as a starting point for their quality improvement initiatives.

The 2008 Health Policy and Regulation of the Health Authority of Abu Dhabi’s (HAAD) main function is to regulate the health care sector in the Emirate of Abu Dhabi, both Public and Private, through policies, laws, regulations, inspections and audits. The HAAD Standards for health facilities are also consistent with JCI standards and were developed by HAAD in collaboration with Joint Commission International. The Health Authority of Abu Dhabi, Hospital Standards (2008:3) identified 5 standards which are organized around the following areas of focus: Patient Safety and Quality Improvement; Communication; High Risk Care Processes; Leadership and Facility Safety. Coinciding with these standards are the National Quality Forum

with 34 safe practice standards that reduce the risks of harm resulting from processes, systems or environment of care for safe practices (NQF, 2009:8). Literature studies also indicate that to eliminate adverse incidences, a strong culture of shared values, attitudes, perceptions and behaviors has to prevail to improve patient safety (Pulse Report, 2009:2). An annual survey of patient safety culture in an organization that is leadership driven has been recommended (Makary et al., 2006:5). For organizations to be accredited today in the Middle-East they must meet specific standards of patient safety and this has contributed to the increased awareness towards a patient safety culture.

2.4 PATIENT SAFETY CULTURE

The Agency for Healthcare Research and Quality (AHRQ, 2009:1) reported in a survey that while there is no gold standard to determine if an organization demonstrates an active safety culture or if the safety culture relates to safe patient outcomes, they did however find that most literature studies demonstrate that high hazard work units such as operating rooms and intensive care units must learn from other industries such as the aviation and nuclear industry about safety. In most safety conscious industries such as commercial aviation, nuclear plants and medicine, a significant amount of time and money are spent assessing the safety of their operations. Traditionally, research and safety assessments in these industries were used retrospectively, for example after an accident and an incident had already occurred. Most scholars of research are now advocating a more pro-active approach to safety.

The assessment of patient safety culture through the use of surveys has been well recognized for some time, such as the University of Texas's 'Human Factor Research Project' (2000), which set out to survey the operating room and intensive care unit's staff attitudes concerning stress, error and teamwork. The main outcome measures were perceptions of error, stress and teamwork (Sexton, Thomas & Helmreich, 2000:1). This study was useful in providing insight into the fact that error is difficult to discuss in medicine and not all staff accept personal susceptibility to error. Medical staff reported that error is important but difficult to discuss and not handled well in their hospitals. Differing perceptions of team work among team members and the reluctance of senior theatre staff to accept input from junior staff indicated a vulnerable health care system. These findings coincide with the study of the diagnosis of 'vulnerable systems syndrome' by (Reason et al., 2001:21). Literature studies are therefore inclined to lean more towards the

creation and maintenance of a “Just Culture” in which frontline personnel feel comfortable in disclosing errors (Page, 2007:1).

2.5 JUST CULTURE

The purpose of an organization is to improve patient safety and reduce risk to patients. Attempts to improve safety in health care environments are often met with reluctance to acknowledge human fallibility, and there is a punitive approach to errors. Creating an effective safety culture in an organization is a challenge (Page, 2007:1). This challenge is to change from a ‘blame and punitive culture’ to ‘no blame, just culture’. In a “just culture” personnel feel comfortable disclosing errors including their own, while maintaining professional accountability. Building a blame free environment is crucial if patient safety programs are to succeed (Page, 2007:1).

The Minnesota Alliance for Patient Safety (MAPS) (2007) focused their study on addressing culture as the primary opportunity to improve patient safety in a health services organization. They looked at two key areas, namely leadership culture and team culture. The report concluded that in order to establish a just culture, it requires actions on three fronts, firstly by building awareness and implementing policies that support a just culture, secondly by raising awareness through conducting surveys of staff, medical leaders, managers and administrators regarding their knowledge of a just culture and thirdly by raising awareness through education and in-service and orientation programs for staff. Staff must be taught just culture concepts such as ‘error’, ‘at risk behavior’ or ‘reckless behavior’ (Page, 2007:1). Therefore, team training must incorporate just culture principles which may contribute significantly to an organization’s safety culture.

Kohn, Corrigan & Donaldson, (2000:3) noted that although central to the idea proposed by the IOM Report in 1999, is the notion that skilled and caring professionals can and do make mistakes because - after all - “To Err is Human” (National Academy Press,1999:1), this does not mean that individuals can be careless. Staff must still be vigilant and be held accountable for their actions. This notion supports the no blame, fair and just patient safety culture. The goal of this report is to break the cycle of inaction by health care systems and hold them accountable for patient safety. It is simply not acceptable for the patients to be harmed by the same health care

system that is supposed to offer healing and comfort. “First do no harm” is a term often quoted from Hippocrates with which everyone in the health care industry is familiar.

2.6 LEADERSHIP SUPPORT AND PATIENT SAFETY CULTURE

Hospital leaders must establish safety as a priority, creating and maintaining a strong safety culture. The perception of management and staff on safety culture must be significantly the same. Leadership understanding and support of frontline personnel is therefore essential in creating and sustaining a patient safety culture in an organization.

In an earlier study in 2001 that analyzed the diagnosis of vulnerable systems syndrome, the authors explained this syndrome as having three interacting and self-perpetuating elements, namely blaming frontline individuals, denying the existence of systemic errors and the pursuit of productive and financial indicators (Reason et al., 2001:21). The authors related it to the “Swiss cheese” model of accident causation which refers to successive layers of defenses, barriers and safeguards in an organization that renders them vulnerable to adverse events. Vulnerable system syndrome (VSS) therefore appears to be in some degree present in all organizations and the diagnosis of it is an essential skill towards improved patient safety.

This particular study also referred to evidence gathered from the analysis of many disasters in nuclear power plants and commercial airlines in which catastrophes are extensively and publicly investigated, suggesting there are recurrent clusters of organizational pathologies that make them vulnerable. One such non-medical catastrophe was the publicly investigated Columbia space shuttle disaster which revealed that one of the causes was a defective organizational safety culture. The arguments of the authors are therefore that there are sufficient similarities between the etiology of adverse events in different complex systems to offer managers of health care organizations the chance to benefit from these organizational and cultural lessons. Diagnosing a vulnerable system to adverse events is the first step and essential pre-requisite to effective risk management (Reason et al., 2001:25).

Pronovost et al., (2006:1) assessed “*How do we know our patients are safer?*” by using a safety scorecard in ICU settings. The authors identified that the science measuring patient safety is immature and that organizations must find a balance between measures that are scientifically

sound, affordable, usable and easily applied across all institutions. This article was therefore a starting point for developing scientifically sound approaches to measure safety within healthcare organizations. Today many literature studies show various organizations having attempted to evaluate their safety culture or safety climate by means of easily administered questionnaires (Reason et al., 2001:21; Sexton, 2004:5; Thomas et al., 2005:8; Colla et al., 2005:365; Safety Culture Pulse Report, 2009:1).

Assessing the patient safety culture in an organization has also been recommended by the Joint Commission as the starting point of patient safety initiatives. Senior leaders must therefore be seen to drive the culture of change and safety by demonstrating their own commitment to safety and provide the resources to achieve the results. Pronovost et al., (2010:96) in "*Safe Patients, Smart Hospitals*" recommended joining forces with top executives as a powerful tool for change as they uniquely hold the power to allocate resources, navigate policies and increase awareness across the entire organization.

2.7 ASSESSMENT OF SAFETY CULTURE AMONG HEALTH CARE WORKERS

The Pulse Report (2009:12) on staff perspectives on American Healthcare mentions some comments from health care workers on the topic of patient safety, such as "*Events are often appropriately noted on the unit, but there is zero feedback or follow-up of which we are aware. It feels like a black box (...) so what's the point?*" (Press Ganey Report, 2009:2). In another comment from the same report: "*The only thing that I think our hospital could improve on is the co-operation between departments, sometimes 'turf issues' prevent constructive feedback (...). Some units get tunnel vision and do not see things from the perspective of other units, improved communication could help*" (Press Ganey Report, 2009:2). Improved communication is therefore an important component in creating and maintaining a safety culture in an organization.

Colla, Bracken, Kinney & Weeks (2005:364), in their study of "*A systematic review of surveys for measuring patient safety climate*" compared the general characteristics, dimensions covered, psychometrics performed and the uses of patient safety climate surveys. Nine surveys were found to have measured the patient safety climate of organizations. All used Likert scales, mostly to measure attitudes. Nearly all covered 5 common dimensions of patient safety climate, namely leadership, policy and procedures, staffing, communication and reporting. The strength of the

psychometric testing varied. While all were used to compare units within or between hospitals only one had compared organizational climate and patient outcomes (Colla et al., 2005:364). The results showed that patient safety climate surveys vary considerably in general characteristics, dimensions covered, psychometrics performed and its uses in the studies. No one survey was endorsed over another. The authors concluded that an achievement of a culture conducive to patient safety may be an admirable goal in its own right. However, more effort should be expended on understanding the relationship between measures of patient safety climate and patient outcomes (Colla et al., 2005:365).

2.8 COMMUNICATION AND PATIENT SAFETY

A similar theme amongst most health care providers in many studies was that they were not comfortable in communicating their concerns about patient safety issues. In 2007, The Joint Commission's annual report on Quality and Safety found that inadequate communication between healthcare providers, patients and families significantly contributed to the root causes of serious adverse events in accredited hospitals.

Sexton, et al., (2004:32) recommend the use of briefings to plan contingencies in critical component environments such as the operating room and the intensive care unit. These areas of complex technological and psychological environments need to know the threats and plan for possible contingencies. Senior leadership has to establish norms and have a formal opportunity to build the team through regular briefings. These findings coincide with the recommendations of Joint commission international on effective communication as an important patient safety goal (JCI, 2008:31). Today there is anecdotal evidence that the introduction of briefings into the operating room ("Time-Out") regarding procedures just prior to skin incision are proving to be valuable communication channels between physicians and nurses in the operating room. Operating room briefings have been associated with reductions in nurse turnover rates, reduction in perceived workload, and increase in nurse input. Positive feedback can also help build confidence in junior team members, reduce stress and clarify ambiguities. Although briefings and debriefings are not the end all solutions to the problem of errors or inefficiencies in the operating room, they help to minimize errors by allowing personnel to discuss potential problems before they lead to near misses or actual harm (Sexton et al., 2004:32).

The study of Sexton et al., (2004:32) indicates that open lines of communication between clinicians, between management and the staff, between health care providers and patients and their families are therefore important aspects of safety in an organization. It was also clear from the study that leadership must be more visibly and actively involved in forming a safety culture. Haig, Sutton &Whittington, (2006:167) study coincides with the findings of the above studies on improving communication by recommending a shared mental model of communication. Their study focuses on the situation, background, assessment and recommendations of communication (SBAR) that can be used by clinicians to improve communication.

2.9 STAFFING AND PATIENT SAFETY CULTURE

Nurses are the largest group of health care professionals who are providing direct care to patients. Today the international shortage of nurses has become a health care phenomenon. Working long shifts of twelve hours a day and more than 40 hours a week increases the risk of errors and near misses. Additional hours in the form of overtime, although welcomed by some staff for financial gain, pose a risk to patient safety. Poor working conditions and the long hours leading to fatigue was a theme in most of the studies. The long and unpredictable hours that healthcare workers endure, suggest a link between poor working conditions and threats to patient safety. A report from AHRQ in 2004 “*Hospital Nursing Staff and Quality of Care*” demonstrated a link between nurse staffing and quality of care. Lower levels of nurse staffing are associated with adverse outcomes whereas higher levels of nurse staffing are associated with positive outcomes, not only for patient safety and quality care, but also for nurse satisfaction as well. In 2009 the National Quality Forum (NQF) in its report “*Safe Practices for Better Healthcare*” endorsed safety culture measurements with feedback and interventions as well as nurse staffing plans that are adequately resourced and regularly evaluated as safe practices for better healthcare.

2.10 REPORTING INCIDENCES AND PATIENT SAFETY CULTURE

Collecting data on medical error in surgery is often difficult because near misses are often unreported and sentinel events can be rare. The Joint Commission International Accreditation sentinels event policy (2008:19) encourages individuals to report medical errors with the aim of learning the relative frequency patterns and root causes of sentinel events. Reporting systems

must encourage and make it easier for employees to report incidences in a non punitive and just culture. The Patient Safety Net is another innovative way of incident reporting where electronic incident reports are generated with early warning signs to avoid potential errors. It is also important for a reporting system to direct change in an organization through lessons learned and not merely considers the incident as another report to accumulate statistical data. Error analysis may involve retrospective and prospective attempts to predict “error modes”, such as root cause analysis or failure mode and effect analysis (AHRQ, Patient Safety Network, and 2009:11).

2.11 TEAMWORK AND PATIENT SAFETY

Effective teamwork performance requires the team to be willing to co-operate with each other in achieving shared goals such as improving patient safety. Following the IOM Report in 1999, there has been a continued focus on improving medical errors and patient safety through evidence based research. The AHRQ has assumed a lead role in patient safety research in the United States of America. From various studies the researchers suggest that teamwork depends on effective communication, adequate organizational resources and support. The AHRQ also identified three competencies for effective teamwork, which is teamwork related knowledge, teamwork related skills and teamwork related attitudes (AHRQ, 2009:3). Pronovost et al. (2006:119) in support of teamwork, recommend a comprehensive unit based safety program (CUSP). When CUSP is applied at unit level it has been found to improve teamwork and safety culture through shared learning. Much research has now been dedicated to effective strategies and techniques for team training, such as the Med Teams Program (AHRQ, 2009:25).

2.12 METHODOLOGY OF STUDIES REVIEWED

The majority of the literature review reflected cross sectional surveys as the main source of data collection. The survey assessed patient safety culture among health care workers and was aimed at the risk management of health care organizations. Sample sizes varied between 25 000 to 43 000 across hospitals, states and countries. Some studies focused on nurses while others on the organization as a whole. The response rate varied between 30% and in some articles to 60%. Two conceptual models were identified in the methodology, namely Vincent’s framework for analyzing risk and safety and the Donabedian’s conceptual model for categorizing structure, process or outcomes (Sexton et al., 2006:3).

While there are many new safety initiatives, there are few tools available to measure the actual effect of interventions on outcomes. There is a critical problem in validating patient safety improvement efforts (Makary et al., 2006:2).

2.13 SUMMARY

Quality and patient safety are undoubtedly linked. Health care organizations must therefore ensure the safest possible surgical outcomes that focus on patient safety, a just patient safety culture with improved communication and excellent health care providers to reduce the risk of errors. In the next chapter the research methodology used will be discussed.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The importance of evidenced-based standards in healthcare is becoming universally accepted (Colla et al., 2005:364). A decade ago the Institute of Medicine (IOM) recommended that health care organizations enhance their safety culture and thereby improve patient safety. Since then, surveys measuring patient safety culture in health care organizations have emerged.

This part of the thesis will detail the research paradigm, method and design; population and sample, instrumentation, the research setting for the project, data collection and analysis, the pilot study, reliability and validity, and ethical considerations.

3.2 RESEARCH PARADIGM, METHOD AND DESIGN

Safety culture has been defined as “the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of an organization’s health and safety management (Sorra & Nievra, 2004:1).

Quantitative methods expressing the assumptions of a positivist paradigm which explains behavior through objective facts, was the research paradigm used in this study. A qualitative method which explains behaviour through interpretation was used to perform a thematic analysis of the survey comments by the participants. Quantitative data analysis has become relatively easy with the aid of clear step by step processes and with the aid of computerized data analysis software (De Vos et al., 2005:217). The methodology for this research project was the use of a survey questionnaire. The questionnaire used in this research study was a modified version of an existing hospital survey on patient safety culture. The hospital survey on patient safety culture is from the Agency for Healthcare Research and Quality (AHRQ). The development of this safety culture assessment tool includes a review of scientific literature pertaining to safety, error and accidents, as well as error reporting. The Hospital survey is designed to measure 4 overall patient safety outcomes:

- Overall perception of safety
- Frequency of events reported
- Number of events reported
- Overall patient safety grade

The research survey was also intended to measure 10 dimensions of culture pertaining to patient safety:

- Supervisor/manager expectations and actions promoting patient safety
- Organizational learning and continuous improvement
- Teamwork within the units
- Communication openness
- Feedback and communications about error
- Non punitive response to error
- Staffing
- Hospital management support for patient safety
- Teamwork across hospital units
- Hospital hands-off and transition

A questionnaire was used to collect data for a descriptive study. This study described and interpreted the patient safety culture in the operating room. It was concerned with the conditions and/or relationships that exist, opinions that are held, processes that are going on, and effects that are evident.

