Cape Peninsula University of Technology

A QUALITY MANAGEMENT SYSTEM (QMS) FOR A RADIATION ONCOLOGY DEPARTMENT IN AN ACADEMIC HOSPITAL IN THE WESTERN CAPE, SOUTH AFRICA.

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ABSTRACT

The focus of this study is to investigate the level at which quality management (QM) objectives, according to ISO standards, are met by the radiation oncology staff as well as doctors referring patients and patients receiving treatment at an oncology department. The study was undertaken at an academic hospital in the Western Cape, South Africa. The study addressed the following research question: “Do the QM system and practices at the division of Radiation Oncology at an academic hospital comply with ISO standards?”

Radiation therapy is the treatment of cancer with ionizing radiation. The department has Quality Assurance (QA) practices that assure the safe, consistent delivery of radiation to the target volumes that are defined for treatment from a technical point of view. Errors or incidents are inevitable and an understanding of when, why and how they occur could assure that systems are put into place to help minimize the frequency with which they occur. In order to do this, a systematically planned programme should be documented and implemented to assure that the treatment delivered meets the required standards. Such a programme is called a Quality Management System (QMS) and it must involve the documentation of all the processes that could influence or is involved in the treatment of patients. This includes the managerial, the psycho-social as well as the technical treatment planning processes. An important process is the identification of the QM objectives. Furthermore, the current levels of satisfaction with the QM programme needs to be assessed in order to improve the QMS.

The approach of the study is twofold. Firstly, the ISO standards regarding the first three QM objectives were identified and documented from literature and documents. The three QM objectives identified were: i) staff satisfaction and morale, ii) referring doctor satisfaction and iii) patient satisfaction. Secondly, the existing QM practices were investigated by means of an organisational satisfaction survey audit conducted with the staff in the department, the doctors referring patients to the department and the patients getting treatment at the department. The staff members were represented by a self-selecting sample group of 44 participants that completed a self-administered survey questionnaire. The referring doctors were also a self-selecting sample group of 64 participants that received a mailed or hand-delivered survey questionnaire. The patient group was a statistically calculated proportion sample of 230 patients that were interviewed with a structured administered survey questionnaire by the researcher.

The analysis of the data was layered and triangulated by means of identification of perspectives from different groups of people involved in the same setting. The first layer of analysis involved deconstructing and discussing the ISO documents, guidelines and policies in order to establish the required ISO standards regarding the three QM objectives researched in this study. The second layer of analysis involved quantitative descriptive analysis methods used to analyse the data generated by the Likert-scale questions. The third layer of analysis involved the analysis of the narrative data from

the open questions of the questionaires and structured interviews with the patients where content thematic analysis allowed categories to emerge by means of pattern matching. A benchmark of 50% was established from literature for satisfaction levels to be considered acceptable.

The findings of this study are expressed in terms of meeting this benchmark. In the staff group, five quality indicators were investigated. Three out of the five indicators of staff satisfaction (60%) met the 50% benchmark, which indicates that the department is meeting the standards set for this QM objective. The three indicators that met the benchmark were: i) working environment, ii) physical environment and safety and iii) job description. The two indicators not meeting the benchmark were i) recognition and ii) re-imbursement. In the referring doctor group a total of three quality indicators were investigated and two (66%) met the benchmark. The two indicators that met the benchmark were i) telephone etiquette and ii) patient management. The indicator not meeting the benchmark was follow-up reports. Therefore, the quality indicators for this specific QM objective are also meeting the standard required. The results for the last QM objective, patient satisfaction, shows that the seven indicators investigated have all (100%) met the benchmark set for satisfaction. The seven quality indicators investigated were i) administration, ii) atmosphere and comfort, iii) cleanliness of the department, iv) professionalism, v) information sharing, vi) cleanliness and safety in the ward and vii) patients' general comfort in the ward.

The content analysis resulted in recommendations that were categorised as follows: i) specific recommendations according to the thematic content, ii) practical recommendations for future audits and iii) recommendations regarding the proposed QMS for the department. An important outcome of this study was the establishment of baseline data regarding these three QM objectives and the development of shortened survey questionnaires for use in future organisational survey audits.

In conclusion, it is argued that quality improvement should be seen as a continuous, structured process using a system that can create participation throughout the department to plan and implement processes that would meet and exceed the expectations and demands of the clients and staff utilizing the services of the department. This process, together with the structure provided by the ISO 9000 set of standards, is a valuable guideline for the development of a comprehensive QMS.

This thesis was an initial step towards a scientifically documented, implemented and regulated QMS that could guide the department in working towards achieving their set objectives and eventually towards attaining Radiation Therapy specific accreditation.

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The financial assistance of CPUT towards this research is acknowledged. Opinions expressed in this thesis and the conclusions arrived at, are those of the author, and are not necessarily to be attributed to the opinions of Cape Peninsula University of Technology.

DEDICATION

I dedicate this work of knowledge to my three children; Hannah, Emily and Connor … with the belief that you will never allow yourself to stop learning.

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GLOSSARY

ACRONYMS

AAPM	: American Association of Physicists in Medicine
ACR	: American Committee of Radiotherapy
ACRO	: The American College of Radiation Oncology
ACSQHS	: Australian Safety and Quality in Health Services Standards
ARPANSA	: Australian Radiation Protection and Nuclear Safety Agency
CAPCA	: Canadian Association of Provincial Cancer Agencies
COHSASA	: Counsel for Health Services Accreditation of South Africa
EFQM	: European Foundation of Quality Management
ESTRO	: European Society of Radiotherapy and Oncology
FACCT	: Foundation for Accountability
FMAE	: Failure mode and effect analysis
FTA	: Fault tree analysis
HPCSA	: Health Professions Council of South Africa
IAEA	: International Atomic Energy Agency
IMRT	: Intensity Modulated Radiation Therapy
ISO	: International Standardisation Organisation
NHI	: National Health Insurance
QA	: Quality assurance
QAC	: Quality assurance committee
QC	: Quality control
QCM	: Quality control manual
QM	: Quality management
QMS	: Quality management system
SABS	: South African Bureau of Standards
SANAS	: South African National Accreditation System
SOP	: Standard Operating Procedures
WHO	: World Health Organisation

TERMS

Clients	: The clients are the people using the service/product offered or those involved in the processes regarding the manufacturing of the product or delivery of the service. In the case of this research study, it was the patients and the referring doctors.
Combined staff group	: This group included all the professional groups that were participating in the organisational survey: Radiation Oncologists, Radiation Therapists, Physicists, Professional Nurses, Social Workers, Registrars, Medical Technologists and Pharmacists.
Errors	: Errors are mistakes that could influence the Radiation Therapy of a patient, that could lead to over- or under-exposure to radiation or cause irreversable damage to the patient.
Incidents	: Incidents are potential errors that were noted before any errors were made.
Radiation Oncology	: The treatment of cancer with ionizing radiation or chemotherpy.
Radiation Therapist	: The radiation therapy practitioners, qualified in radiation therapy, who are responsible for the radiation planning and treatment of oncology patients.
The department	: For the purposes of this thesis, this refers to the study site at an academic hospital in the Western Cape where the research was done.

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CHAPTER 1

INTRODUCTION TO QUALITY MANAGEMENT SYSTEMS IN RADIATION ONCOLOGY

> ***"Good order is the foundation of all good things."***
>
> *Edmund Burke, from 'Reflections on the Revolution in France'*
>
> *(Oakland, 2003)*

1.1 Introduction

Radiation therapy is the treatment of cancer with ionizing radiation. It is similar to other high-risk industries, such as nuclear power stations, in that it requires attention to detail, precision, constant alertness and adequate material and human resources to minimise the risk of irreversible consequences (Dixon & O'Sullivan, 2003; Cotter & Dobelbower, 2005). The use of radiation therapy is deemed safe, however the wide range of conditions treated, along with the technological advancements and professional expertise needed, makes it a complex, multi-step process (Medical Physics, 2011). This process requires the involvement of different staff groups in the planning and the delivery of the prescribed radiation treatment. The consequences of a treatment error occurring could negatively impact on the patient's well-being.