A questionnaire is a research instrument, a printed self report form, consisting of a series of questions for the purpose of gathering information from respondents. They are often designed for statistical analysis of the responses, such as in this research project (Burns et al., 2007: 382). Questionnaires have advantages over some other types of surveys in that they are cheap, do not require as much effort from the questioner as verbal or telephone surveys do, and often have standardized answers that make it simple to compile data. However, questionnaires are sharply limited by the fact that participants must be able to read and understand the questions and respond to them. This issue was considered carefully by the researcher and therefore this study includes only the clinical staff that has direct contact with the patients in the operating room.

The advantage of using a questionnaire for this research project was that it allowed for a large number of respondents to be targeted. The researcher has chosen this method to identify objective facts and some measures of subjective belief from the participants by allowing survey comments. The disadvantage is the response rate from questionnaires. Burns et al., (2007:382) describe the response rate for directly distributed or mailed questionnaires as lower than any other forms of self report (25%-30%). The agency for Health Care Research and Quality (AHRQ) had an overall response rate of 29%. If the response rate is less than 50%, the representativeness of the sample will be in serious question. The researcher therefore planned to include all the operating room staff and the operating room users in the study that have direct contact with the patients.

3.3 POPULATION AND SAMPLE

According to Burns et al., (2007:40) a population is all the elements (individuals, objects, or substances) that meet certain criteria for inclusion in a study. In this study the population consisted of all the operating room staff and the operating room users within the organization. The staffing of the operating room makes up a diverse population. The researcher included all professionals working in the operating room, from Neonatology, Anesthetics, Obstetrics and Gynaecology physicians, technicians, nursing and midwifery staff.

A sample would be a subset of this population. Burns et al., (2007: 40) note that a carefully selected sample which meets the inclusion criteria can provide data considered representative of the population from which the data is drawn. For this particular survey a stratified random sample would be most appropriate to use. This would have involved subdividing the staff into smaller homogeneous groups to get greater representation. The sample would then have to include approximately the same proportions to be considered representative. The Hospital Survey on Patient Safety Culture, prepared for the Agency for Healthcare Research and Quality in September 2004 (AHRQ) conducted the same survey across 21 hospitals and found an overall response rate of 29%. Considering this fact, the researcher sought advice from the University of Stellenbosch's statistician and included all staff and users of the operating room in the study to ensure a good response rate. Thus, the population for this research project was the entire staff and users of the operating room (approximately 225 staff).

There were inclusion as well as exclusion criteria as the researcher felt it important to assess the 'culture' of the operating room among all clinical staff that had direct contact with the patients.

Inclusion criteria

- Full time staff involved in direct patient care activities in the operating room, namely surgeons, anaesthetists, pediatricians, midwives and nursing staff.
- Participants had to be able to read and understand English.

Exclusion criteria

- Non-clinical staff.
- Part-time staff.
- Staff who could not understand or could not read English.
- Staff who participated in the pilot study.

3.4 INSTRUMENTATION

A questionnaire was used to collect the data. The questionnaire had a five point Likert scale to measure participants' attitudes about various aspects of patient safety. The questionnaire, a modified version of the hospital wide survey was used for the study in the operating room (Appendix 1). The questionnaire was originally developed by a private research company contracted with the Agency for Healthcare Research and Quality (AHRQ). The company conducted a review of literature about safety, accidents, medical errors, error reporting, safety culture and climate within organizations. It reviewed published and unpublished existing surveys. It was then piloted on more than 1,400 staff in 21 hospitals across the USA. The data was analyzed for reliability and validity. Finally the survey was revised according to these results and has been operational since 2002. The researcher reviewed the questionnaire and as advised by the AHRQ guidelines, only minimal changes were made to the primary role and the specific job titles to relate to the organization under study. A pilot study was undertaken and will be discussed under 3.7.

3.5 STUDY SETTING

The study was conducted in a specialized obstetric and gynecology operating room setting. The organization provides obstetric and gynecological services to the population of Abu Dhabi in the United Arab Emirates. This is a government owned hospital and is managed by an international company since 2008. It has 235 beds, 3 operating rooms, a 40 bed gynecology ward, 15 delivery rooms and a neonatal intensive care facility of 55 cots and is still expanding. The hospital has about 15000 outpatient visits a month and about 1500 in patient admissions. It has about 1150 staff that is recruited from many countries across the world. For 10 years the organization maintained ISO 9001 accreditation and in 2007 successfully went through a Joint Commission International Accreditation survey. The hospital also successfully recertified in early 2010 its HAAD and Baby Friendly accreditation status. The hospital is due for recertification in December 2010 through Joint Commission International.

3.6 DATA COLLECTION AND DATA ANALYSIS METHODS

Methods of data collection and analysis will be discussed in the next section.

3.6.1 Data collection

Prior to distribution of the questionnaires, the Chief Medical Officer sent out an electronic mail message to all the staff in the organization informing them about the survey that was going to be conducted and encouraged staff participation and support. The questionnaire was distributed with a participant leaflet (Appendix 4) and a consent form (Appendix 5) outlining the objective and importance of the study.

The researcher met with all the teams involved in the study and fully explained the purpose of the study, as well as the questionnaire, and provided her contact details for any further enquiries that the participants may have. The researcher personally distributed the surveys to the participants and informed the participants that their data was confidential and that the questionnaires would not be used to identify individuals.

As advised by the AHRQ, the response rate was calculated by using a simple formula as being the number of completed and returned surveys divided by the number of surveys sent out. The actual number of surveys that were sent was 225. Some questionnaires were returned because

staff was on annual leave and therefore ineligible for inclusion and so subtracted from the denominator. The formula used was:

$$\frac{\text{Number of complete, returned surveys}}{\text{Number of surveys distributed} - (\text{ineligibles} + \text{incomplete surveys})}$$

The questionnaire used took an estimated 10 – 15 minutes to complete. The participants were informed that they had a week to return the completed survey form. A reminder was posted on the staff notice board on the 10th day thanking those who had already submitted their survey for the study and reminding those who had not returned their survey to do so. The questionnaires were distributed to the participants in sealed envelopes. During the initial meetings with the various teams, the researcher handed out the participant leaflets and after a detailed explanation of the objectives of the study the researcher obtained consent from the participants. The participant leaflets were retained by the participants and the consent forms, after being signed, were taken in for safekeeping by the researcher. This was another strategy to maintain anonymity of all participants in the study.

3.6.2 Data analysis

Burns et al., (2007:41) describe data analysis as reducing, organizing and giving meaning to data. The techniques used for analysis are primarily based on the research objectives, questions or hypotheses and the level of measurements achieved. Research is done to discover the relationship between variables for the purpose of developing generalizations. These generalizations can then be used to predict future occurrences or explain phenomenon. In this study a descriptive statistical analysis was used so as to learn more about the population from which the samples were drawn. This limited generalization to other departments in the organization. No conclusions could be extended beyond this research setting. However, the information obtained could be useful for other operating rooms in the group who wished to implement safety improvement strategies in their organizations. Surveys with more than two missing responses and duplicate answers for the same questions were excluded from the denominator. Tables and figures were used to display the results.

Data was statistically analyzed by means of MS Office Excel and premier-culture-tool-xls software, as recommended by The Agency for Healthcare Research and Quality (AHRQ). The researcher obtained the software for data analysis (Appendix 2) from the AHRQ. The software, together with an MS Office Excel spreadsheet, was used to capture both the positive and negative results. The final results indicated potential areas for improvement and areas of strength. The percentage of employee responses to specific survey items were grouped according to safety culture dimensions being assessed. Some percentages in the figures may not add to 100% due to rounding off of decimals to whole numbers. The survey includes reverse worded items that exercise both the high/positive and low/negative ends of the response scale to provide consistent answers. Respondents were further given the opportunity to provide written comments at the end of the survey. The tool has macros that allow you to enter your survey data and it automatically produces charts displaying the survey results. For descriptive purposes mean, median, standard deviations and frequency tables were used. Scores were analyzed using cronbach alphas and summary statistics. The researcher was further assisted by a statistician in the hospital, as well as from the Centre for Statistical Consultation, University of Stellenbosch, during data analysis. The findings were displayed as a summary of statistics and a thematic framework was used to analyze the data from the participants written comments at the end of the survey.

AHRQ defined patient safety strengths as those positively worded that about 75% of respondents endorsed (or the negatively worded ones that 75% disagreed with). Areas that need improvement were identified as those items where 50% or less respondents did not answer positively (they either answered negatively or neither too positively worded statements or agreed with negatively worded ones). As was suggested by the AHRQ, the cut off percentage for areas needing improvement was lower - at 50%, because it is felt that if half of the respondents are not responding with positive views about patient safety issues then there is probably room for improvement (AHRQ Publication, 2004:34).

Frequency information is also presented about the background characteristics of all the respondents, their positions and length of time in their units. This information will give readers an insight into whose opinions are being presented. The researcher was particularly careful

however to ensure that particular employees would not be identified. The focus was therefore on groups such as Consultants, Chiefs of Services, Charge nurses, etc., and not on the individual.

According to AHRQ Survey Guidelines (2004:61), the survey itself specifically reviews patient safety issues, and error/event reporting. The researcher has listed the AHRQ explanation of the items below. The survey measures seven unit level aspects of a safety culture:

- Supervisor/Manager expectations and actions promoting safety (4 items)
- Organizational Learning and Continuous improvement (3 items)
- Teamwork within units (4 items)
- Communication openness (3 items)
- Feedback and communication about errors (3 items)
- Non-punitive response to errors (3 items)
- Staffing (4 items)

In addition, the survey measures three hospital level aspects of safety culture:

- Hospital Management Support for Patient Safety (3 items)
- Teamwork across hospital units (4 items)
- Hospital hand over and transitions (4 items)

Lastly, four outcome variables are measured:

- Overall perceptions of safety (4 items)
- Frequency of event reporting (3 items)
- Patient Safety grade (1 item)
- Number of events reported (1 item)

AHRQ (2004:35) groups survey items into dimensions of safety culture, so it can be useful to calculate one overall frequency for each dimension. A composite frequency of the total percentage of positive/neutral and negative responses for each safety culture dimension will be presented as a figure.

Number of positive responses to the items in the dimension

Total number of responses to the items (positive, neutral, negative) in the dimension

The resulting number is the percentage of positive responses for that particular dimension.

3.7 PILOT STUDY

De Vos et al., (2005:205), describe a pilot study as an integral part of the research process. It is one way in which a prospective researcher can orientate himself to the research project. A pilot study was done in preparation for the main study.

A 10 % pilot study (25 questionnaires) was done to identify whether staff understood the layout and instructions, to determine the time it took to complete the questionnaire and to check whether there was any ambiguity.

There were no changes made to the questions as provided by AHRQ as all were relevant both to the pilot and the main study. The reliability and validity of the survey had been extensively carried out by Westat for the Agency for Healthcare Research and Quality (AHRQ, 2004:53). Only minor changes to the staff's primary roles in the hospital and job titles were necessary. No changes were made to the safety question statements that could affect the reliability and validity of the survey. All ethical considerations were observed during the pilot study. Participants were assured of confidentiality and anonymity of their responses. They were fully informed and handed participant leaflet information. Following a detailed explanation, the participants signed a consent form. The response rate for the pilot study was 88% which was sufficient to allow the researcher to orientate and prepare for the main study. The pilot study's results were excluded from the main study results, and so were the participants in the pilot study.

3.8 RELIABILITY AND VALIDITY

The researcher felt confident after the pilot study as the questions were clear and the instructions were unambiguous, thus reliable. The validity of the pilot study also gave the researcher the confidence because the questionnaire covered all aspects of patient safety culture for the operating room. After minor changes to the questionnaire, to suit the primary roles and the

specific job titles for the operating room the questionnaire for the main study was prepared. No changes were made to the safety question statements that could affect the reliability and validity of the survey. Furthermore AHRQ have validated the instrument and the researcher was confident about its reliability after the pilot test results. The responses matched the data analyzed. The hospital statistician was consulted to assist with analyzing the reliability and validity of the pilot study results.

3.9 ETHICAL CONSIDERATIONS

The research proposal was approved by the Human Research Council of the University of Stellenbosch in order to proceed with the study. Written approval was obtained from the chairman of the ethics committee of the hospital where the study was to be performed (Appendix 3). Informed consent was obtained from all the participants after the researcher informed the participants of the purpose of the study. Participation was voluntary and anonymity and confidentiality was maintained throughout the study. Participants were also informed that they can withdraw from the study at anytime should they so wish. Confidentiality was maintained by keeping the consent form separate from the questionnaire so that it could not be used to identify the respondents. The completed and returned questionnaires were kept in a safe drawer under lock and key in the manager's office. No identifying information of participants was collected. Although there were no unforeseen risks anticipated in this study, participants were informed that the survey will not be traced back to them. This point was a very significant consideration for the survey. The participants were also informed that the data will be confidential and that the questionnaires would not be used to identify individuals (non-maleficent). The intent of the researcher was to share with the management a true representation of the facts as they appear, about the operating room patient safety culture without identifying any of the participants. All challenging areas for improvement and strengths within the operating room will be built on, thereby contributing positively to patient safety in general (beneficence). After the research project is fully completed and with the permission of the university, all data will be destroyed. The findings of the research will be shared with the Hospital Management Team, Quality and Patient Safety Team and all the participants.

3.10 CONCLUSION

By investigating the current safety culture and the contributing factors influencing patient safety in an operating room setting in Abu Dhabi, the researcher envisages the improvement of safety standards in order to be successful with recertification with the Joint Commission International Accreditation in 2010. Further detail on the data analysis will be discussed in chapter 4.

CHAPTER 4: DATA ANALYSIS, INTERPRETATION AND DISCUSSION

4.1 INTRODUCTION

As discussed before, the researcher envisioned to explore whether a safety culture conducive to patient safety exists in an operating room setting in Abu Dhabi. The main objectives of the study were to identify the relationship of hospital leadership support for patient safety, the relationship between teamwork and patient safety, if communication affects patient safety and the level of incident reporting in order to improve chances of Joint Commission recertification in December 2010. In this section the researcher intends to analyze the data collected and present the results of the study based on the guidelines of the Agency for Healthcare Quality and Research, using tables, figures and text description. The demographics will be presented first, after which the results will be presented according to the dimensions of patient safety culture. The results of each dimension will also be discussed. The reliability of the results will be determined by Cronbach alpha coefficients. According to the AHRQ handbook (September, 2004:59), for results to be acceptably reliable, the Cronbach alpha coefficients should be greater than or equal to .60.

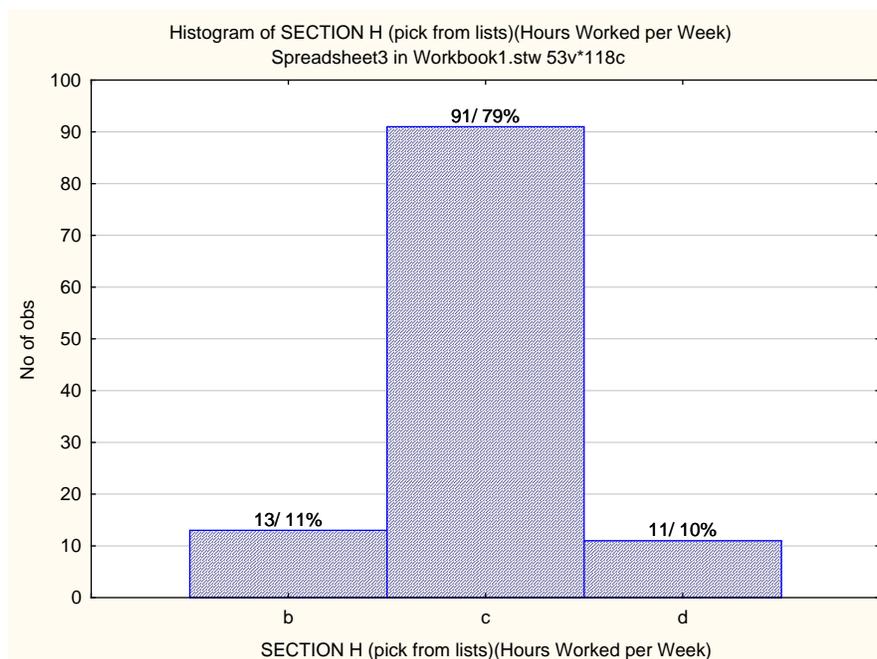
4.2 PRESENTATION OF THE DEMOGRAPHICS IN THE STUDY

Two hundred and twenty five research survey questionnaires were distributed. The demographics of the staff who responded to the survey are outlined in tables 1 and 2. The operating room staff and users of the operating room (OR) made up a population of 250 participants for the study. Thirty two were full time staff and 218 operating room users. The 32 full time operating room staff consisted of technician staff (4) and operating room staff nurses (28). The 218 operating room users who participated in the research were made up of physicians and surgeons (66), anaesthetists (15), and neonatologists (14). The largest demographic frequency was the midwives (98). The gynecology ward staff nurses (19) were included in the study as they have direct contact with the surgical patients. The neonatology nursing staff was 6.