The aim of radiation therapy is to:

- Deliver the prescribed dose to the designated target area safely and consistently;
- Give the target volume the required therapeutic dose;
- Minimize the dose received by the normal tissues adjacent to the target volume;
- Minimize the exposure to personnel and the environment (Thwaittes *et al*., 1995).

Errors or incidents are inevitable and an understanding of when, why and how they occur could assure that systems are put into place to help minimize the frequency with which errors or incidents occur (Medical Physics, 2011). The accuracy with which these aims are achieved has the potential to impact on the control of the tumour as well as the possibility of complications in the normal surrounding tissue (Van Dyk, 1999).

In order to fully understand the relationship between the working environment and the accuracy of delivering treatment safely in radiation therapy, the systems and processes must be documented,

implemented and evaluated. This process of documentation, implementation and evaluation involves the design of a Quality Management System (QMS) for the specific working environment. In this way a well-designed QMS is an official representation of a department's systems and procedures as well as its commitment to the delivery of quality radiation therapy (ISO, 2005).

This thesis is the initiation of a scientifically documented, implemented and regulated QMS in the Radiation Oncology Department at an academic hospital in the Western Cape, South-Africa.

From here on in, the Radiation Oncology Department will be referred to as 'the department' in the discussions of the research activities at the study site.

1.2 Background

The research site is one of two major public hospitals in the Western Cape, South Africa. Even though the public sector has faced many challenges, one of them being financial constraints, they have accomplished much in terms of the following:

- The medical and clinical oncologists are highly skilled and are reasonably remunerated through the state's occupation-specific dispensation plan.
- The procurement of radiation therapy equipment and chemotherapy agents has been secured through a state programme for the modernisation of tertiary services.
- The multi-disciplinary approach and clinical treatment protocols are part of the treatment approach.
- Private practitioners often work in collaboration with the public sector specialists for referrals of patients.
- The public sector offers formal training programmes for registrars in both clinical and radiation oncology and they are examined by the College of Medicine of South Africa (Abratt *et al*., 2012).

In light of these accomplishments and the future implementation of a national health system by the Government of South Africa, equality in terms of access and appropriate and affordable health care should be in the foreseeable future for more than 84% of our total population (Gouws *et al.*, 2012).

As part of a tertiary level state health care facility, the Government of South Africa expects that any service-level approach should also incorporate primary health care principles. This would guide the department to provide equal access and equity to patients, affordable and appropriate treatment delivered by a multi-disciplinary team that is following a holistic approach (Zweigenthal *et al*., 2009).

The advancement of computer technology and the acquisition of new equipment, as mentioned by Prof Abratt (2012), are important factors when determining the quality of care that is provided in a radiation therapy department. The shift from 'technologically able' to 'technologically advanced' is a very subtle one and can take place over a period of years. New technology acquired over recent years aims to advance this department to deliver the latest radiation treatment methods commensurate with both national and international norms. Therefore it is necessary that new management protocols need to be formulated, implemented and evaluated for this department.

In the past the quality measurement of medical care mostly stopped at the quality assurance (QA) program required by the Directorate of Radiation Control to ensure accurate dose delivery to target volumes (Cotter & Dobelbower, 2005). It is now widely recognized that quality management should adopt a total quality approach, which includes assessing and measuring the needs and levels of satisfaction of both employees as well as clients (Oakland, 2003; Juran, 1999).

Before the onset of this research project, the following was in place in the department:

- QA programmes on the treatment units according to the standards of the Canadian Association of Provincial Cancer Agencies (CAPCA).
- Occasional Patient Satisfaction Survey done by the Department of Health, with little or no feedback to the employees regarding the results.
- A file-system for reporting radiation incidents, but no clear guidelines as to what is constituted as an incident or a classification system for incidents.
- A file-system for Standard Operating Procedures, but not all processes were covered or identified.
- Patient satisfaction surveys done by a Nursing Sister in the ward and chemotherapy suite.

A Quality Assurance Committee (QAC) was established in the radiation oncology department. This was done simultaneous to but not as part of the research done for this study. The QAC appointed dedicated representatives from the different divisions to participate in the QAC of the department. The researcher is participating as an active member of the QAC and is involved in the revision of documents with the other members of the QAC. The following has been achieved by the combined effort of the members of the QAC to date:

- The QAC has drafted and approved a QA Policy Document that outlines the responsibilities and functions of the committee (see Appendix A).
- Clinical protocols are systematically updated by the specialist doctors – this is a long-term goal that would run parallel with the academic program in the department and once all the protocols are completed, the revision of all the documents would start.
- A patient and staff compliments/complaints system has been implemented in the department.
- The Quality Manager has drafted and proposed a Radiation Safety Manual based on standards as established by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA, 2008).
- The Quality Manager has drafted and proposed an Incident Reporting System Manual.
- A Quality Management Skills and Auditing course has been attended by representatives from the different divisions in the department.
- Standard Operating Procedures (SOP's) have been compiled for all the functional units in the department. An SOP template has been introduced on which all new SOP's are based.

This research project fitted into the activities of the QAC in that it provided baseline audit results for future internal or external quality audits. Future audits were not covered in the scope of this research project.

There is alignment with what has been done to date by the QAC and the documentation needed to formulate a quality manual. The implementation of quality processes in the department have been simplified by the participation of the different professional groups in the QAC and the improvement in communication that followed the well-defined "Terms of Reference" document (Appendix A) as set by the QAC.

1.3 Research Question

Do the QM system and practices at the division of Radiation Oncology at an academic hospital comply with ISO standards?

1.3.1 Research sub-questions

The three sub-questions are:

1) What are the ISO standards regarding three quality management objectives, namely: i) staff satisfaction and morale, ii) referring doctor satisfaction and iii) patient satisfaction?

2) What are the existing QM practices regarding these three quality management objectives?

3) Does the department of Radiation Oncology at an academic hospital meet the objectives regarding these QM aspects according to ISO standards?

1.4 Statement of Purpose

The purpose of this study is to investigate the level at which key performance indicators of QM practice are met by the radiation oncology staff in respect of doctors referring patients to the department and patients receiving treatment at the department. This was done by conducting a research study in the form of a baseline audit to evaluate existing quality management practices at the department of radiation oncology at an academic hospital in the Western Cape, South Africa.

1.5 Context of QA and QM in Radiation Therapy

Quality Assurance (QA) is the systematically planned actions that are necessary to ensure that the given standards or requirements of accuracy are met. Quality Control (QC) describes the regulatory process through which the quality performance of a department or group of people is measured. QC compares the findings with known standards and defines the actions needed in the case of non-conformance (Thwaittes *et al*., 2003). A well-designed Quality Management System (QMS) will combine QA and QC into a collection of all the processes, documents, resources and monitoring systems that would guide the organisation's work regarding the product quality and the service delivery (ISO, 2005). Both QM and QC are integral to ensuring consistent client satisfaction (ISO, 2008). The following figure illustrates quality management and its processes in radiation therapy.