Of the 225 surveys distributed, 143 were returned of which only 118 were returned fully completed and could be included in the study ($N=118$). The returned but incomplete surveys (more than 2 missing responses) accounted for 25 surveys which were discarded. The negative

balance of 107 minus 25 (pilot study) = 82. The non returns were 82. The non returns included about 10% of staff that were on annual leave. The response rate was therefore calculated at 52%. The results also showed that 100% of respondents actually have direct interaction or contact with patients. It is noted from the Figure 4.1 below that 11% of the participants (b) stated that they worked 20-39 hours per week, 10% of participants (d) stated that they worked 60-79 hours and 79% (c) stated that they work 40 – 59 hours per week. This would be expected as the standard contracted hours are 40 hours a week. However, it is interesting to note that 10% of participants state they work a 60 – 79 hour week.

Figure 4.1: Hours Worked per week



4.2.1 Descriptive analysis using frequency tables and graphs

Using descriptive analysis, Table 4.1 and 4.2 and Figure 4.2 and 4.3 below describe a simple frequency distribution of the primary roles and staff positions of the participants. The primary role describes the clinical area in which the staff worked or spent most of their time. As this organization specializes in obstetric services mainly (maternity), the findings of the survey showed that the key role players of the operating room were well represented in the survey with an under representation from the anesthetist, pediatricians and the Neonatal Intensive Care Unit (NICU) staff, which make up a smaller part of the population chosen for the sample group. The

reason for the non responses in these groups is uncertain and the researcher cannot predict if the results would have been different if they were adequately represented.

Table 4.2: Primary role in the Hospital

	Primary role	Frequency	percentage
a	Operating room staff	26	22
b	Surgeon	25	21
c	Pediatrician	2	2
d	Main-delivery unit staff	37	31
e	Gynaecology ward staff	18	15
f	Anesthetist	7	6
g	NICU staff	3	3
		N118	100

Figure 4.1: Primary Role

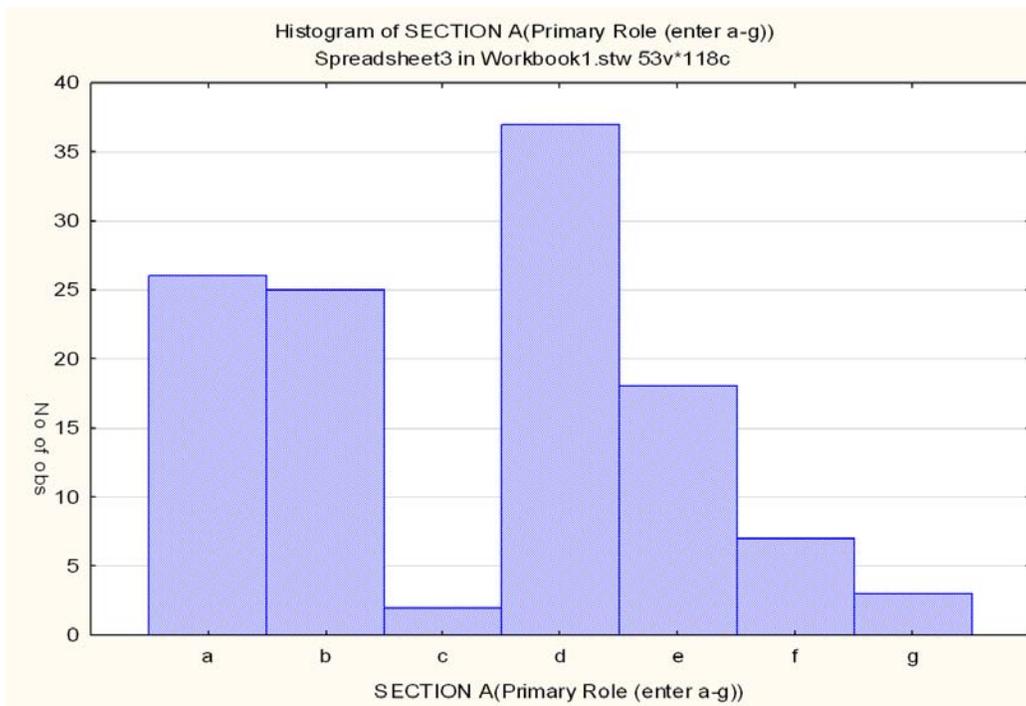
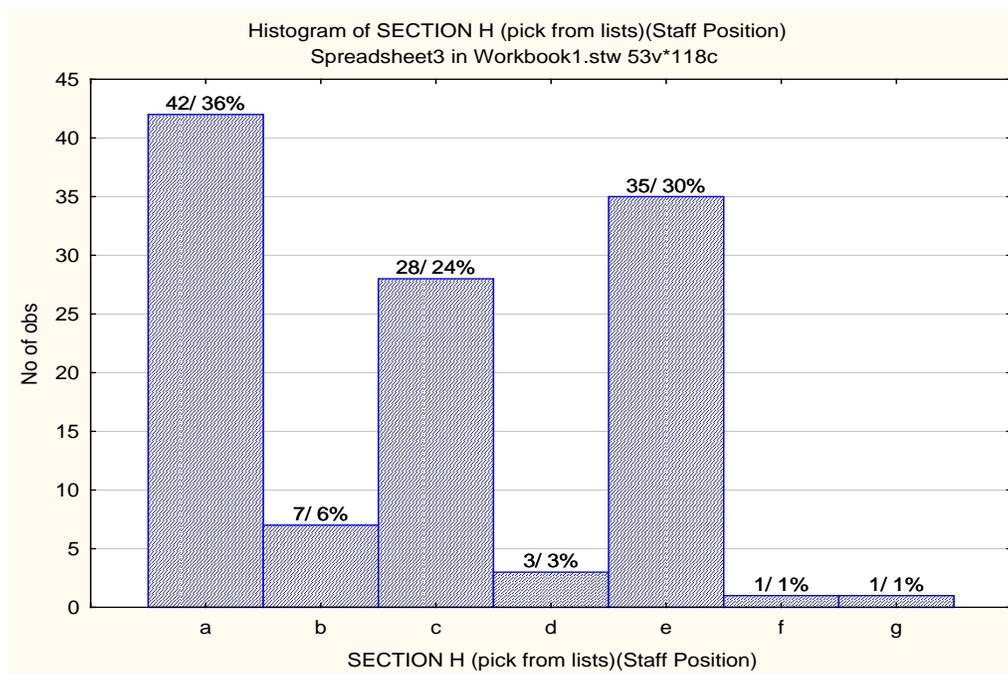


Table 4.3: Staff position in the hospital

	Staff Position	Frequency	percentage
a	OR staff nurse	42	36
b	Surgeon	7	6
c	Pediatrician	28	24
d	Midwife	3	3
e	Gynecology ward staff nurse	35	30
f	Anesthetist	1	1
g	NICU staff nurse	1	1
		<i>N</i> = 117	100%

Figure 4.2: Staff Positions



4.2.2 Length of time worked in the hospital and specific unit

Table 4.3 describes the length of time worked in the hospital and specific unit. Figure 4.4 describes the length of time worked in the hospital and Figure 4.5 describes the length of time worked in their specific units. The findings of the survey show that the length of time of the largest group of staff working in the hospital and in their specific units averages 1 – 5 years.

Table 4.4: Length of time worked in the hospital/specific unit

	Years worked	Worked in the hospital		Worked in this specific unit	
		Frequency	Percent	Frequency	Percent
a	Less than one year	14	12%	24	20%
b	1- 5 years	44	37%	49	42%
c	6- 10 years	29	25%	25	21%
d	11 - 15 years	11	9%	5	4%
e	16 - 20 years	13	11%	10	8%
f	21 years or more	7	6%	5	4%
Total		N = 118	100%	118	100%

Figure 4.3: Worked in the hospital

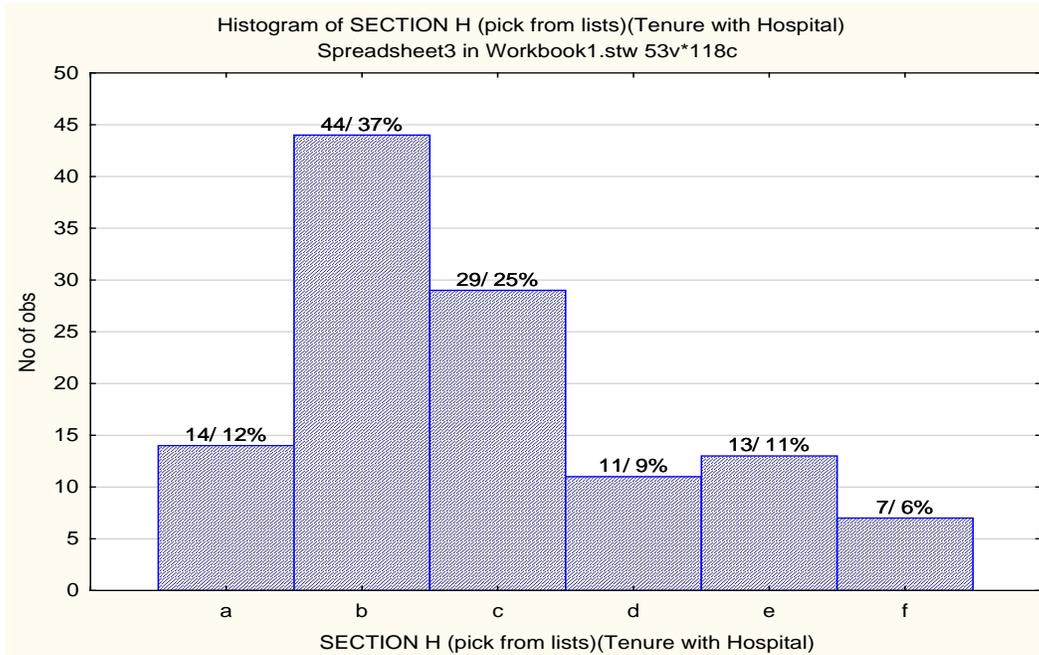
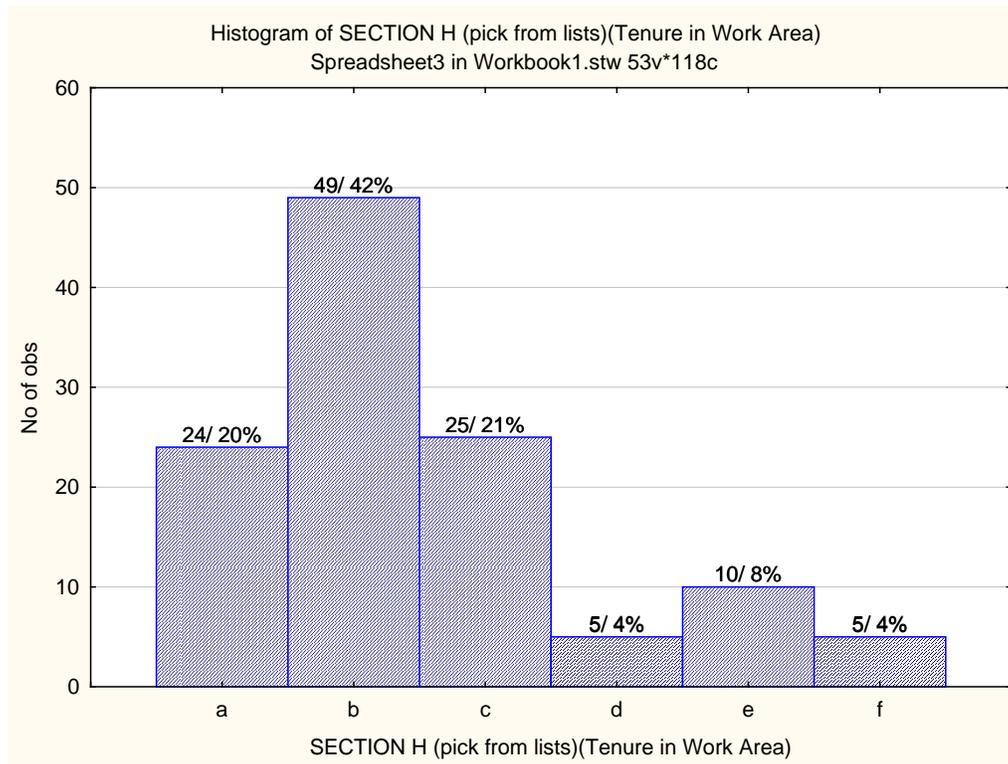


Figure 4.4: Worked in specific unit



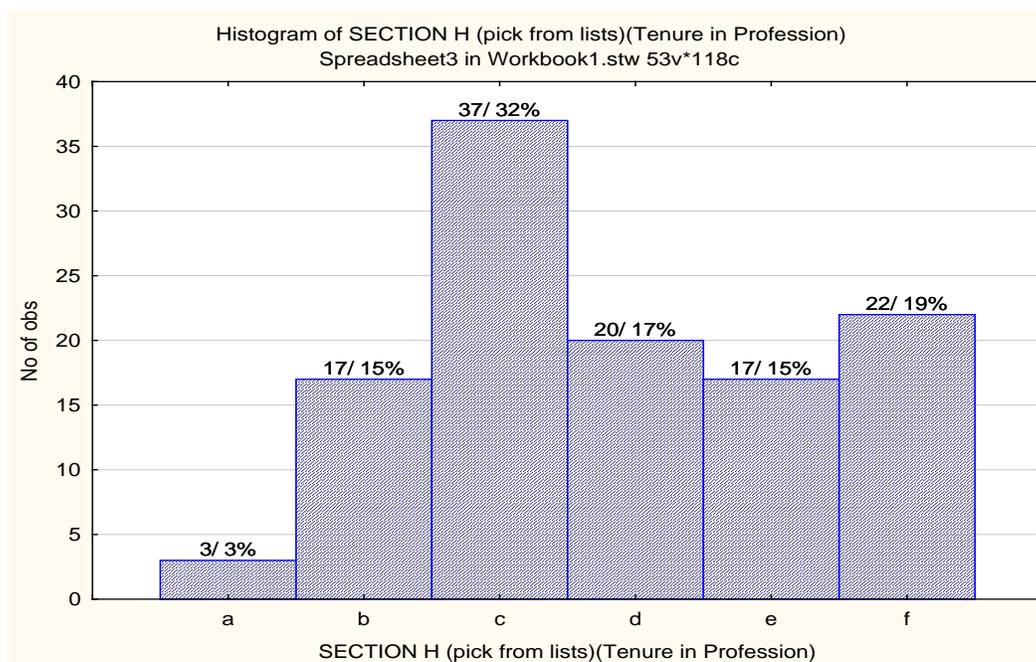
4.2.3 The length of time staff have been working in their profession

Table 4.4 and Figure 4.6 show the length of time staff have been in their current profession, the highest which is 6yrs – 10yrs. The findings of the survey show that 32% of staff working in the operating room has at least 5 years of experience in their specialty or profession. The HAAD professional qualification requirements standard requires 2 years of post graduate experience. The 3% of staff being less than 1 year in their current professions are most probably the internal promotions. The organization promotes suitable candidates from within the ranks of its staff.

Table 4.5: Length of time staff have been working in their profession

How long have you worked in your current speciality or profession			
		Frequency	Percent
a.	Less than one year	3	3
b.	1- 5 years	17	15
c.	6- 10 years	37	32
d.	11 - 15 years	20	17
e.	16 - 20 years	17	15
f.	21 years or more	22	19
Total		N = 116	100%

Figure 4.5: Length of time staff have been working in their profession



4.3 OUTCOME MEASURES FOR PATIENT SAFETY

The survey focused on measuring four safety outcomes and ten dimensions of patient safety culture in the operating room. The actual number of responses with the percentage in brackets for each safety dimension has been calculated with the help of the hospital and university statistician. The data analysis also displays the results from the AHRQ software, featuring graphic displays of positive, neutral and negative responses in a percentage format for each question in a particular safety dimension. The results for 4 overall safety outcomes measures will be detailed first, followed by the 10 dimensions related to a safety culture.

4.3.1 Overall Perceptions of Safety

The findings of the survey on the staff's overall perception of safety can be seen in Table 4.5. Although there seems to be many responses leaning towards the Agree and Strongly Agree side, there also appears to be some contradiction in the results of this dimension. The finding of the survey, Table 4.6 shows 61% with a positive response to the first question and 62% with a positive response to the second question. There was not a positive response for the last two questions that were reverse worded. It thus appears that although the staff felt strongly that their procedures and systems were good at preventing errors, 46% also felt it was only by chance that

more serious errors did not happen. 53% felt that there were patient safety issues in the operating room and that there was potential for improvement. Reliability of this dimension can be seen in Table 4.7: Cronbach alpha coefficient (4 items) = .60.

Table 4.6: Overall perceptions of safety

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Median
Patient safety is never sacrificed to get more work done n=115	12(10.4)	24(20.9)	9(7.8)	50(43.5)	20(17.4)	20
Our procedures and systems are good at preventing errors from happening n=115	6(5.2)	17(14.8)	21(18.3)	60(52.2)	11(9.6)	17
It is just by chance that more serious mistakes don't happen around here. (reverse worded) n=115	12(10.4)	34(29.6)	16(13.9)	39(33.9)	14(12.2)	16
We have patient safety problems in this unit. (reverse worded) n=117	9 (7.7)	27(23.1)	19(16.2)	52(44.4)	10(8.5)	19

Table 4.7: Graphic display using AHRQ software: Overall perceptions of safety

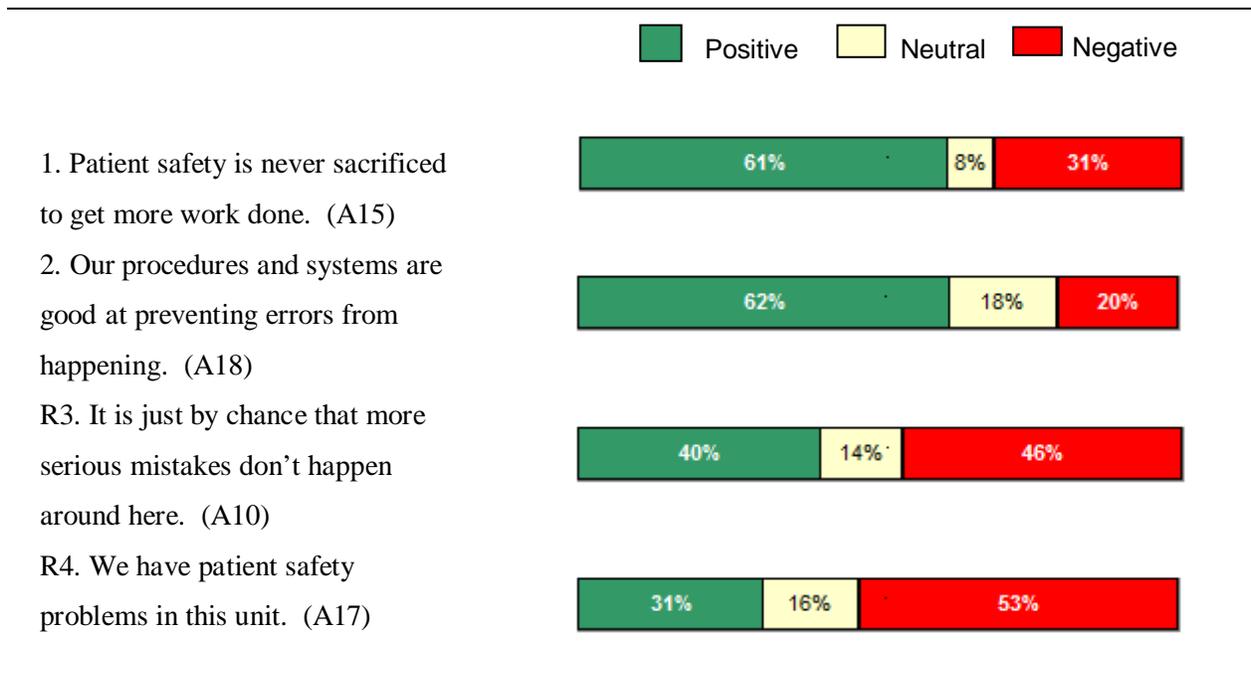


Table 4.8: Reliability results for overall perceptions of safety

	Summary for scale: Mean=12.4312 Std.Dv.=3.16335 Valid N: 1 Cronbach alpha: .603056 Standardized alpha: .598965 Average inter-item corr.: .274276				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Item-Totl Correl.	Alpha if deleted
SECTION A(A10)(reversed)	9.568808	6.135173	2.476928	0.377265	0.537754
SECTION A(A15)	9.073395	5.352411	2.313528	0.492383	0.438451
SECTION A(A17)(reversed)	9.688073	6.654996	2.579728	0.352613	0.554750
SECTION A(A18)	8.963303	7.117920	2.667943	0.317422	0.578198

4.3.2 Frequency of event reporting

In this dimension of patient safety outcomes, Table 4.8, the survey results show when staff would be more likely to report an event. The results have a tendency to be more on the positive side. When a mistake is made that could harm the patient but does not, the respondents reported that these would be reported most of the time or always at a positive 67%, Table 4.9. Reliability of this dimension can be seen in Table 4.10: Cronbach alpha coefficient for (3 items) = .84.

Table 4.9: Frequency of event reporting

	Never	Rarely	Some-times	Most of the time	Always	Median
When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported? n=118	2 (1.7)	23(19.5)	27(22.9)	32(27.1)	34(28.8)	27
When a mistake is made, but has no potential to harm the patient, how often is this reported? n=118	3(2.5)	24(20.3)	32(27.1)	33(28)	26(22)	26
When a mistake is made that could harm the patient, but does not, how often is this reported? n=118	5(4.2)	13(11)	21(17.8)	44(37.3)	35(29.7)	21

Table 4.10: Graphic display using AHRQ software: Frequency of events reported

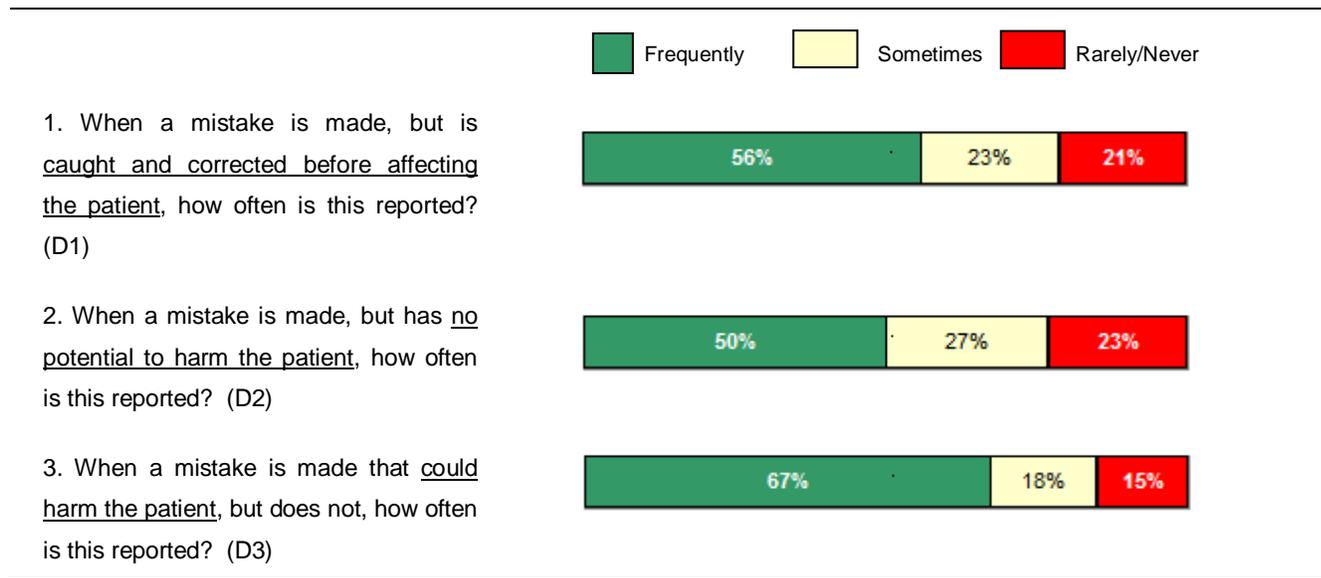


Table 4.11: Reliability results for – frequency of event reporting

	Summary for scale: Mean=10.8559 Std.Dv.=2.96208 Valid N: Cronbach alpha: .845344 Standardized alpha: .845494 Average inter-item corr.: .647549				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
SECTION D(D1)	7.237288	4.164033	2.040596	0.693536	0.802553
SECTION D(D2)	7.389831	4.051422	2.012815	0.755617	0.742183
SECTION D(D3)	7.084746	4.280953	2.069046	0.687707	0.807475

4.3.3 Number of events reported

This was a single item measure with a numeric response category asking staff how many event reports had they filled out in the past 12 months, Table 4.11 and Figure 4.7. The median was 16 (1-2 events), but it is noted that almost 33 % of staff had never completed an incident report. Mean =2.6 and Standard Deviation =3.4.

Table 4.12: Number of events reported

	a No events	b 1-2	c 3-5	d 6-10	e 11-20	f > 21
In the past 12 months, how many event reports have you filled out and submitted? n=115	38 (33)	40(34.8)	19(16.5)	16(14)	1(0.9)	1(0.9)

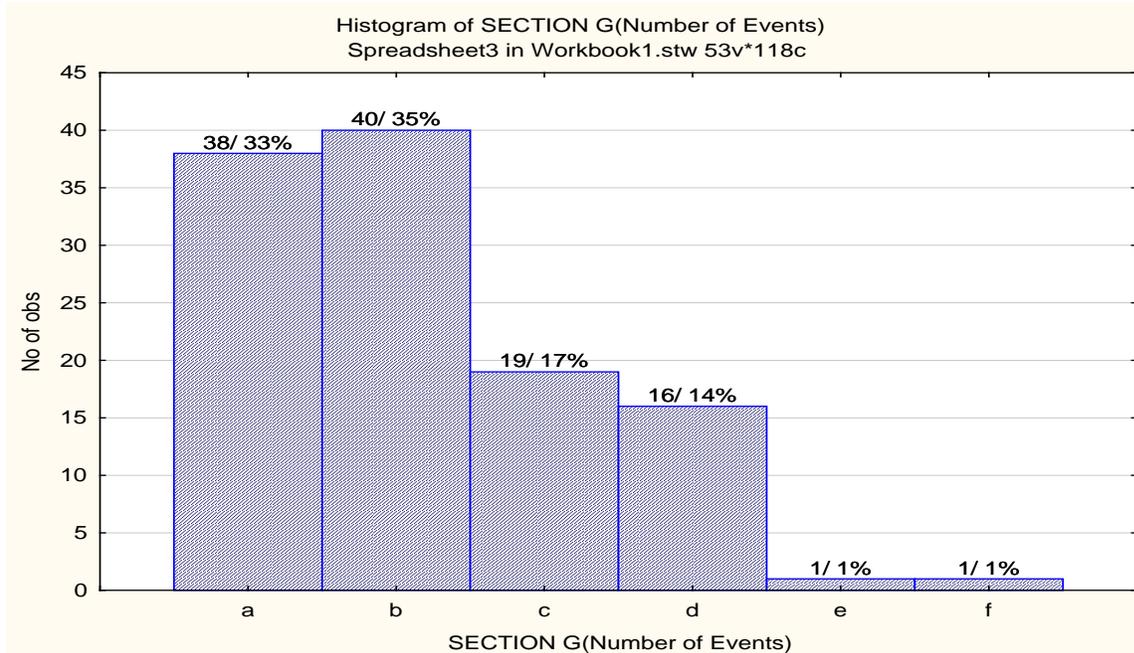


Figure 4.6: Number of events reported

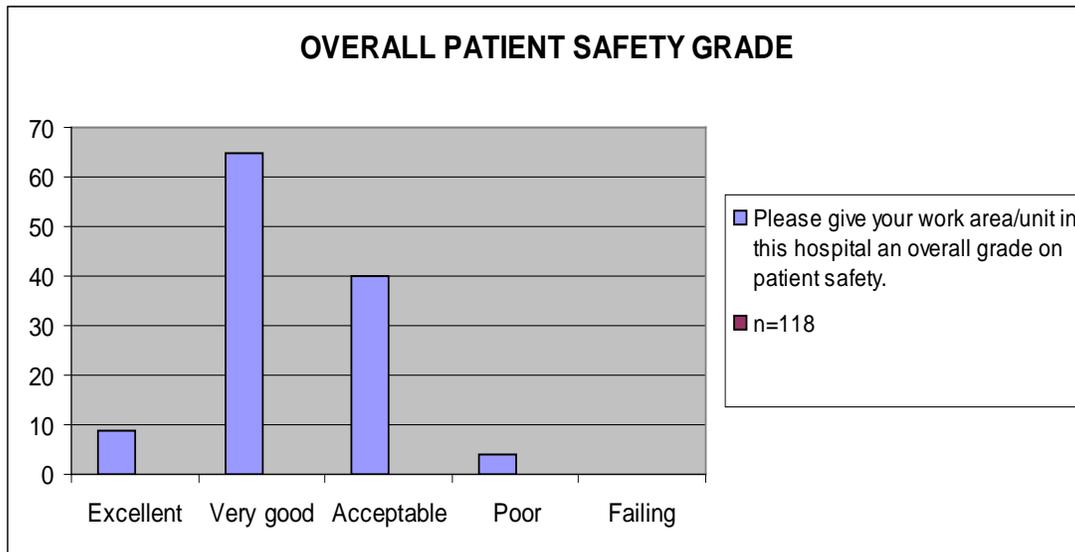
4.3.4 Overall patient safety grade

This was a single item measure with grades A through E as response categories, presented in Table 4.12 and Figure 4.8. Staff were asked to give their perception of the overall grade they felt in the operating room on patient safety. This dimension showed a positive result with 60 % stating it as very good, 34 % as acceptable and 8 % of those stating that it was excellent. Overall, 96 % of the participants agreed from acceptable or above. Mean = 2.7 and standard deviation = 0.65.

Table 4.13: Patient safety grade

	A Excellent	B Very good	C Acceptable	D Poor	E Failing
Please give your work area/unit in this hospital an overall grade on patient safety. n=118	9(7.7)	65(55.9)	40(33.9)	4(3.4)	-

Figure 4.7: Patient safety grade



4.4 SAFETY CULTURE DIMENSIONS

These dimensions of safety culture questions surveyed the staff perceptions of the patient safety culture within the operating room. The objectives of the study and the literature studies reviewed have relations to these dimensions. The researcher focused on identifying the perceptions of the operating room staff on the safety culture within the operating room setting.

4.4.1 Teamwork within the Unit

This dimension consisting of 4 items asking about the staff's perception of teamwork within the operating room showed some positive results, Table 4.13. For *people support one another in the unit*, the response was 92 %. The responses for *when a lot of work needs to be done quickly we work as a team to get it done*, the response was 80%, noted as an area of strength. *People treat each other with respect*, response was 66%. *When one area gets busy other area's help out*, responses were 62%, (agree and strongly agree combined) can be seen in Table 4.14. Reliability of this dimension, Table 4.15, was supported by a Cronbach alpha coefficient (4 items) of .71.