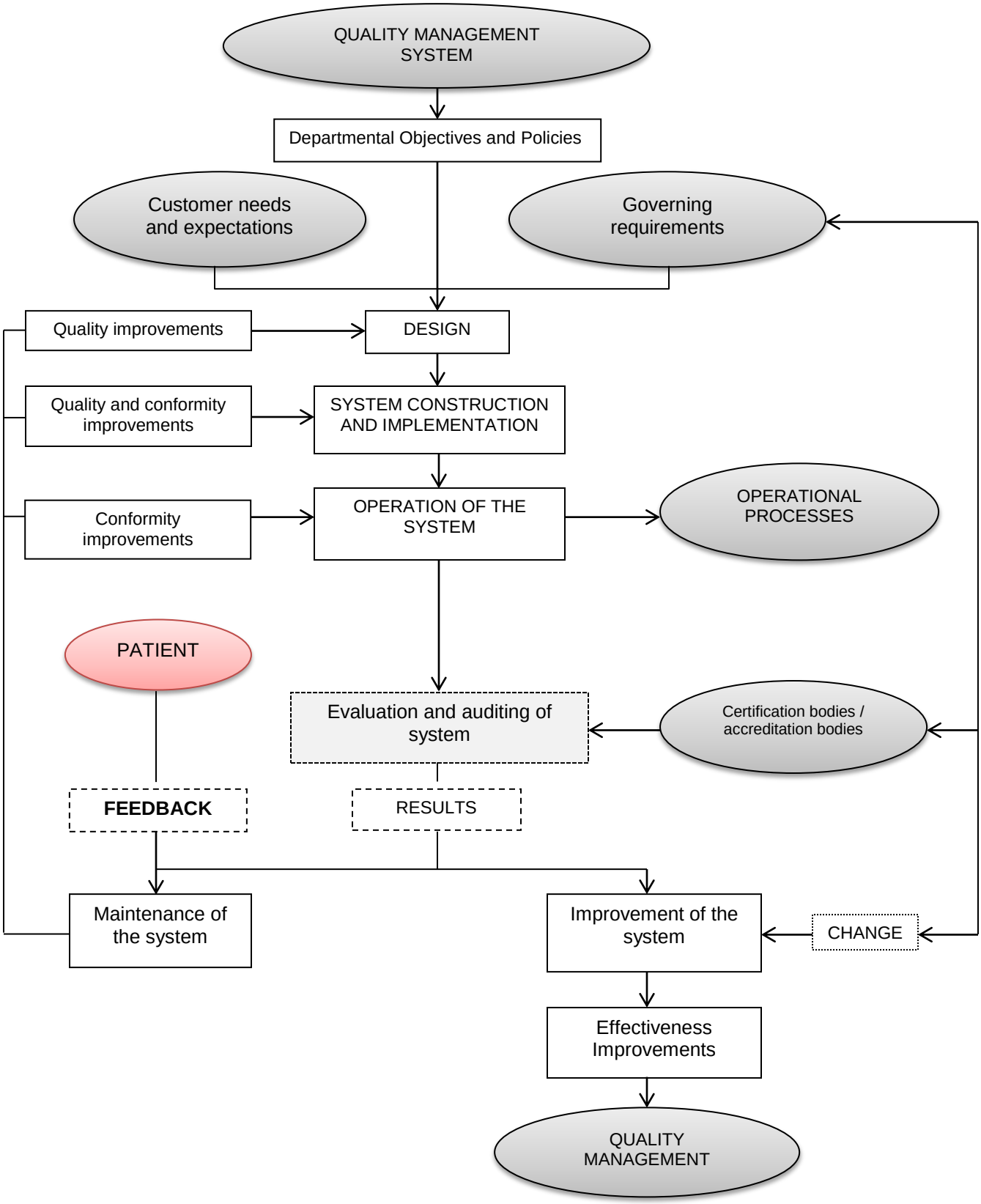

Figure 1.1: A proposed QM model for radiation therapy, adapted from a business model (Kwapela Learning and Consulting, 2011)

Traditionally, QA procedures in radiation therapy achieve improved dosimetric and geometric accuracy which in turn improves overall treatment outcomes. It can reduce the incidence of radiation errors and accidents within a radiation oncology department and can assure the standardisation of treatment delivery amongst different institutions (Thwaittes *et al*., 2003). The radiation therapist relies on the accuracy of the equipment and his/her colleagues to achieve the set standards. Fraass *et al* (1998) investigated the occurrence of radiation therapy errors and it was found that the majority of reported cases involved incorrect dosages to the patient. This was reported to be due to several factors, for example the incorrect use of depth dose information, information transfer errors and treatment planning calculation errors when using new treatment planning software. They proposed that a better understanding of the most risky aspects of the radiation therapy process was needed.

Shortt *et al* (2008) suggest that with the increased complexity of new and improved radiation therapy planning and treatment systems, it is important to challenge the purely traditional QA programmes. They state that the usage and implementation of the latest technologies necessitate a revised QA training programme that includes clinical and managerial components (Shortt *et al*., 2008).

There are many QM guidelines published by reputable organisations such as the American Association of Physicists in Medicine (Fraass *et al*., 1998) and the International Atomic Energy Agency (IAEA, 2007). These guideline documents have established parameters to monitor the functional performance of radiation therapy equipment. Tolerances were set to be stringent but achievable, the latter suggesting that it should be within the physical limits of the equipment that is checked. It was noted that it is important to prioritize the QM activities to achieve a balance between what is reasonably achievable and what would provide the optimal benefit to the patient (Huq *et al*., 2008).

Task Group 100 (TG100) of the AAPM states that an understanding of all the potential errors during the course of a radiation treatment could highlight the clinical impact of these errors, making them preventable in future. Identifying continuous errors can also show a possible gap in the professional education programmes (Huq *et al*., 2008).

This approach towards QM agrees with the process approach as advocated by the International Standardisation Organisation (ISO, 2000). ISO believes that any organisation that wishes to function effectively has to identify and manage a variety of linked activities. These activities are at times

linked in such a way that the output of one activity forms the basis for the input of another (ISO, 2008). In radiation therapy, this is clearly demonstrated by following the patient pathway from diagnosis to the actual prescribed treatment. There are many different stages in this process where errors can occur and by monitoring the process as a whole, such errors can be predicted and prevented (Rath, 2008). It is also possible that there would be more stages, sub-stages, parameters and factors involved when the treatment techniques are more complex and this in turn would require far more complex QA practices (Thwaittes *et al*., 2003).

To monitor and manage the processes suggested by traditional QA methods is almost impossible. It is physically not possible to measure every measurable aspect as the traditional QA models propose we do. It would be too time-consuming and there is not enough man-power to effectively run such an extensive programme. The introduction of image-guided radiotherapy treatment techniques (IGRT), intensity-modulated radiation therapy (IMRT) and sophisticated equipment has increased the amount of tests and checks that have to be done for patient-specific QA. Thus new technology effectively puts further strain on available resources. A further challenge is to develop a QA programme that offers a balance between quality and patient safety versus the resources that are available, flexibility in the programme and prescriptiveness (Huq *et al*., 2008).

In a clinical setting such as the radiation oncology department the different role-players, e.g. oncologists, radiotherapists, physicists, nursing staff, etc. are all committed to quality care and treatment delivery. The challenge arises in changing from the basic commitment in quality to performance driven quality care for patients. The latter involves constant evaluation and change to improve performance all the time (Silvey & Warrick, 2008). It is also important to remember that radiation therapy involves various processes for which different staff groups are responsible. This multi-disciplinarity can increase the possibility of errors, particularly where information is passed across the interface between the different staff groups (Thwaittes *et al*., 1995).

It is human nature to make mistakes. QA protocols have been developed to ensure that mistakes/errors do not occur intentionally or can be identified immediately. The aim of a comprehensive, systematic and consistent QMS is to minimize the number of incidents or errors and to ensure that they are identified early enough in order to minimize the consequences thereof for the patient (Thwaittes *et al*., 2003).