Table 4.14: Teamwork within the Unit

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Median
People support one another in this unit n=118	2(1.7)	12(10.2)	18(15.2)	73(61.9)	13(11)	13
When a lot of work needs to be done quickly, we work together as a team to get the work done n=118	1(0.8)	9(7.6)	14(11.9)	71(60.2)	23(19.5)	14
In this unit, people treat each other with respect n=116	8(6.9)	18(15.5)	14(12.1)	65(56)	11(9.5)	14
When one area in this unit gets really busy, others help out n=118	7(5.9)	18(15.2)	20(16.9)	59(50)	14(11.9)	18

Table 4.15: Graphic Display-using AHRQ software: Teamwork Within Unit]

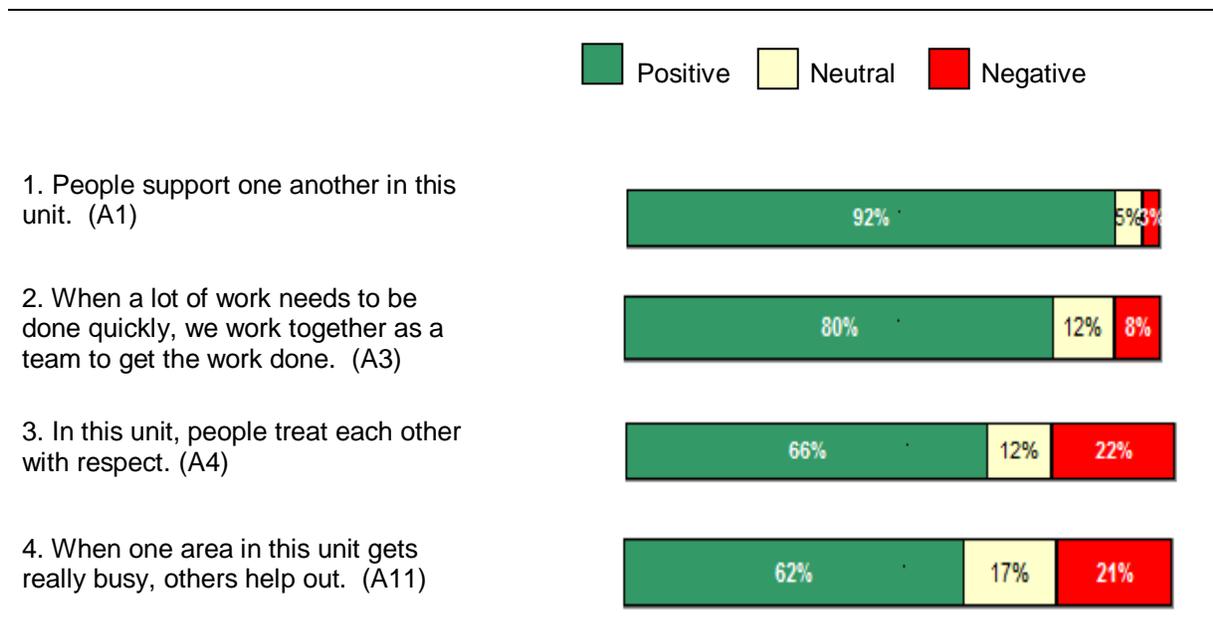


Table 4.16: Reliability results for teamwork within the Unit

	Summary for scale: Mean=14.5431 Std.Dv.=2.84496 Valid N: Cronbach alpha: .713327 Standardized alpha: .726847 Average inter-item corr.: .404264				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
SECTION A(A1)	10.83621	5.464551	2.337638	0.451467	0.679387
SECTION A(A3)	10.62931	4.957417	2.226526	0.661362	0.572234
SECTION A(A4)	11.08621	4.544292	2.131735	0.504333	0.651926
SECTION A(A11)	11.07759	4.812945	2.193843	0.432987	0.699473

4.4.2 Feedback and communication about error

This dimension reviewed the staff perception of feedback and communication about errors, Table 4.16. For all three items the median was 24 and the results were not all positive. The first item about being given feedback about changes put into place based on event reports shows a weakness in the organization with only 47% of respondents replying positively. The other 2 items, “we are informed about errors” and “we discuss ways to prevent errors from happening”, both are on the more positive side (63% and 69%) but not identifiable as a strength, seen in Table 4.17. Reliability of this dimension can be seen in Table 4.18: Cronbach alpha coefficient (3 items) was recorded as .68

Table 4.17: Feedback and communication about error

	Never	Rarely	Sometimes	Most of the times	Always	Median
We are given feedback about changes put into place based on event reports. n=117	2(1.7)	19(16.2)	41(35)	30(25.6)	25(21.4)	25
We are informed about errors that happen in this unit n=118	4(3.4)	16(13.6)	24(20.3)	32(27.1)	42(35.6)	24
In this unit, we discuss ways to prevent errors from happening again. n=117	1(0.9)	12(10.3)	23(19.7)	50(42.7)	31(26.5)	23

Table 4.18: Graphic Display-using AHRQ soft ware: Feedback and communication about errors

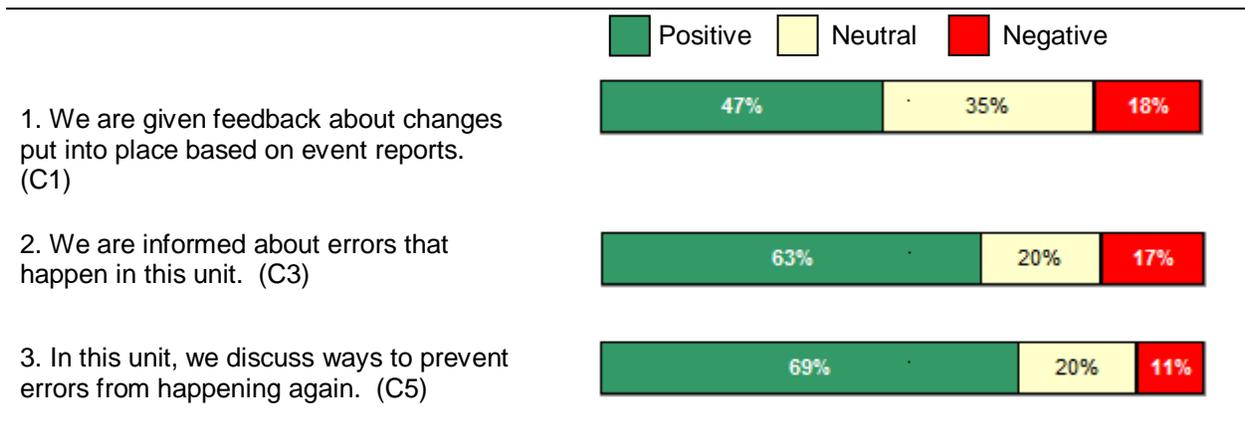


Table 4.19: Reliability results for feedback and communication about error

	Summary for scale: Mean=11.0862 Std.Dv.=2.51800 Valid N: Cronbach alpha: .689205 Standardized alpha: .693006 Average inter-item corr.: .430311				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
SECTION C(C1)	7.594828	3.378939	1.838189	0.462945	0.647151
SECTION C(C3)	7.327586	2.875446	1.695714	0.520368	0.579655
SECTION C(C5)	7.250000	3.428879	1.851723	0.539456	0.560740

4.4.3 Hospital management support for patient safety

The survey measured 3 hospital level aspects of safety culture: Hospital Management Support for Patient Safety (3 items); Teamwork across hospital units (4 items). Hospital hand over and transitions (4 items). Reliability of Hospital handover and transition: Cronbach alpha coefficient (4 items) = .59, will not be discussed because of low reliability.

4.4.3.1 Hospital management support for patient safety

This dimension focuses on the staff's perception of the hospital as a whole and not solely the individual's work unit. Each sub-dimension will be discussed separately below.

These first dimensions (3 items), 1 reverse worded, asked about the staff's perceptions about hospital management support for patient safety, Table 4.19 and Table 4.21. The findings of the results show this as an area of strength with a strong 78% and 86% for the first 2 questions. However, it is interesting to note that only 57 % disagree that management seems interested in

patient safety only after an adverse event happens. (26% agreed and 17% did not commit to a response). Almost a third of the staff perceives management as being re-active in its approach to adverse events. Reliability of this dimension is proofed by a Cronbach alpha coefficient (3 items) of .66, Table 4.20.

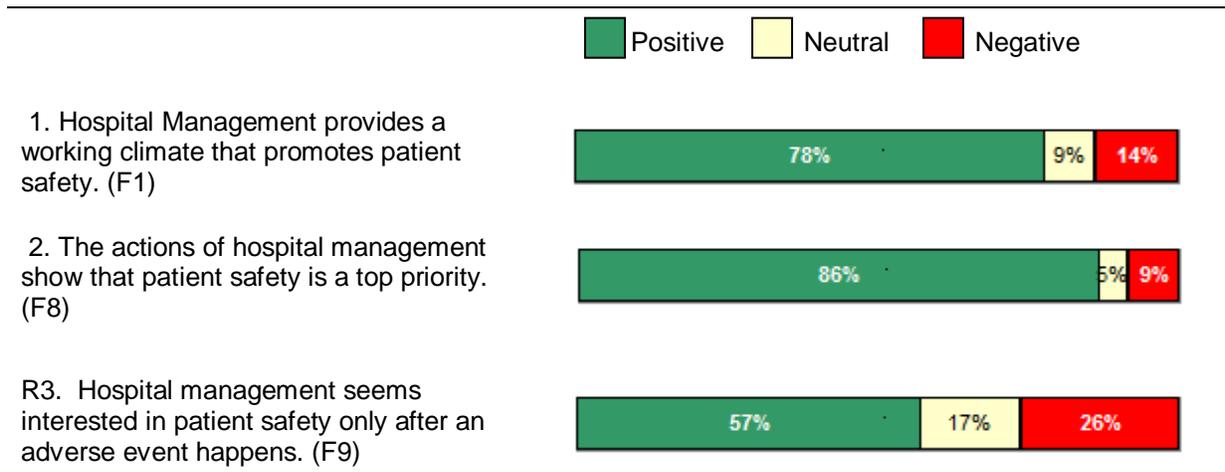
Table 4.20: Hospital management support for patient safety

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Median
Hospital management provides a working climate that promotes patient safety. n=116	6(5.2)	10(8.6)	10(8.6)	77(66.4)	13(11.2)	10
The actions of hospital management show that patient safety is a top priority. n=117	2((1.8)	8(6.8)	6((5.1)	64((54.7)	37(31.6)	8
Hospital management seems interested in patient safety only after an adverse event happens. (reverse worded) n=118	14(11.9)	53(44.9)	20(16.9)	25(21.2)	6(5.1)	20

Table 4.21: Reliability results for hospital management support for patient safety

	Summary for scale: Mean=11.1304 Std.Dv.=2.28082 Valid N:1 Cronbach alpha: .664707 Standardized alpha: .678516 Average inter-item corr.: .418494				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
SECTION F(F1)	7.443478	2.716370	1.648142	0.486330	0.556174
SECTION F(F8)	7.043478	2.737240	1.654461	0.577045	0.455359
SECTION F(F9)(reversed)	7.773913	2.574972	1.604672	0.391589	0.704176

Table 4.22: Graphic Display-using AHRQ soft ware: Hospital management support for patient safety



4.4.3.2 Teamwork across hospital units

The responses to these items varied with positive and negative responses, Table 4.22. There was a strong perception that hospital units work well together to provide the best care for patients at 75 % and a positive perception regarding good cooperation among hospital units that need to work together at 60 % shown in Table 4.23. However, the reverse worded questions indicated that there was a weakness in teamwork in the organization with around 49% of responses agreeing that hospital units do not coordinate well with each other, and 61% responses agreeing that it is unpleasant to work with staff from other hospital units. Reliability of this dimension: Cronbach alpha coefficient (4 items) = .64, Table 4.24.

Table 4.23: Teamwork across hospital units

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Median
There is good cooperation among hospital units that need to work together. n=115	6(52.2)	17(14.8)	23(20)	61(53)	8(7)	17
Hospital units work well together to provide the best care for patients. n=118	5(4.2)	12(10.2)	13(11)	58(49.2)	30(25.4)	13
Hospital units do not coordinate well with each other. (reverse worded) n=118	12(10.1)	46(39)	21(17.8)	28(23.7)	11(9.3)	21
It is often unpleasant to work with staff from other hospital units. (reverse worded) n=117	8(6.8)	63(53.3)	25(21.2)	16(13.6)	5(4.2)	16

Table 4.24: Graphic Display-using AHRQ soft ware: Teamwork across hospital units

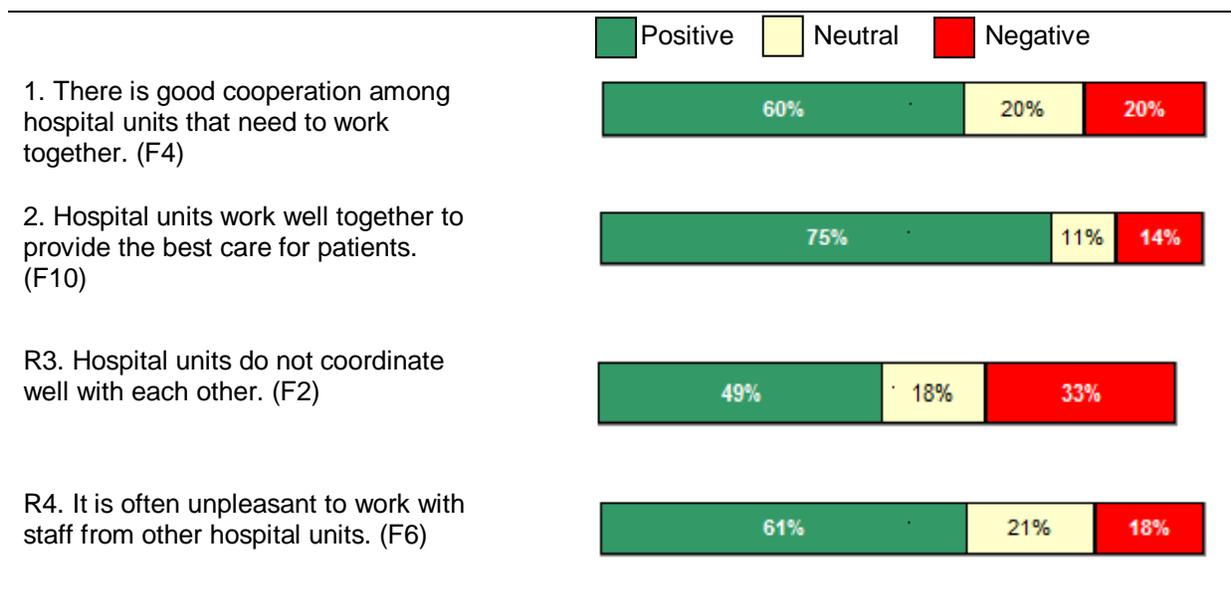


Table 4.25: Reliability results for – teamwork across hospital units

variable	Summary for scale: Mean=13.8684 Std.Dv.=2.91627 Valid N:1 Cronbach alpha: .640324 Standardized alpha: .644623 Average inter-item corr.: .316885				
	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
SECTION F(F2)(reversed)	10.68421	5.268698	2.295364	0.336222	0.639984
SECTION F(F4)	10.43860	5.018160	2.240125	0.547347	0.483792
SECTION F(F6)(reversed)	10.43860	6.053247	2.460335	0.311815	0.640171
SECTION F(F10)	10.04386	4.901585	2.213952	0.510827	0.504058

4.5 COMPOSITE SCORES

The composite score for the overall perception of safety is at 48%, Table 4.25. Composite score showing mean and standard deviations can be seen in Table 4.26.