The identification of QM objectives (performance areas) is the first step in setting guidelines towards the development of a QMS. Specified key performance areas would enable the department

to set specific standards and guidelines that would help them to measure performance (Cotter & Dobelbower, 2005).

The QM objectives, according to ISO (2005), should primarily benefit the patient (client). ISO also prescribe that these objectives should be measurable and consistent with the chosen or existing quality policy. There are many challenges in health care that vary from workforce shortages to reimbursement reductions (Fryefield, 2008).

The public's expectations of quality health care have increased, even though resources are diminishing globally. Accountability and standardisation of clinical practice are expected by consumers and the regulatory bodies of different professions (Cheah, 1998). Clinical guidelines have been implemented locally and internationally to decrease errors in radiation therapy, therefore the assumption is that if the errors are decreased the clinical effectiveness would increase once these guidelines have been implemented (Huq *et al*., 2008).

Errors can be minimized if they are anticipated and they can be anticipated if the processes in which they occur are understood properly. A well-designed QMS, incorporating all the relevant quality management objectives, will simplify this process and prevent incidents that can be harmful to patients.

1.6 Research Impact

The term quality is generally used to describe the "excellence" of a service or product. In the case of radiation therapy it is a service. This service in turn implies that there is a need for it from a client. Understanding this need gives the provider the ability to "control" the quality of such service. By controlling the quality of the service and by implementing measures to improve on that service, the provider is effectively managing the quality of that service (Oakland, 2003). QM assures good QA which in turn prevents quality problems by means of planned and systematic activities. This research will influence the planning and implementation of quality measures to improve service delivery.

1.7 Rationale for this research project

The current market and regulatory requirements warranted the revision and adaptation of the existing quality practices in the Radiation Therapy department. Implementing a QMS will enable the documentation and evaluation of quality control activities and establish standards for each QM

aspect. The decision of an organisation to adopt a QMS is a strategic one, in that it would assess the organisation's ability to meet customary and regulatory requirements that are applicable to the service delivered. Such a QMS is defined by many factors, for example the organisational environment, its needs, its objectives, the type of service it provides, the size and structure of the organisation and the specific processes involved in service delivery (ISO, 2008).

All the identified QM aspects should be included in the design of a QCM to ultimately determine the degree to which the department is fulfilling its QM objectives.

The main categories of departmental QM objectives include the following:

1) Patient Satisfaction (ISO, 2005; Cotter *et al.*, 2005);
2) Referring doctor satisfaction (ISO, 2005);
3) Staff satisfaction and harmony (IAEA, 2007);
4) Staff development and training (IAEA, 2007);
5) Efficient use of available equipment and resources (IAEA, 2007);
6) Effective treatment planning and delivery (AAPM as in Fraass *et al.*, 1998; ACRO as in Cotter *et al.*, 2005);
7) Patient and environmental safety (Fraass *et al.*, 1998; Cotter *et al.*, 2005);
8) Accurate and traceable record keeping (Fraass *et al.*, 1998);
9) Continuous quality improvement (IAEA, 2007; Cotter *et al.*, 2005).

These QM objectives will form an integral part of the QMS and cannot be seen as single entities. They are also key components in achieving the objectives of this study.

1.8 Objectives of this research project

The research project objectives were:

- To document and outline ISO standards for *three quality management objectives*, namely:
    a. Staff satisfaction and morale;
    b. Referring doctor satisfaction and
    c. Patient satisfaction.
- To research the current status of the department regarding these three objectives.
- To identify and recommend areas of improvements on the three investigated areas.

1.9 Project Delimitations

Delimitations of the study are as follows:

1) Only current staff members will be asked to participate on a voluntary basis and they will be requested to sign an informed consent form;
2) Patients will be requested to participate on a voluntary basis after informed consent has been obtained.

1.10 Organisation of the chapters

A brief outline of each of the chapters of this thesis is given below.

a) Chapter 2 – Review of the literature

Chapter 2 is divided in two sections. Section A discusses ISO as a Quality Management System in Radiation Therapy.

In this section the literature on QM systems are reviewed. This includes a discussion on elements of a good QMS and the design thereof. ISO standards are discussed in detail with reference to the process approach and identifying processes.

QMS requirements according to ISO 9001:2000 are discussed in detail with reference to the relevance of the requirements on this project.

This section is concluded with a detailed discussion on auditing and auditing activities.

Section B presents the literature on Employee and Staff Satisfaction.

This section covers the issues surrounding employee and client satisfaction. Aspects of leadership, commitment and employee attitude are discussed. Attention is also paid to the emphasis that ISO places on leadership.

Ethics and job behaviour are discussed in line with staff motivation and the expectancy theory of motivation.

The discussion on client satisfaction includes selected South-African studies that draw a parallel with American studies. The researcher discusses patient needs and expectations.

b) Chapter 3 - Research Methodology

Chapter 3 presents the research design for this study. The study approach was in the form of an internal audit. The research design is discussed with reference to the methodology, participants, sampling and instrumentation.

The data collection methods are described and the validity, reliability and credibility of the data are discussed. Ethical considerations and the positionality of the researcher are also addressed.

c) Chapter 4 – Research Results

The results of the organisational survey are discussed in detail using graphs to illustrate the results obtained from the organisational survey.

d) Chapter 5 – Discussion, Recommendations and Conclusion

This chapter discusses the results of the survey questionnaires with specific attention to the themes that were identified in the open questions of the questionnaire. Recommendations are made based on the themes identified and on the thematic content of the interviews done with the patients.

CHAPTER 2

REVIEW OF THE LITERATURE

2.1 SECTION A: ISO AS A QUALITY MANAGEMENT SYSTEM

> ***"A system must have an aim. A system must create something of value, in other words results. Management of the system requires knowledge of the interrelationships between all the components within the systems and of the people that work in it."***
>
> *W. Edwards Deming in Hoyle* (2001).

2.1.1 Quality Management Systems

In the late 1990's many of the different segments of the US health care industry, for example offices of the New York State Department of Health, adopted the Total Quality Management (TQM) theories of Deming and several "Quality Guru's" like Juran, Feigenbaum, Ishikawa, Shingo and Crosby (Andrzejewski & Lagua, 1997). Deming's Plan-Do-Check-Act-cycle (PDCA) was used to demonstrate the processes that were identified in several different industries to get continuous feedback from customers in order to facilitate change and improvements. These approaches of total quality management have since been modified for health services, even though their original use was defined for business purposes (Oakland, 2003).

The Foundation for Accountability (FACCT) has released reports in 2000 and 2003 commenting on the state of the health system in the United States of America. The US health industry is often used to model health care trends all over the world and according to this report it seems to be experiencing problems (FACCT, 2000). FACCT (2003) reports that it was estimated that the cost of health care was increasing at six times the rate of overall inflation in the US. Furthermore, problems in quality and safety have now become general knowledge to consumers by means of information technology and the availability of information through the media. Integration and reform measures that were promised by managed health care systems have unravelled and left most beneficiaries with insufficient coverage for optimal treatment. Further problems identified were that medi-care systems were unable to accommodate the provision of new therapies and access to good health care was hampered, even though there was a proliferation in health information and communication via the internet. These problems have all surfaced during a period where there were remarkable innovations in health information and technology (FACCT, 2003).

It became clear that the health care system in the USA needed to shift its focus to embrace a technologically able public that was exposed to evidence based medicine and medical practice. Instead of simply treating patients, the trend shifted to quality of treatment and patient satisfaction (Hudak *et al*., 2003).

To manage for quality, there should be an initial understanding of what is perceived as quality. Juran (1999) specified two meanings of the word 'quality' that is of the utmost importance in the management of quality. They are:

1. The understanding that 'quality' is seen as the feature of a product that can lead to customer satisfaction, and
2. The concept that 'quality' implies the absence of errors or deficiencies which could rule out customer dissatisfaction (Juran, 1999).