Table 4.25 Composite Score

Safety Culture Composites	Your Hospital's Composite Score Average % of positive responses
Overall Perceptions of Safety (4 items--% Agree/Strongly Agree)	48%
Frequency of Events Reported (3 items--% Most of the time/Always)	58%
Supervisor/Manager Expectations & Actions Promoting Patient Safety (4 items--% Agree/Strongly Agree)	63%
Organizational Learning--Continuous Improvement (3 items--% Agree/Strongly Agree)	78%
Teamwork Within Units (4 items--% Agree/Strongly Agree)	70%
Communication Openness (3 items--% Most of the time/Always)	40%
Feedback & Communication About Error (3 items--% Most of the time/Always)	60%
Nonpunitive Response to Error (3 items--% Agree/Strongly Agree)	23%
Staffing (4 survey items--% Agree/Strongly Agree)	33%
Hospital Management Support for Patient Safety (3 items--% Agree/Strongly Agree)	74%
Teamwork Across Hospital Units (4 survey items--% Agree/Strongly Agree)	61%
Hospital Handoffs & Transitions (4 survey items--% Agree/Strongly Agree)	53%

4.26: Composite score showing mean and standard deviations

Dimension	Mean	Standard Deviation
I. Background Variables	NA	NA
II. Outcome Measures		
A. Frequency of Event Reporting	3.61	0.9874
B. Overall Perception of safety	3.10	0.7908
C. Patient Safety Grade	2.7	0.65
D. Number of Events Reported	2.6	3.4
III. Safety Culture Dimension(Unit level)		
A. Supervisor/Manager Expectations & actions in promoting patient safety	3.51	0.6796
B. Organizational Learning-Continuous improvement	3.82	0.5773
C. Team work Within Hospital Units	3.63	0.7112
D. Communication Openness	3.21	0.803
E. Feed back and Communication about Error	3.69	0.8393
F. Non-punitive Response to Error	2.46	0.7868
G. Staffing	2.72	0.6326
H. Hospital Management Support for Patient Safety	3.71	0.7603
IV. Safety Culture Dimension(Hospital wide)		
A. Team Work Across Hospital Units	3.46	0.7291
B. Hospital Handoffs and Transitions	3.39	0.7964

4.6 SCORES WITH RELIABILITY ISSUES AND CRONBACH ALPHA LESS THAN .60

The reliability of the results was determined by Cronbach alpha coefficients. According to the AHRQ handbook (September, 2004:59), for results to be acceptably reliable, the Cronbach alpha coefficients should be greater than or equal to .60. The researcher acknowledges the following low alpha values, and because of the doubt on the degree of correlation, the researcher will exclude these from the discussion. Cronbach alpha measures the degree of correlation between items. There appears to be low reliability in some items listed below, indicating that they are not intended to be correlated as they do not belong to the same scale. The researcher will discuss this further in Chapter 5 under limitations.

The Cronbach alpha coefficients of the following items were lower than .60. They can therefore not be accepted as reliable data and will consequently not be discussed.

- 4.6.1 Supervisor/manager expectations & actions promoting safety: Cronbach alpha coefficient (4 items) = .55.
- 4.6.2 Organizational learning and Continuous Improvement: Cronbach alpha coefficient (3 items) = .48.
- 4.6.3 Communication Openness: Cronbach alpha coefficient (3 items) = .54.
- 4.6.4 Non-punitive Response to Error: Cronbach alpha coefficient (3 items) = .54.
- 4.6.5 Staffing: Cronbach alpha coefficient (4 items) = .28.
- 4.6.6 Hospital Handoffs & Transitions: Cronbach alpha coefficient (4 items) = .59.

4.7 QUALITATIVE DATA: THEMATIC ANALYSIS OF SURVEY COMMENTS

Gibson, W (2006:2), describes thematic analysis as an approach to dealing with data that involves the creation and application of 'codes' to data or categorizing of data. This type of data analysis forms part of a qualitative research method. 'Coding' refers to the creation of categories in relation to data; the grouping together of similar dimensions of data under an umbrella term that can enable them to be regarded as 'of the same type'. Twenty five percent of the participants provided comments. Many of the comments are of value and will be suggested for improvement in the recommendations.

Three main categories were identified regarding the perception of staff of a patient safety culture in the operating room, namely:

- 4.7.1 Perceptions of staff regarding reporting of errors,
- 4.7.2 Perceptions of staff regarding safety in the operating room, and
- 4.7.3 Perceptions of staff-related problems.

Various sub- and further categories were also identified. Main, sub- and further categories are displayed in Table 4.27.

Table 4.27: Perceptions of staff of a patient safety culture in the operating room

COLUMN 1	COLUMN 2	COLUMN 3
Perceptions of staff regarding reporting of errors	Perceptions of staff regarding safety in the operating room	Perceptions of staff related problems
<p>Fear of reporting errors</p> <ul style="list-style-type: none"> - Fear of termination of employment contracts - A culture of fear exists, rather than one of efficiency - Outcome of reporting is punishment <p>A culture of blame exists</p> <ul style="list-style-type: none"> - Management is quick to blame, but slow to praise - A blame free culture should be encouraged <p>Writing of error reports are problematic</p> <ul style="list-style-type: none"> - Lack of time to write error reports due to heavy work schedules <p>Lack of communication following error reports</p> <ul style="list-style-type: none"> - No feedback is given - Lack of pro-active measures (corrective action taken only after adverse event) 	<p>Perceptions of feeling unsafe when working in an unfamiliar environment</p> <ul style="list-style-type: none"> - Staff get send to unfamiliar areas to work in - Mistakes occur when moved from one area to another <p>Perceptions of unsafe practices in the operating room</p> <ul style="list-style-type: none"> - Electrical wires on floor - Heavy load of administrative duties is detrimental to patient care - Patient care and safety are not priorities - Temperature in operating room (OR) is too cold for babies - Checklists are incomplete - Stressed and fatigued doctors call for mistakes - Staff on standby should stay in hospital and not be waiting on to come from home - Operating rooms are too small and over crowded with staff <p>Positive aspects regarding safety in the operating room</p> <ul style="list-style-type: none"> - Rapid reactions to rectify problems - Strong orientation towards safety exits in the OR - Staff are orientated to promote safety - Staff are eager to suggest and improve safety measures - Patient safety is a priority - Errors are rectified before they have an effect on the patient 	<p>Perceptions of lack of staff</p> <ul style="list-style-type: none"> - More staff is needed - Two nurses is needed to care for the critically ill - Qualified midwives should take care of babies in operating room <p>Perceptions of inadequate role clarification</p> <ul style="list-style-type: none"> - OR staff feels that midwives need to be trained to position patients for spinal anesthetics - Midwives feel they are in the OR to take care of the baby and not to position patients - OR secretary should answer phones and organize staff for emergencies <p>Perceptions of animosity between teams from different units</p> <ul style="list-style-type: none"> - Some staff in the OR are unfriendly, Unwelcoming and uncooperative - Midwifery staff perceive the OR staff to see their role as unimportant - OR staff are accused of not modifying practices - OR staff are accused of unnecessary delays between cases - Staff from outside of OR should be directed to applicable theatre, instead of looking for it by themselves <p>Lack of training</p> <ul style="list-style-type: none"> - Staff are not well orientated in all areas

4.7.1 Perceptions of staff of a patient safety culture in the operating room

The three main categories that were identified regarding the perception of staff of a patient safety culture in the operating room are namely:

4.7.1.1 Perceptions of staff regarding reporting of errors

There appears to be fear in reporting of errors. The perceptions are that reporting of errors will result in punishment and the inability to renew contracts with the company. These perceptions may be linked to the survey results which have indicated that at least 33% of participants have not reported an error in the last 12 months. The perceptions of the participants are also that there is a blame culture in the organization. Many literature studies have indicated the adoption of no blame, but a just culture, one in which employees feel comfortable and easy to report errors (Colla et al., 2005:364; Page, 2007:1).

4.7.1.2 Perceptions of the staff regarding safety in the operating room

The main concerns from the thematic analysis were that staff was being sent to unfamiliar areas to work in where mistakes can happen. The environmental safety aspects in the operating room were another concern, especially for electrical safety and temperatures that were very cold for the new born babies. Some of the perceptions about patient safety in the operating room were also positive, such as staff is orientated to promote patient safety and that staff are eager to suggest and improve safety measures. The perception is also that patient safety is a priority and that errors are rectified before they have an effect on the patient. These perceptions relate to the overall patient safety grade results in which 60% stated that the safety grade was good, 34% stated it was acceptable with 8% stating that safety was excellent in the operating room as shown in Table 4. 12.

4.7.1.3 Perceptions of staff-related problems

The general perception is that there is a lack of adequate staff in the organization. Potter et al., (2005:10) stated that the ratio of registered nurses to patients may be a critical factor in determining whether patients experience positive outcomes. Understaffing is a threat to patient safety. There also appears to be a lack of role clarification and a general feeling of animosity between team members from the different units. These perceptions coincide with the study of Bradley et al., (2005:1) who stated that poor communication and collaboration between members of the health care team can result in medical errors and poor quality care. Therefore, building an increased level of collaboration between units should result in better patient outcomes. This will be another challenge for the organization. Linzer et al., (2005:1) found that occupational stress has received substantial attention in numerous industrial settings, whereas little attention has

been paid to stress in physicians, and fewer studies of stress in health care workers and the effect on patient outcomes. However, the authors tend to agree that errors occur on busier, more demanding shifts and that training and alterations to the work environment to improve the safe transfer of patient information with improved communication may lead to reductions in medical errors and improve patient care. These valuable aspects of patient safety will be addressed in the recommendations to management of the organization.

4.8 CONCLUSION

Although findings of the survey indicate that the operating room has patient safety problems, the findings also show much positive strength in the operating room and the organization as a whole. The positive results for hospital management showing that patient safety is a top priority at 86% and provides a work climate that supports patient safety at 78%, teamwork within the units at 92% and 75% for units working well together across the hospital are the positive strengths for the organization. The areas for concern are mainly from the thematic analysis of the staff perception of patient safety in the operating room and from the overall composite score for patient safety at 48%. In the next chapter conclusions will be drawn from the results of the survey, limitations of the study identified and recommendations for improvement provided.

CHAPTER 5: CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This study reports the integrated results from a questionnaire-based survey of the assessment of patient safety culture in an operating room setting in Abu Dhabi, United Arab Emirates. The main objectives of the study were to identify the relationship of hospital leadership support for patient safety, the relationship between teamwork and patient safety, if communication affects patient safety and the level of incident reporting in order to improve our chances of Joint Commission recertification in December 2010. In this section the researcher will draw conclusions of the results of the survey, limitations of the study will be discussed and recommendations for improvement will be provided.

5.2 CONCLUSIONS

The following conclusions from the empirical study are made.

5.2.1 Leadership and patient safety

The purpose of assessing patient safety culture in an organization is to help senior leaders such as chief executive officers, executives who report to them and senior managers to understand the current situations within their organizations and to be able to lead safety initiatives. The researcher is an employee of the organization in which the study was done and one of the key objectives was to assess leadership support towards patient safety in the operating room setting.

The research results of this survey concurs with the literature findings of Thomas et al., (2005: 8) and Pronovost & Vohr (2010:96), namely that leadership support for the patient's safety in a health care organization has a positive impact on providing safety attitudes. The results show this as an area of strength in the operating room and among the operating room users. The overall findings of the survey showed that the staff felt that the hospital management provides support for patient safety and that patient safety is a top priority. The result of the findings clearly reflects that this objective was met.

5.2.2 The level of incident reporting and patient safety

Another objective of the study was to identify the level of incident reporting and patient safety in the organization. The Joint Commission International Accreditation sentinel event policy (2008:16) encourages individuals to report medical errors with the aim of learning the relative frequency patterns and root causes of sentinel events. The recommendation from the JCI is to implement reporting systems that make it easier and encourage employees to report incidences. The findings of the survey show that when mistakes are made that could harm the patient, they are reported. However, the results for the number of events reported during the year show that almost a third of the staff has not submitted an incident report in the past 12 months.

In order to encourage incident reporting, literature studies tend to lean more towards the creation and maintenance of a “Just Culture” in which frontline personnel feel comfortable in disclosing errors. A non punitive, no blame culture in which individuals can openly discuss patient safety events and medical errors should be created to improve incident reporting and patient safety (Page, 2007:1). Apart from this, it should also be kept in mind that, according to Kohn et al., (2000:3) central to the idea proposed by the IOM Report in 1999 is the notion that skilled and caring professionals can and do make mistakes because, after all, “to err is human”. This does not mean that an individual can be careless. Staff must still be vigilant and be held accountable for their actions. A just culture environment, as suggested by Page (2007:1) will therefore be a recommendation to the leadership of the organization.

The second objective has been met.

5.2.3 Effective communication and patient safety

Another objective of this study was to explore whether effective communication affects patient safety. This objective has also been met. The results of the survey depicted this as an area of concern for the organization. It became known that almost a third of the participants have not reported any adverse events. Staff also felt that they were not given adequate feedback about changes put into place based on events reported. However, staff feels positive that the procedures and systems of the organization are good in preventing errors from happening.

Literature studies supporting effective communication, such as the Joint Commissions International Patient Safety Goals (JCI, 2008:31), have emphasized leadership taking a more proactive approach with improved communication at all levels. A shared mental model of communication will be in the recommendations to the leadership of the organization to improve communication (Haig et al., 2006:167).

5.2.4 Teamwork and patient safety

This objective of exploring the relationship between teamwork and patient safety was met. The results show that people support one another within and across hospital units. They treat each other with respect and help each other in the units when it really gets busy. This finding is supported by literature studies which indicate that teamwork is important for patient safety (Langford & Rollins, 2007: 2).

5.3 SUMMARY

The researcher's main aim was to assess the Patient Safety Culture in an Operating Room Setting in Abu Dhabi in the United Arab Emirates, prior to JCI recertification in December 2010. The objectives used to identify the patient safety culture within the operating room environment were: hospital leadership support for patient safety; the relationship between teamwork and patient safety; if communication affects patient safety and the level of incident reporting and patient safety in order to provide recommendations to improve safety standards in the operating room. The findings of the survey conducted show a mixed approach to patient safety in the operating room setup. Although the perception of staff is that there is a good overall grade of patient safety, there are those who also perceive that there are patient safety problems in this unit.

5.4 IMPLICATIONS OF THE FINDINGS

The implications of the survey findings are intended to make a significant impact on our preparation for the forthcoming Joint Commission International recertification. The researcher plans to meet with the Chief Executive officer and members of the hospital management team and discuss the findings and the areas of concerns of the results. The areas of greatest concern are with under reporting of incidents, poor feedback and communication about errors. However, these are considered the high impact low cost areas of concern which may be the easiest to effect

change. Another strong implication of the findings is that leadership has to make it easy for staff to report incidents. Dispelling the blame culture will lead to further enhancement of the patient safety culture. There are also strong implications for education from this survey. Policies must be adapted that will protect them from being involved in an error, but most importantly keep patients safe. Well designed orientation and continuous in-service education programs with just culture principles must clearly define the patient safety culture from the orientation period onwards and set the expectations of the staff in relation to patient safety, thus promoting a strong culture of patient safety. Where staff are not meeting expectations because of lack of skill, experience or knowledge assistance should be offered through mentorship and education.

Although there were many positive findings for management in the results, there is the need for improving communication, create an environment conducive to reporting errors, changing the perception of the blame culture and improving the reporting system. It is also important that the leadership of the organization continues to support and nurture the areas of strength according to the results and related to the perception of the staff, that hospital management supports and shows that patient safety is a top priority and that management is actively doing things to improve patient safety.

5.5 LIMITATIONS

The researcher acknowledges the following low Cronbach alpha values, and because of the doubt on the degree of correlation of the following dimensions the researcher has excluded these from the discussion. Cronbach alpha measures the degree of correlation and reliability between items. There appears to be low reliability in some items listed below indicating that they are not intended to be correlated as they do not belong to the same scale. The following results had Cronbach alpha values below .60 and were excluded from the discussion.

4.6.1 Supervisor/manager expectations & actions promoting safety. Reliability of this dimension: Cronbach alpha coefficient (4 items) = .55.

4.6.2 Organizational learning and Continuous Improvement Reliability of this dimension: Cronbach alpha coefficient (3 items) = .48

4.6.3 Communication Openness. Reliability of this dimension: Cronbach alpha coefficient (3 items) = .54

- 4.6.4 Non-punitive Response to Error. Reliability of this dimension: Cronbach alpha coefficient (3 items) = .54.
- 4.6.5 Staffing. Reliability of this dimension: Cronbach alpha coefficient (4 items) = .28
- 4.6.6 Hospital Handoffs & Transitions. Reliability of this dimension: Cronbach alpha coefficient (4 items) = .59

Another significant limitation would be that the survey was done in the English language only. The majority of the staff has English as a second language. This could be a limiting factor in fully understanding the questions, especially the reverse worded questions. The ideal situation would have been to have the questionnaire translated into more relevant languages for use in a multicultural setting.

The fairly low response rate, probably because of lack of time due to work pressure that caused many physicians, NICU staff and midwives not to participate in the survey, can also be seen as a limitation.

5.6 RECOMMENDATIONS

This survey was fully supported by the Chief Executive Officer, Chief Medical Officer and the Ethics Committee. The researcher will present the findings and recommendations to the management team and request presentations to the staff at weekly meetings.