It is important to distinguish clearly in quality manuals what is perceived as quality in order to manage quality properly. The assumption is also made by Juran that quality could be seen as "conformance to specification", but in the health care system the definition of quality should include the customer needs as seen through a service-delivery viewpoint (Juran, 1999).

Where traditional QA systems were focussed on the functional performance of radiation therapy equipment, the more recent models describe the importance of investigating the whole *radiation therapy process* as part of the quality assurance (QA) programme. However, to implement such a comprehensive QA programme is labour intensive and many departments do not have the personnel to perform all the tests that the new technologically advanced equipment demands (Huq *et al*., 2008). Task Group (TG) 53 of the American Association of Physicists in Medicine investigated QA procedures for the treatment planning process and identified more than 170 different tests and verifications that had to be performed (Rath, 2008). These guidelines would be a difficult task for most radiation therapy departments in South Africa to follow since time constraints and shortage of staff might not allow for such intensive testing procedures. As a developing country South Africa is in the process of moving to improve public access to the health sector within areas such as radiation therapy and thus the need to improve infrastructure and address the consequent need for staff capacity building (Shaw, 2000; Gouws *et al.*, 2012).

Juran (1999) described these extensive inspections and tests as costly, but they have to be done. He is of the opinion that the health sector is placing emphasis on the quality improvement concepts by refining their improvement procedures in the internal quality assurance programmes.

From these factors it can be deduced that the successful implementation of a QMS in a department depends not only on the environment of the specific department, but also on the social, political and economic environment of the country (Shaw, 2000). In developing countries there is a great need for general and infrastructural improvements within the health sector. A QMS that is sustainable therefore depends on the development of a quality assurance structure, continuous standard setting, quality improvement activities and routine monitoring. This will help develop a culture of quality service provision of radiation therapy (Shaw, 2000).

It is also imperative that the management team buys into the concept of quality management, since the deciding factors about the success of a QMS will be connected to the managerial processes that should be implemented to manage for quality. These processes, according to Juran (1999), include quality planning, quality control and quality improvement.

a) What is a QMS?

Oakland (2003) defines a QMS as a composition of factors, such as the management structure, responsibilities, processes and resources that should be used to implement total quality management. All these factors interact and are affected by each other.

ISO defines a QMS as the collection of processes, documents, resources and monitoring systems that guides the work of the organisation regarding product and service quality. The organisation needs to establish, document, carry out and maintain this system to meet the requirements as set out in the ISO 9001:2000 document (ISO, 2008).

ISO (2008) has identified factors that can influence the design, planning and implementation of a QMS. They are:

- The specific needs of the organisation and the customer;
- The objectives of the organisation;
- The product or services delivered;
- The identified processes and their complexities and interactions;
- The size of the organisation;
- The staff competence.

ISO further requires that when a QMS is designed, it should represent a well-documented QMS and not a well-managed document system (ISO, 2008). The emphasis should therefore be on the standardisation process and not on the set of documents that is needed to accomplish it. ISO stipulates specific QMS requirements that will be discussed in section 2.1.4 of this chapter.

b) Elements of a good QMS

Graham (2001), in outlining guidelines for SABS, recommends that when auditing a QMS, an auditor should check for very specific elements within an ISO 9001:2000 compliant document even before the audit starts.

He/she should check the following elements in the QMS when starting an audit:

1) Whether the scope of the organisation's QMS is limited in any way.
2) Has the organisation excluded any requirements of the standard from their QMS?
3) Were specific and relevant processes for their QMS identified?
4) Has the organisation included a sequence or description of the interactions between the identified processes of the QMS?
5) Are there specific methods put in place to ensure that the operation and control of these QMS processes are effective and what are those methods?
6) Did the organisation identify specific documentation categories?
7) Are these documents controlled and is there a 'documented procedure' to describe this control?
8) Are the planning, operation and control of the QMS processes documented and are they working effectively?
9) Did the organisation identify any statutory and regulatory requirements related to the service that is delivered and is it evident in the QMS?
10) Has the organisation addressed the new, enhanced requirements for ISO?

(Graham, 2001; ISO, 2008).

Hoyle (2001) discusses the implementation of a QMS in terms of the requirements as set out by the ISO 9001 standards. The requirements, however, do not define itself according to the *system,* but according to the *organisation* and what the organisation shall do to comply with the requirements. Compliance will therefore only happen if the QMS is integrated into the way the organisation does things. A QMS cannot simply represent documenting what you do and call it a system (Hoyle, 2001).

c) Processes involved in quality management

As early as the 1960's it was proposed by John Williamson, the dean of American health care quality researchers, that quality assurance should have a 'feedback' process in which information about performance can be used to identify areas that need improvement (Juran, 1999). Processes were not clearly defined in the earlier health care approaches toward quality management, but it has evolved with the development of the ISO standards (ISO, 2000; ISO, 2005).

Version 2000 of the ISO 9001 family of standards is based upon the understanding that all *work* is achieved through a series of processes. For an organisation to implement a process-based QMS, they have to identify these *activities* or processes and manage them effectively. William Graham was the South African representative for ISO and was responsible for compiling an auditor's checklist and guidelines for auditing on behalf of ISO (Graham, 2001; ISO, 2005).

The South African Bureau of Standards (SABS) in their guidelines for auditing ISO 9001:2000 standards (Graham, 2001) states that a process can be visualized as follows:

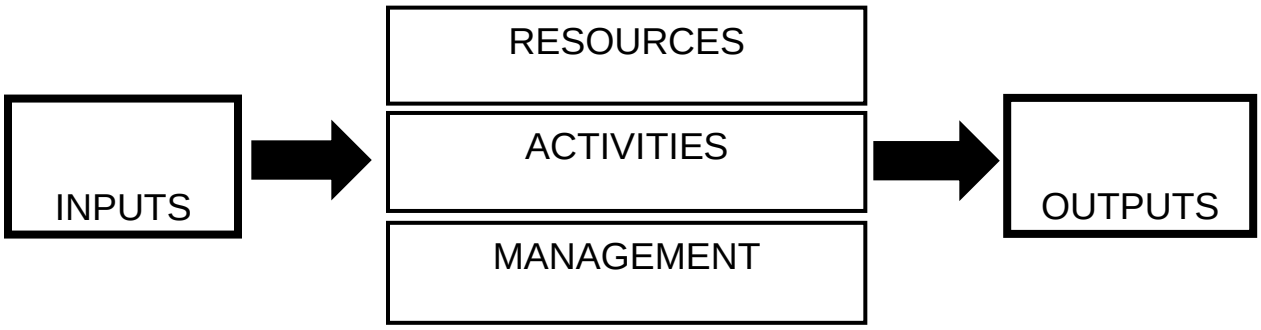

Figure 2.1: A conceptual diagram of a process (Adapted from Graham, 2001)

Every process should have *inputs,* which can be seen as the planning stage. The *outputs* are seen as the result(s) of the process. It can be a tangible product or a service delivered. The process should always add value and it will always involve people or other resources.

Graham (2002) for the SABS, as well as ISO (2008), note that in auditing quality objectives typical process inputs can include:

- The business policies and goals of the organisation;
- The quality policy of the organisation;

- Statutory and regulatory requirements for the organisation;
- Operational requirements;
- Views/needs of customers or others parties or consumers;
- Feedback from surveys, reviews, improvement activities or employee suggestions;
- Performance analysis that was measured against previous set quality objectives;
- Past records of non-conformities;
- Results of the required management review.

A typical *activity* would be to set the QM aspects (objectives) at all the different levels throughout the organisation. These objectives should address both the company quality issues and quality issues raised by staff members in all different levels within the company or organisation. Prioritizing the quality objectives can create an environment where management can effectively plan and allocate resources for future activities(Graham, 2002; ISO, 2005).