Although the findings of the results indicate safety concerns in the operating room, there were also a number of areas that came out as truly positive strengths. The Hospital management provides a climate that supports patient safety and management shows that patient safety is a top priority. These results can be seen as the existing strengths within the organization that can be used to provide a good foundation for the organization to go forward with further safety initiatives in its preparation for recertification. The high impact, low cost areas of concern which may be the easiest to attain are effective communication and feedback regarding medical errors and creating a just culture environment in which staff feel easy to report incidents. Some of the existing policies will require revisions, with a more supportive and robust education system. Regular feedback, acknowledgement, encouragement and rewards for staff are some of the other recommendations to offer. Further recommendations for change include:

5.6.1 Recommendation 1: Use a team approach to improve the safety culture within the operating room.

Research demonstrating the value of teamwork in the clinical setting is in its infancy steps. However, results continue to indicate that the use of a concrete teamwork model, such as based on the aviation principles of Crew Resource management principles (CRM), can improve the efficiency of care delivery and outcomes for patients (Langford& Rollins, 2007:2).

In the pursuit of improving patient safety and implementing safety initiatives in the operating room the leadership must focus on areas where additional work needs to be done. Adequate staffing, communication openness, dispelling the blame culture, and improving the reporting structure are the points to be emphasized in strengthening the safety culture within the operating room. Furthermore, the staff must be adequately trained and supported to provide the best possible care that is safe for the patient. Pronovost et al., (2006:119); Pronovost & Vohr, (2010:96); AHRQ, (2009:4) used a team approach for improving patient safety, through Comprehensive Unit Based Safety Programs (CUSPS), a web based tool for comprehensive unit based safety programs, which has been widely used in the USA.

Dr. Peter Pronovost led a team at The John Hopkins Hospital charged with developing a comprehensive patient safety program, which resulted in a CUSP or Comprehensive Unit-Based Safety Program (Pronovost et al., 2000:35). Presently, hospitals across the United States of America are using this program. The CUSP safety initiative program is a team approach model with executive and senior management involvement throughout the program. CUSP was designed to

- be implemented sequentially in all units,
- improve the culture of safety,
- allow staff to focus on safety efforts regarding unit specific problems, and
- include rigorous data collection through which tangible improvements in patients are empirically derived.

The CUSP project has a program leader, project leader and project members. It consists of 8 steps:

- Evaluate culture of safety
- Educate staff on science of safety
- Identify staff's safety concerns
- An executive adopts the operating room
- Prioritize improvement efforts
- Implement improvements
- Share stories and disseminate results
- Evaluate the safety culture

The first step of evaluating the safety culture has been accomplished. In the months running up to JCI preparation the 7 remaining steps must be addressed creating definite timelines for each safety concern identified in the survey as areas of concern. Results must be published and all lessons learned must be shared with the staff of the operating room and the other units in the organization. The recommendation will be for the team to use a combined approach of CUSP and the plan, do, check and act, (PDCA) quality improvement model to effect change.

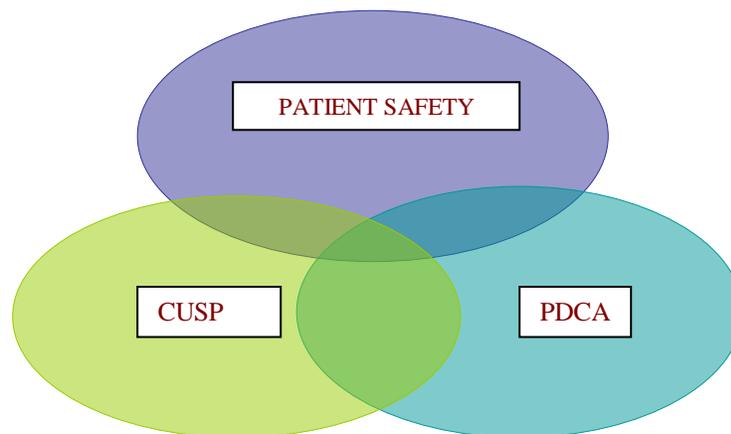


Figure 5.1: The model for change

5.6.1.1 Identifying champions

Making sure that the right individuals and groups are part of the change team is a key step. It is also important that both nurses and physicians are on the initial change team. The groups must work together to identify problems, initiate training and for implementation of improvements. Broaden the “circle of believers” beyond the executive and hospital management team. Appoint safety champions for each unit. Physician buy-in and participation will be crucial to the success of all safety initiatives.

5.6.1.2 Maintaining momentum

On-going encouragement from executive leaders and the hospital management team is vital in sustaining the safety initiatives program. Frequent visits, motivation and support will be required to maintain the team efforts throughout the programs. Incentives and rewards for pursuing safety in the form of a letter from the Chief Executive officer will be seen as a powerful reward for the staff.

5.6.2 Recommendation 2: Establishing fair and just culture principles through CUSP

Another strong implication of the findings is that leadership has to make it easy for staff to report incidents. Dispelling the blame culture will lead to further enhancement of the patient safety culture. Well designed orientation and continuous in-service education programs with just culture principles must clearly define the patient safety culture from the orientation period onwards, set the expectations of the staff in relation to patient safety and promote a strong culture of patient safety. Page (2007:1) explains that leaders such as directors, managers and administrators are sometimes forced to make a judgment on the behavioral choices of the staff when a patient is harmed. This complex leadership function is guided by vague policies, personal beliefs and sometimes intuition. Frequently, some behavioral choices or mistakes are overlooked especially when there is no adverse outcome to the patient. This, understandably, will frustrate staff by what appears to be inconsistent or irrational decision making by leadership. Page (2007:1) therefore suggests “Just” culture principles as a “Just” culture within an organization is considered the cornerstone in building and improving patient safety. Where staff is not meeting expectations because of lack of skill, experience or knowledge, assistance should be offered through mentorship and education. Where staff insists on not complying with policy and procedures they will be held accountable for their actions. Analysis of incident reporting should

focus on the system rather than on the individuals. Creating a just culture, means we have a non-punitive environment. The creation of a just culture will be the recommendation to the management of the organization.

5.6.3 Recommendation 3: Improving communication and feedback through CUSP

Staff meetings must be used to improve and encourage staff communication. Staff must also be encouraged to participate in patient safety feedback and attend root cause analysis and quality and patient safety educational sessions. Supervisors and managers must be accessible and listen to staff suggestions for improvement. Timely feedback must be given to the staff for actions taken in response to a problem report. Just culture principles and concepts need to be included in the orientation program of new staff. Mandatory patient safety training and root cause analysis participant training are recommended. Employee newsletters can be used to disseminate lessons learned and to share improvements and recommended practices.

The researcher also recommends a hospital wide implementation of SBAR (situation, background, assessment and recommendation) communication process which conveys a shared mental model for improving communication between clinicians (Haig et al., 2006:167). Areas in which SBAR has been implemented and those who are experiencing problems with the process must be assisted.

Frequent briefings, time-out procedures and huddles will help improve communication amongst the team. Feedback after the tasks are completed, in the form of a debriefing, is generally a very useful tool to build common understanding of a situation such as after spinal anaesthesia or a resuscitation procedure. Positive feedback can help build confidence in junior team members, reduce stress and clarify ambiguities (Sexton et al., 2004:37).

5.6.4 Recommendation 4: Use CUSP and PDCA model of change to address the perceptions of the staff

The thematic summary of the perceptions of the staff must be approached using the CUSP/PDCA model of change. Certain triggers in the environment that staff perceived as unsafe must be addressed through modifications of the work environment such as temperature control for the newborn babies and electrical safety. Literature studies supporting latent causes of

medical errors suggest that staff must be trained to recognize these factors to avoid potential risks to patients (Grayson, et al., 2005:1). The implications of these findings, if addressed using a team approach, will have a significant impact on safe peri-operative care in the organization.

5.7 RECOMMENDATIONS FOR FUTURE RESEARCH

The recommendation is for a more focused survey, using a combined research approach of quantitative and qualitative methods of research. A further recommendation would be that the survey questionnaire should be validated, especially for use in a multicultural setting. It will also be recommended that the questionnaire be translated in more relevant languages spoken by the local and expatriate staff to assist in fully understanding the questions, especially the reverse worded questions.

5.8 CONCLUSION

The researcher involved herself in this study as she had concerns about the failing safety standards in the operating room. These have been confirmed by the research findings. The operating room has patient safety issues. The next step will be for management to follow up on the recommendations and prepare for the JCIA recertification in December 2010. Time is limited and the key safety factors having the greatest impact, which meets international patient safety goals, must be prioritized. The focus will also be directed to those areas in which the objectives were not met or reported as weaknesses, to make the operating room a safer place for the patients, the staff and users of the operating room. On a very positive side and based on the survey results, is that a strong leadership support from the organization for patient safety may be seen as an excellent starting point to implement the findings of the survey.

REFERENCES

- Agency for Healthcare Research and Quality (AHRQ). Patient Safety Network. Glossary. United States Department of Health and Human Sciences. <http://psnet.ahrq.gov/glossary.aspx>. Accessed 22 March 2009.
- Agency for Healthcare Research and Quality (AHRQ). Patient Safety Research Highlights. AHRQ Pub.06- P023. www.ahrq.gov. Accessed 22 March 2009.
- Agency for healthcare Research and Quality (AHRQ). 2009. Surveys on Patient Safety Culture. [http://www.ahrq.gov/qual/patient safety culture](http://www.ahrq.gov/qual/patient%20safety%20culture). Accessed 22 June 2010.
- Burns, N. 2007. Understanding Nursing Research, Building Evidence Based Practice. 4th ed. University of Texas, Arlington, Texas: Saunders.
- Colla, J.B., Bracken, A .C., Kinney, L.M., Weeks, W.B. 2005. Measuring patient safety climate: a review of surveys. *Quality and Safety in Health Care*, (14):364-366, June.
- De Vos, A.S., Strydom, H., Fouche, C.B., Delport, C.S.L. 2005. *Research at Grass Roots*. 3rd ed. Hatfield, Pretoria: Van Schaik Publishers.
- Department of Health. 2000. 'An Organization with a Memory'. Report of an expert advisory group on learning from adverse events in the NHS. London: United Kingdom.
- Evanoff, B., Potter, P., Wolf, L., Grayson, D., Dunagan, C., Boxerman, S. 2005. Can We Talk? Priorities for Patient Care Differed Among Health Care Providers: Advances in patient safety: http://ncbi.nlm.nih.gov/sites/ehelp?ncbi_app. Accessed 21 August 2010.
- George, J.B .2002. *Nursing Theories. The Base for Professional Nursing Practice*. 5th ed. New Jersey: Prentice Hall International editions.
- Gibson, W. 2006. Thematic Analysis. Qualitative data analysis. *The Qualitative Report*. <http://www.nova.edu/ssss/QR/Backissues/QR2-1/aronson.html>. Accessed 22 June 2010.

- Grayson, D., Boxerman, S., Potter, P., Wolf, L., Dunagan, C., Sorock, G., Evanoff, B. 2005. Do Transient Working Conditions Trigger Medical Errors? Advances in patient safety. http://ncbi.nlm.nih.gov/sites/ehelp?ncbi_app. Accessed 21 August 2010.
- Health Policy and Regulation (Health Authority). 2008. Hospital Standards. 1st ed. Abu Dhabi. U.A.E.
- Haig, K. M., Sutton, S., Whittington, J. 2006. SBAR. A shared mental model for improving communication between clinicians. National Patient Safety Goal. Journal on Quality and Patient Safety, 32 (3)119-129, March.
- Institute of Medicine .1999. To Err is Human: Building a Safer Health System. National Academy of Sciences. <http://books.nap.edu/catalog/9728.html>. Accessed 22 March 2009.
- Institute of Healthcare Improvement. 2009. Develop a Culture of Safety IHI.org. <http://www.ihl.org/IHI/Topics/Patientsafety/MedicationSystems/Changes>. Accessed 21 March 2009.
- Joint Commission International Accreditation. 2008. Standards for Hospitals. 3rd ed. Oakbrook Terrace, Illinois: USA.
- Joint Commission International. 2007. Meeting the International Patient Safety Goals. Oakbrook Terrace: Illinois 60523 USA.
- Joint Commissions Annual Report on Quality and Safety. 2007. Improving America's Hospitals. <http://www.jointcommissionreport.org/executivesummary.aspx>. Accessed 24 March 2009.
- Joint Commission International Accreditation. 2008. Universal Protocol for Preventing Wrong Site, Wrong Procedure, Wrong Person Surgery: Oakbrook Terrace, Illinois: USA. <http://www.jointcommision.org/NR/rdonlyres/E3C600EB-043B-4E86-B04Epdf>. Accessed 24 March 2009.
- Joint Commission on Accreditation of Healthcare Organizations. 2001. Sentinel Event Alert. A follow-up review of wrong site surgery. Report No.24. <http://www.jcaho.org>. Accessed 24 March 2009.

- Kohn, L.T., Corrigan, J.M., Donaldson, M.S. 2000. To Err is Human: Building a Safer Health System. A Report of the Committee on Quality of Health Care in America: Institute of Medicine. Washington, DC: National Academy Press.<https://www.nap.edu/catalog/9729.html>. Accessed 24 March 2009.
- Langford, V., Rollins, V.H. 2007. Building a Culture of Safety. Creating a Reliable and Sustainable patient safety infrastructure through teamwork training. Business unit of Dynamic Research Corporation, Andover: Massachusetts.
- Linzer, M., Manwell, L.B., Mundt, M., Williams, E., Maguire, A., McMurray, J., Plane, M.B. 2005. Organisational Climate, Stress and Error in Primary Care. The MEMO Study Advances patient safety. http://ncbi.nlm.nih.gov/sites/ehelp?ncbi_app. Accessed 21 August 2010.
- Makary, M.A., Sexton, J. B., Millman, J.A., Pryor, D., Holzmueller, C., Pronovost, M.D. 2006. Patient Safety in Surgery. *Annals of Surgery*, 243(5):628-635, May. <http://www.pubmedcentral.nih.gov>. Accessed 24 March 2009.
- National Quality Forum. 2003. Safe Practices for Better Health Care Update. A Consensus Report. <http://ahrq.gov/qual/nqf.pract.htm>. Accessed 22 March 2009.
- National Quality Forum. 2009. Safe Practices for Better Health Care Update. A Consensus Report. <http://www.qualityforum.org.htm>. Accessed 22 March 2009.
- Pronovost, P., Holzmueller, C., Needham, D., Sexton, J.B., Miller, M., Berenholtz, S., Wu, A., Perl, T., Davis, R., Baker, D., Winner, L., Morlock, L. 2006. How will we know patients are safer? . An organization wide approach to measuring and improving safety. *Critical Care Medicine*, 34 (7):1988-1995, July. <http://www.ccmjournal.com>. Accessed 22 March 2009.
- Pronovost, P. J., Weast, B., Holzmuller, C. G., Rosenstein, B. J., Kidwell, R., Haller, K B., Feroli, ER., Sexton, J.B., Rubin, H. R. 2003. Evaluation of culture safety, survey of clinicians and managers in an academic medical centre. <http://www.pubmedcentral.nih.gov>. Accessed 24 March 2009.

- Pronovost, P., Vohr, E. 2010. Safe Patients Smart Hospitals: How one Doctor's Checklist can help change health care from inside out. Hudson Street Press: Penguin Group (USA) Inc.
- Page, AH 2007. Making a Just Culture a Reality. Perspective on Safety.
<http://webmm.ahrq.gov/perspective.aspx?perspectivesID=50>. Accessed 22 March 2009.
- Potter, P., Wolf, L., Boxerman, S., Grayson, D., Sledge, J., Dunagan, C., Evanoff, B. 2005. An Analysis of Nurses Cognitive Work: A New Perspective of Understanding Medical Errors. Study Advances in patient safety. http://ncbi.nlm.nih.gov/sites/ehelp?ncbi_app. Accessed 21 August 2010.
- Reason, J.T., Carthey, J., Leval, M.R. 2001. Diagnosing "vulnerable system syndrome": an essential prerequisite to effective risk management. Quality in Healthcare, 10 (II): pii21-ii25. <http://www.qualityhealthcare> . Accessed 22 March 2009.
- Ross, B.G., Norton, P. G., Flintoft, V., Blais, R., Brown, A., Cox, J., Etchells, E., Ghali, W.A., Hébert, P., Majumdar, S. R., O'Beirne, M., Derflinger, L.P., Reid, R.J., Sheps, S., Tamblyn, R. 2004. The Canadian Adverse Events Study. The incidence of adverse events among hospital patients in Canada. Canadian Medical Association Journal, 170 (11): 1678–1685.
- Safety Culture Pulse Report. 2009. Safety Culture. Staff Perspective on American Health Care Press Ganey. Columbia Place: South Bend. www.pressganey.com. Accessed 21 May 2009.
- Sexton, J.B. 2004. The Better the Team the safer the world. Golden rules of group interaction in high risk environments. Gottlieb Daimler and Karl Benz Foundation.
<https://www.swissre.com/globaldialogue>. Accessed 21 May 2009.
- Sexton, J.B., Helmreich, R.L., Nilands, T. B., Vella, K., Boyden, J., Roberts, P.R., Thomas, E.J. 2006 . The Safety Attitude Questionnaire: psychometric properties, benchmarking data, and emerging research. BMC Health Services Research. <http://www.biomedcentral.com/1472-6963/6/44> . Accessed 22 March 2009.

- Sexton, J.B., Thomas, E.J., Helmreich, R.L. 2000. Error, stress and teamwork in medicine and aviation: cross sectional surveys. *British Medical Journal*, 320 (7237):745-749, March. <http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pubmed&pubmedid=1072035>
6. Accessed 24 march 2009.
- Sorra, J.S., Nieva, V.F. 2004. Hospital Survey on Patient Safety Culture: Prepared by Westat, under contract No.290-96-0004. AHRQ Publications No. 04-0041. Rockville, M.D: Agency for healthcare Research and Quality.<http://www.ahrq.gov>. Accessed 22 March 2009.
- Searle, C. 2008. *A Professional Practice, Southern African Nursing Perspective*. 4th ed. 10th Impression, Cape Town: Juta & Co. LTD.
- Thomas, E.J., Sexton, J.B., Nielsands, T.B., Frankel, A ., Helmreich, R.L. 2005. The effects of executive work rounds on nurse safety climate attitudes: A randomized trial of clinical units. *BMC Health Services Research*, 5(28), April. <http://www.biomedcentral.com>. Accessed 22 March 2009.
- Vincent, C., Moorthy, K., Sarker, S.K., Chang, A., Darzi, A.W. 2004. Systems Approaches to Surgical Quality and Safety. *Annals of Surgery*. 293 (4): 475-482, April. <http://www.pubmedcentral.nih.gov>. Accessed 24 March 2009.
- Vincent, C. 2007. Incident Reporting and patient safety. *BMJ Editorial*, 334:55. <http://www.pubmedcentral.nih.gov>. Accessed 24 March 2009.
- World Alliance for Patient Safety. 2008. Implementation manual. *Surgical Safety Checklist*. 1st ed. *Safe Surgery Saves lives*. WHO Press. World Health Organization: Switzerland.

APPENDICES

Appendix 1: Amended questionnaire

Survey on Patient Safety Culture-Operating Room

Instructions

This survey asks for your opinions about patient safety issues, medical error, and event reporting in the operating room. The survey will take about 10 to 15 minutes to complete. You may fill in the questionnaire on duty time. Please complete the questionnaires within 3 working days and place the questionnaires in the self addressed sealed envelope. Drop off the completed questionnaires in the survey box in the reception area of the operating room.

- An **“event”** is defined as any type of error, mistake, incident, accident, or deviation, regardless of whether or not it results in patient harm.
- **“Patient safety”** is defined as the avoidance and prevention of patient injuries or adverse events resulting from the processes of health care delivery.

SECTION A:

In this survey, think of your “unit” as the operating room where you spend some or most of your working time to provide clinical services.

What is your primary role in this unit of the hospital? Mark ONE answer.

a. Operating Room Staff

f. Anaesthetists

b. Surgeon

g. NICU staff

c. Paediatricians

d. MDU staff

e. Gynaecology ward staff

Please indicate your agreement or disagreement with the following statements about the area/unit:

Section A

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
	▼	▼	▼	▼	▼
Think about the Operating Room					
1. People support one another in this unit	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
2. There is enough staff to handle the workload	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
3. When a lot of work needs to be done quickly, we work together as a team to get the work done	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
4. In this unit, people treat each other and the users of OR with respect	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
5. Staff in this unit work longer hours than is best for patient care	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

SECTION A: Operating Room (continued)

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
	▼	▼	▼	▼	▼
6. We are actively doing things to improve patient safety	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
7. We use more agency/temporary staff than is best for patient care	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
8. Staff feel as if their mistakes are held against them.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
9. Mistakes have led to positive changes here	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
10. It is just by chance that more serious mistakes don't happen around here	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
11. When one area in this unit gets really busy, others help out.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
12. When an event is reported, it feels like the person is being written up, not the problem	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

- | | | | | | |
|--|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 13. After we make changes to improve patient safety, we evaluate their effectiveness | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 14. We work in "crisis mode" trying to do too much, too quickly..... | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 15. Patient safety is never sacrificed to get more work done | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 16. Staff worry that mistakes they make are kept in their personnel file..... | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 17. There are patient safety problems in this unit..... | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 18. Our procedures and systems are good at preventing errors from happening | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |

SECTION B: Your Supervisor/Manager

Please indicate your agreement or disagreement with the following statements about your immediate supervisor/manager or person to whom you directly report to in the Operating Room:

- | | Strongly
Disagree | Disagree | Neither | Agree | Strongly
Agree |
|---|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| | ▼ | ▼ | ▼ | ▼ | ▼ |
| 1. My supervisor/manager says a good word when he/she sees a job done according to established patient safety | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 2. My supervisor/manager seriously considers staff suggestions for improving patient safety..... | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 3. Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |
| 4. My supervisor/manager overlooks patient safety problems that happen over and over..... | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ |

SECTION C: Communications

How often do the following things happen in the Operating Room?

	Never	Rarely	Some- times	Most of the time	Always
	▼	▼	▼	▼	▼
1. We are given feedback about changes put into place based on event reports	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
2. Staff will freely speak up if they see something that may negatively affect patient care	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
3. We are informed about errors that happen	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
4. Staff feel free to question the decisions or actions of those with more authority	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
5. We discuss ways to prevent errors from happening again	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
6. Staff are afraid to ask questions when something does not seem right.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

SECTION D: Frequency of Events Reported

In this area/unit, when the following mistakes happen, *how often are they reported?*

	Never	Rarely	Some- times	Most of the time	Always
	▼	▼	▼	▼	▼
1. When a mistake is made, but is <u>caught and corrected before affecting the patient</u> , how often is this reported?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
2. When a mistake is made, but has <u>no potential to harm the patient</u> , how often is this reported?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
3. When a mistake is made that <u>could harm the patient</u> , but does not, how often is this reported?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

SECTION E: Patient Safety Grade

Please give the operating room in this hospital an overall grade on patient safety:

<input type="checkbox"/>				
A	B	C	D	E
Excellent	Very Good	Acceptable	Poor	Failing

SECTION F: Your Hospital

Please indicate your agreement or disagreement with the following statements about your hospital:

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Think about your hospital...	▼	▼	▼	▼	▼
1. Hospital management provides a work climate that promotes patient safety.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
2. Hospital units do not coordinate well with each other.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
3. Things “fall between the cracks” when transferring patients from one unit to another.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
4. There is good cooperation among hospital units that need to work together	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
5. Important patient care information is often lost during shift changes	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
6. It is often unpleasant to work with staff from other hospital units.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
7. Problems often occur in the exchange of information across hospital units	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
8. The actions of hospital management show that patient safety is a top priority.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
9. Hospital management seems interested in patient safety only after an adverse event happens	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
10. Hospital units work well together to provide the best care for patients.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
11. Shift changes are problematic for patients in this hospital.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

SECTION G: Number of Events Reported

In the past 12 months, how many event reports have you filled out and submitted?

- a. No event reports d. 6 to 10 event reports
 b. 1 to 2 event reports e. 11 to 20 event reports
 c. 3 to 5 event reports f. 21 event reports or more

SECTION H: Background Information

This information will help in the analysis of the survey results:

1. How long have you worked in this hospital?

- a. Less than 1 year d. 11 to 15 years
 b. 1 to 5 years e. 16 to 20 years
 c. 6 to 10 years f. 21 years or more

2. How long have you worked in your current hospital work area/unit?

- a. Less than 1 year d. 11 to 15 years
 b. 1 to 5 years e. 16 to 20 years
 c. 6 to 10 years f. 21 years or more

3. Typically, how many hours per week do you work in this hospital?

- a. Less than 20 hours per week d. 60 to 79 hours per week
 b. 20 to 39 hours per week e. 80 to 99 hours per week
 c. 40 to 59 hours per week f. 100 hours per week or more

SECTION H: Background Information (continued)

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

- a. Staff Nurse
- b. Anaesthetic Physician
- c. Obstetric/Gynaecology Physician
- d. Paediatric Physician
- e. Midwife
- f. Operating Room Technicians
- g. NICU staff

5. In your staff position, do you typically have direct interaction or contact with patients?

- a. YES, I typically have direct interaction or contact with patients.
- b. NO, I typically do NOT have direct interaction or contact with patients.

6. How long have you worked in your current specialty or profession?

- a. Less than 1 year
- b. 1 to 5 years
- c. 6 to 10 years
- d. 11 to 15 years
- e. 16 to 20 years
- f. 21 years or more

SECTION I: Your Comments

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

Thank you for completing this survey.

Appendix 2: AHRQ - correspondence.

RE: access to data entry and analysis tool kit

From:  **Databases On Safety Culture** (databasesonsafetyculture@ahrq.hhs.gov)

Sent: 03 May 2009 09:34:25 PM

To: 'JAMILA CHELLAN' (jchellan@hotmail.com)

Hello Ms. Chellan,

Thank you so much for your interest in the AHRQ Hospital Survey on Patient Safety Culture (HSOPSC). As you know, the survey is free and available for public use. It can be downloaded along with other helpful tools and materials from the AHRQ web site at <http://www.ahrq.gov/qual/patientsafetyculture>

If you choose to administer the survey yourself without making any changes to the survey, you may find it useful to use the Excel Data Entry and Reporting Tool that can be downloaded from the Premier, Inc web site at <http://www.premierinc.com/quality-safety/tools-services/safety/topics/culture/data-tool.jsp> The tool has macros that allow you to enter your survey data and it will automatically produce charts displaying the survey results. We are currently working on updating this tool to include the most recent benchmarking data, so you will be able to compare your hospital side-by-side with the overall numbers. This updated tool should be available soon.

Thank you in advance,

Dawn

Dawn Nelson

Westat

1650 Research Boulevard, RA 1161

Rockville, MD 20850

Email: databasesonsafetyculture@ahrq.hhs.gov

Tel: (301) 294-2892

Fax: (toll free) 888-852-8277

-----Original Message-----

From: JAMILA CHELLAN [mailto:jchellan@hotmail.com]

Sent: Saturday, May 02, 2009 11:53 AM

To: Databases On Safety Culture

Subject: access to data entry and analysis tool kit

Good morning

Please may I have access to data entry and analysis for AHRQ hospital survey.

Thanks

Mrs Jamila Chellan

Masters Student

University of Stellenbosch

Cape Town South Africa

Appendix 3: Hospital ethics committee approval



Jamila Chellan
Clinical Services Manager
Anaesthetics Directorate

8th June 2009

Dear Jamila

Ref: Request to conduct a survey towards a Masters Degree in Nursing

I refer to my previous letter in May and your proposal to conduct a staff survey in the Operating Theatre as part of your endeavours for a Masters Degree in Nursing from the University of Stellenbosch.

I acknowledge receipt of copies of the survey sheet, the consent form and the confirmation of confidentiality and security for the data obtained. I confirm that I agree to this project being conducted at Al Corniche Hospital.

Yours sincerely

DAVID W SAXTON MB ChB FRCOG FRANZCOG
Chief Medical Officer

Appendix 4: Participant information leaflet

TITLE OF THE RESEARCH PROJECT: A SURVEY OF PATIENT SAFETY CULTURE IN AN OPERATING ROOM SETTING IN ABU DHABI

Student No: 15932125

Researcher: Mrs Jamila Chellan

ADDRESS: Al Corniche Hospital, Operating Room, P.O.Box 3788

CONTACT NUMBER: Landline: 02-6965490, Mobile 0508180996

You are being invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project.

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 Al Corniche Hospital.

The aim of this survey is to identify the patient safety culture in our operating room so as to improve patient safety standards in our attempt to regain our Joint Commission International recertification. All the operating room staff will be invited to participate in the study which involves the completion of a questionnaire. At the end of the survey the researcher aims to find out the existing safety culture in the operating room, hospital leadership support for patient safety, the effect of teamwork on patient safety, whether communication affects patient safety, the level of incident reporting and provide recommendations to management in order to improve the safety standards in the operating room. The questionnaire will take about 10-15 minutes to complete. You will be asked to consent to your participation in this study after a full explanation by the researcher.

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 refusal to participate will not interfere with any relationship with other staff or the management. Your responses to this survey will be respected and anonymity and confidentiality will be maintained; therefore your

name is not required on the questionnaire. Responses will not be linked to any participant therefore there are no risks attached to this survey.

Please contact the researcher about any questions or about any part of this questionnaire that you do not fully understand.

Please place your questionnaire in the envelope provided to ensure confidentiality. Insert your envelope in the box marked 'survey box' placed in the reception area of the operating room.

Thank you for your participation

Appendix 5: Staff consent form

Declaration by Participant

By signing below, I agree to take part in a research study entitled: A SURVEY OF PATIENT SAFETY CULTURE IN AN OPERATING ROOM SETTING IN ABU DHABI

I declare that:

- I have read or had read to me this information and consent form and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurized to take part.
- I may choose to leave the study at any time and will not be penalized or prejudiced in any way.

Signed at (*place*) on (*date*) 2010.

Signature of participant..... Signature of witness.....

Declaration by Researcher

I Mrs. Jamila Chellan declare that:

- I explained the information in this document to
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above

Signed at (*place*) on (*date*) 2010.

Signature of Researcher..... Signature of witness

Appendix 6: Thematic Analysis of Survey Comments

Code A: is related to the safety dimension of non punitive response to error.

We should encourage a blame free culture.

Fear of termination.

There is a culture of fear rather than efficiency.

Quick to blame but slow to praise.

Code B: is related to Frequency of event reporting

Staff regardless of position is too scared to report for fear of termination, a blame culture exists.

Scared to report, outcome is punishment.

Heavy work schedule, no time to write incident reports.

Code C: Is related to Feedback and communication about errors

We write incident reports with no feedback.

Rapid actions to rectify issues and disseminate lessons learned.

Unfortunately corrective action taken only after adverse event or complaint.

Code D: Is related to Overall perception of safety

Staff sent to unknown areas to work or help out.

Operating room has electrical safety issues, electrical wires lying on the floor.

Lots of paperwork, checklist to fill out, little time for patient care, management wants everything to look good on paper.

Too much paperwork and computer work, time lost to take care for patients.

Real patient care not given, more time spent on hardware and software than patient care, patient care and safety not a priority in this hospital.

There is a strong concept of safety in the operating room.

Operating room staffs are well orientated in promoting safety, team eager to suggest and improve safety.

Operating room staff must change frequently when entering the sterile zone.

Operating room is too cold for the babies.

Patient safety is a priority in our operating room inspite of us pushing grade one caesarian sections.

Errors are rectified before it reaches the patient.

Mistakes can be made when called from one area to another to take a case to the operating room. Incomplete checklists are a common problem.

Code E: is related to organizational learning and continuous improvement

Staff needs to be well orientated to ensure patient safety.

Midwives must be trained to position patients in the operating room for spinals.

Code F: is related to staffing

We need more staff in operating room.

2 nurses are required to take care of a critically ill patient in PACU.

We should have practice midwives in the operating room to take care of the babies.

Stress and fatigue of doctors to be studied separately.

Standby staff must be in the hospital, waiting for staff to come from home is a safety issue.

Code G: is related to teamwork within the unit

Midwives are in the operating room to rescue babies and for baby note documentation, not to position patients.

Unfriendly, unwelcoming, uncooperative staff in the operating room, too slow and do not work as a team. Seems our role is not important in the operating room.

Operating staff do not modify baby and vitamin K checks when asked.

Unnecessary delays between cases.

Operating room secretary to answer calls and get staff from NICU for emergencies.

Someone needs to direct us to OR 1, 2, and 3. It is frustrating to look for.

OR rooms too small for the resuscitator and there are too many staff in the theatre.

Patient safety is the priority of all.