In order to manage and implement the QM aspects, each aspect must have suitable performance indicators. Checks must be in place that will ensure that the chosen quality indicators are consistent with the quality policy, are realistic and achievable, have the potential to add value and are capable of being measured (Graham, 2002). It is important to communicate these QM aspects in order to ensure that they are implemented appropriately.

Once the quality indicators are identified, the result would give typical process outputs that would address topics such as:

- Customers satisfaction
- Response times
- Performance delivery
- Internal failure reductions
- Warranty claims
- Improved performance
- Processes, measurements and controls for the quality management system (Graham, 2002; ISO, 2005; ISO, 2008).

A good process has certain characteristics:

- There is a clear *initial event;*

- There is a clear *result;*
- The *inputs* are clear;
- The specific *outputs* are identifiable;
- The process will *cross organisational boundaries* to achieve the result;
- Each activity is undertaken only *once;*
- It is *documented;*
- It is easily *understood* by the participants;
- It will always *contribute* towards the *organisation's mission* (Graham, 2002; ISO, 2005; ISO, 2008).

The ISO 9001:2000 standard specifies various processes that must be included in the QMS of an organisation, i.e. communication processes; management review processes; product consciousness; customer-related processes; design and development processes; purchasing processes; monitoring and measuring processes; monitoring, measuring, analysis & continual improvement processes and the auditing process (Graham, 2001; ISO, 2005).

An example of a planning process that is needed by an organisation, according to ISO (2008), can be visualized as follows:

Figure 2.2: A process with specific inputs and outputs (Graham, 2002)

Graham (2001, 2002) indicates that it is important to manage processes effectively, since a poorly chosen process can lead to an unnecessary procedure that could in turn do nothing more than waste valuable resources.

d) The Process of Radiation Therapy

The American College of Radiation Oncology (ACRO) advocate that the external beam radiation therapy process consists of a series of steps (Cotter & Dobelbower, 2005). These steps follow a logical order. They state that the typical procedures for external beam radiation therapy are as follows:

1) *Consultation* – this involves taking the patient history, performing physical examinations, reviewing diagnostic reports, stage the tumour, communicate with other doctors involved;

2) *Informed Consent* – this has to be obtained by the doctor and documented; it should include the proposed treatment, its rationale, other options for treatment and the expected risks and side effects;

3) *Treatment Planning* – this involves the doctor planning the treatment by means of selecting specific beam characteristics, method of delivery and dose; the doctor should give a treatment prescription which ideally should include the volume to be treated, description of type of plan, modality, dose per fraction (#), #'s/day, #'s/week, total number of #'s, total tumour dose and the signature of the treating doctor;

4) *Simulation* – this is the process of verification of the planned treatment area(s); this can be done on a physical simulator, virtually (computer treatment planning system) or on the treatment machine with EPID (electronic portal imaging devices) or cone-beam CT;

5) *Dose calculation and/or computer planning* – this can be done electronically (treatment planning computer system) or manually and should be verified by another person before treatment commences;

6) *Treatment aids* – this involves the use of immobilization devices for positioning the patient, shielding of normal tissue or improvement of the dose distribution (beam attenuators or beam shapers);

7) *Radiation treatment delivery* – the Radiation Therapist administers the daily treatment according to the prescription and documents and records the treatments daily;

8) *Treatment verification* – at the start of treatment, each beam should be verified by means of portal verification films of the patient in the treatment position; these should be compared to the simulation films to verify that the treatment given is the same as the planned treatment;

9) *Continuing medical physics* – whilst on treatment, the medical physicist should review the patients records regularly to ensure that the treatment is delivered according to the prescription;

10) *Radiation treatment management* – the patient should be evaluated by the Oncologist on a weekly basis and checked for response to treatment or treatment related side-effects;

11) *Follow-up medical care* – the Oncologist should arrange for on-going follow-up care for the patient upon completion of radiation therapy treatment (Cotter & Dobelbower, 2005).

The ISO standard requires that organisations identify processes that are needed for the QMS and the applications of the QMS throughout the organisation. This implies that there would be more than one process (not to be confused with procedures) in place that would be responsible to reach the objectives of the organisation. These processes are all interconnected within a specific sequence with one another and are equally important to achieve a desirable outcome (Hoyle, 2001).

A structured process would typically provide the opportunity for different role-players in one service process to collaborate and improve the efficiency of their work, as well as increase the respect towards each other's work (Cotter & Dobelbower, 2005). The processes of external beam radiation therapy are guided by specific departmental protocols and international guidelines (e.g. IAEA, AAPM TG53, ACRO) and it is recommended that a QMS ensures that these processes are audited regularly (Cotter & Dobelbower, 2005; Graham, 2002).

e) Designing a QMS

No QMS should be represented by a random collection of procedures, documents or tasks; it should be designed so that all components fit together to achieve a common purpose. The inputs and outputs need to be connected and information should constantly be fed into the processes that should ultimately result in improvement of performance (Hoyle, 2001). Therefore it is safe to say that the QMS should not be part of the management system, it should ultimately be the management system and represent the views and beliefs of the management team.

This means that the design of the QMS should apply to and interact with all the different processes that are identified in the organisation. In practice this implies that one should start by identifying customer requirements and end with customer satisfaction (Hoyle, 2001).

The ISO 9001:2000 guideline (2008) has designed a process-based model that integrates four major areas (see Figure 2.3). They are:

- Management responsibility,

- Resource management,
- Product realization and measurement and
- Analysis and improvement.

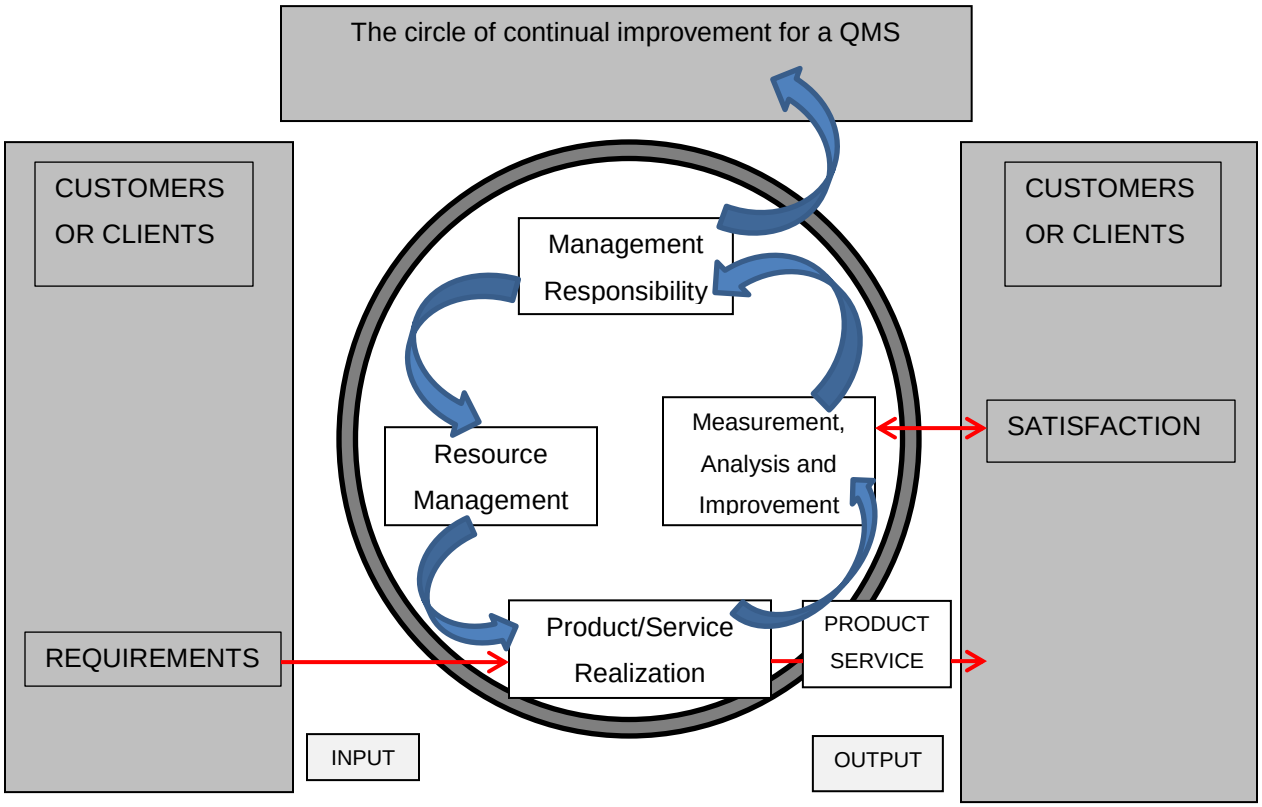

Figure 2.3: A process-based quality management system (Adapted from Oakland, 2003)

When looking at the ISO 9000:2001 families of standards, it is clear that it follows the process-based approach. Eight well-documented management principles have been identified to govern top management:

- Customer focus
- Leadership
- Involvement of people
- Process approach
- System approach to management
- Continual improvement

- Factual approach to decision making
- Mutually beneficial supplier relationships

  (Hoyle, 2001).

Hoyle (2001) is of the opinion that a quality management principle should be a fundamental belief that can assist in running and leading an organisation. These principles should be aimed at continual improvement to benefit the customers in the long term, as well as meet the needs of other interested parties, like employees, investors, unions, regulatory bodies and owners (Hoyle, 2001).

Also of interest when designing a QMS is the fact that the concept of Deming's cycle of continuous improvement (Plan-Do-Check-Act) constantly features in any good QMS system (Oakland, 2003) (Juran, 1999). It is recommended that there should be a culture of never-ending improvement in any quality management system. The constant feedback-loops and the corrective loops are evidence of such a culture (Oakland, 2003).

Oakland (2003) notes that many organisations are already working with identified processes that they merely need to start documenting what they are already doing. Further, he observes that other organisations do not have procedures that satisfy the requirements of a good international standard. He states that it is important to decide on a system that meets the requirements of a good standard that would be applicable to the organisation. In this way the organisation can have a practical working quality management system that will assure consistency within the organisation and can also be used as a training aid (Oakland, 2003; Hoyle, 2001).

The responsibility of a QMS system lies with all that is involved in any of the processes that this system will manage. This proves the challenge for many organisations that are operating using systems where the challenges exceed the expectation of its customers (Oakland, 2003).

Oakland (2003) feels that a great principle to adhere to is that: there cannot be a process without measurement (data collection); you cannot have measurement without analysing the data; there cannot be analysis without making decisions about the analysis and finally, no decision can be made without taking action (improvement). He notes that these factors should guide the design of a quality management system along with the fact that the system must reflect the current practices of the organisation; improved, where necessary, to bring them in line with current and future requirements (Oakland, 2003).

It is therefore clear that the ISO 9000 regulations address quality management needs and they imply that the institution should maintain client satisfaction by meeting client needs and the regulatory requirements, as well as ensuring the continuous improvement of these quality management aspects (ISO, 2000).

f) Why implement a QMS?

Oakland (2003) notes that an efficient QMS will meet two very important requirements:

1) *The client's requirements* – the trust the customer has in the organisation's ability to deliver the desired service (in this case radiation therapy) consistently.
2) *The organisation's requirements* – this includes internal, external and regulatory requirements with efficient use of the available resources such as funds, staff, equipment, material and information.

These requirements can only truly be met if evidence is provided of activities to support and improve the chosen QMS (Oakland, 2003). Planning for quality management will provide evidence about the intent to provide quality service through the activities undertaken by management (Juran, 1999).

A consistently satisfied customer would be the product of a well-designed QMS and a management team that operates according to this system. According to the ISO 9001:2000 document, the aim would be to improve customer satisfaction by effectively applying the QMS and to conform to not only regulatory but also customer requirements (ISO, 2005; Juran, 1999). This can be visualized with figure 2.4 that describes the systematic approach to process management (where the red arrows demonstrate the constant feedback that should be present in a functioning QMS):

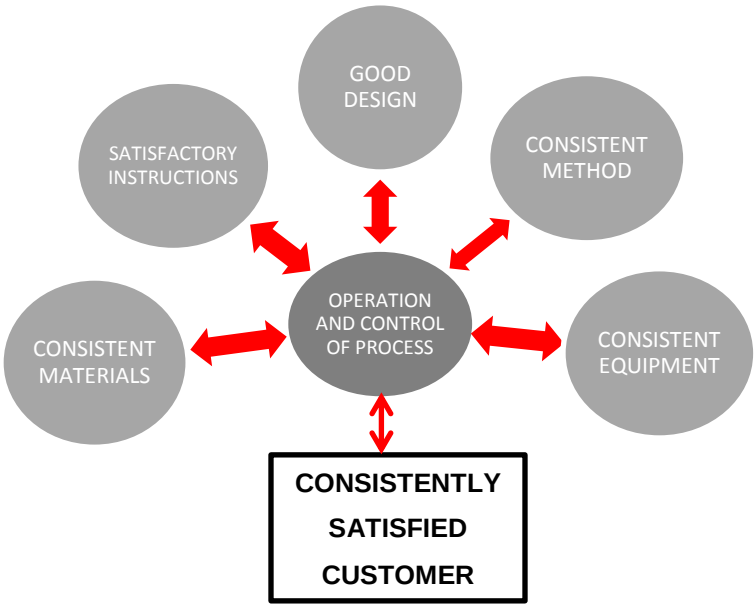

Figure 2.4: A systematic approach to process management (Adapted from Oakland, 2003)

2.1.2 Standardisation systems and guidelines

There is a clear difference between a standard and a specification. A *standard* can be defined as a "…detailed, formally ratified and fixed technology, format or method which enables the performance of a particular task or activity". This indicates an industry specific task or activity. A *specification* is a company specific document which sets specific parameters for a specific item, machine or service (Kwapela Learning and Consulting, 2011).

When a company is conforming to a specification it helps with the development and formulation of a standard.

Existing standardisation systems and guidelines used worldwide in health care systems and more particularly for the purposes of this thesis, radiation therapy, include the following:

1) ISO (International Standardisation Organisation);
2) COHSASA (Counsel for Health Services Accreditation of Southern Africa);
3) SANAS (South African National Accreditation System);
4) SABS (South African Bureau of Standards);
5) IAEA (International Atomic Energy Agency);
6) AAPM (American Association of Physicists in Medicine);
7) EFQM (European Foundation of Quality Management);
8) ACRO (American College of Radiation Oncology);

9) ACR (American Committee for Radiotherapy);
10) ESTRO (European Society for Radiotherapy & Oncology) and
11) ACSQHS (Australian Safety and Quality in Health Service Standards)
(Eiselen, 2005; Van der Westhuizen, 2012).

Each of these systems have their merits that are based on the successful implementation and continuous improvement of quality management systems with the focus moving towards client satisfaction and quality service delivery (ISO, 2005).

All the above-mentioned standards also apply the audit methodology in order to place the emphasis on the organisational structure rather than on the treatment outcomes (IAEA, 2007).

2.1.3 The ISO 9001:2000 standards for a QMS

a) Historical Development of the ISO standards

The following is a summary of the British perspective of how quality principles developed over the centuries. This describes the origin and development of ISO standards as we know them today.

From the flow chart given below it can be seen that as far back as 3000BC, man was trying to impose some sort of order on business matters. The Egyptian Pharaoh, Imhotep demanded inspection of goods and at the same time the Sumerians developed a written language for business in order to make record of their business matters. The next steps to establish written standards were seen in the third century onwards where again it was man's attempt to bring order to business and trade practices. In the sixteenth century England with the emergence of wealthy businessmen and their companies, more standards and regulations were required and the formation of specialist trade associations emerged. In eighteenth century England there dawned the "Age of the Specialist" as the industrial revolution took over British society, trade and market practice and thus started specification of standards in labour practice, production of goods and the quality inspection of such goods (Hoyle, 2001).

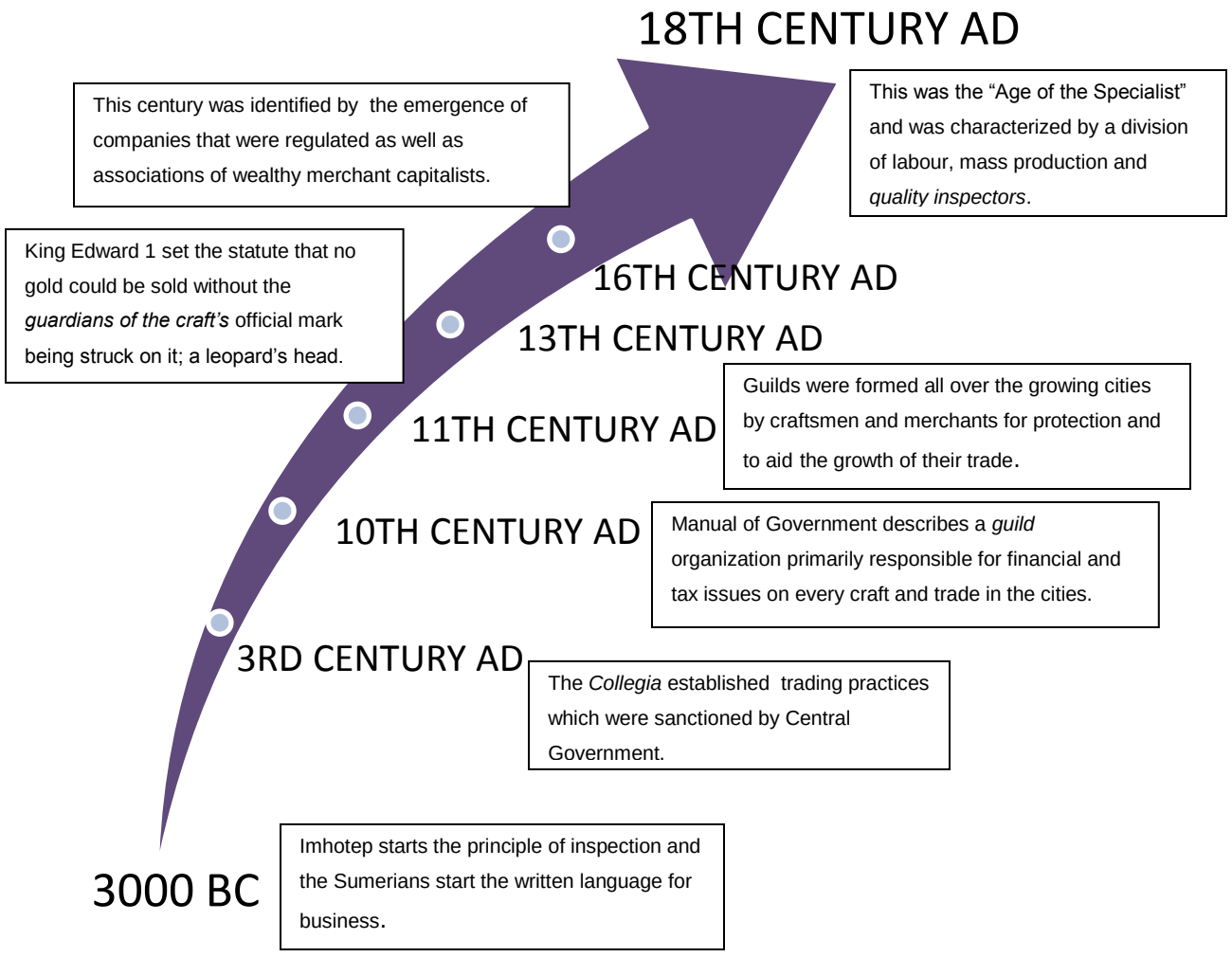

Figure 2.5: Summary of the historical development of ISO (summarized from Hoyle, 2001)

The industrial revolution, the urbanisation of the work force coupled with the increase in the trade emanating from the British Isles and culminating in the mechanisation of production resulted in further development of standards being required and this can be seen in the twentieth century progression described in Table 2.1.

b) Development during the 1900's

From the early twentieth century it is seen that quality control and tasks were to be recorded and after World War 2 the need for quality standards and internationalisation thereof increased exponentially. From Table 2.1 it is clear that the defence industries in the Western world drove the

era of standards, quality, requirements and internationalisation up until the release in 1990 of the ISO 9000 standards. This culminated in the mid-1990 when the US military decided to adopt the ISO 9000 recommendations (Hoyle, 2001; Juran, 1999).

Table 2.1: Milestones in quality standards during the 1900's (Hoyle, 2001)

1911	Frederick Winslow Taylor wrote his task conceptual principles and introduced written work instructions
1914	With the onset of WW1, the Ministry of Munitions is formed to govern the manufacturing of weapons
1916	Henry Fayol makes his contribution to the management theory by insisting that technical work should be separated from administrative activities
1951	J.M. Juran writes the world famous 'Quality Control Handbook'
1959	The American Department of Defence writes the First National Standard (Mil Std 9858) on Quality Program Requirements
1960	The UK Defence Industry writes Form 649 on Design and Inspection Approval
1968	Nato published their Allied Quality Assurance Publications (AQAP)
1970	The UK Ministry of Defence publish their Def. Stan 05-08
1972	The British Standard Institutions publishes BS 4891: A Guide to Quality Assurance
1973	The UK's Def. Stan 05-08 revised to Def. Stan 05-21, 05-24 and 05-29
1974	British Standard Institution: BS 5179
1975	Canadian Standard Association publishes their Z299 series
1979	British Standard Institution: BS 5750
1982	The UK Government publish their White Paper on Standards, Quality and International Competitiveness
1984	BS 5750 certification: revision to BS 5750 1979
1987	Release of ISO 9000 published as a set of 6 standards: ISO 8402, ISO 90-1, ISO 9001, ISO 9002, ISO 9003 and ISO 9004)
1990's	ISO 9000 popularity grew
1993	27 000 certifications

1994	Second edition of ISO 9000
1995	US Military cancels all military standards and adopts ISO 900
1999	274 040 certifications

The technical committee (TC/176) has made major changes to the ISO standards in the early 21st century, which have created a frenzy of re-certification and training to accommodate the changes made to the standards (Hoyle, 2001).

A lot of the changes incorporated total quality management principles which had been taught by Juran and Deming centuries before. This shows that standards are an ancient concept that has survived several millennia. History shows that market regulation has been around for centuries and so has setting standards to verify compliance (Hoyle, 2001).

ISO has designed and is using more than 11 000 international standards. They specify precise requirements for quality management systems and are concerned with needs of the customer as well as regulatory requirements. Continuous improvement to ensure conformity is also of utmost importance (Schyve, 1997; ISO, 2000).

c) The use of the ISO standards for a QMS in a health care system

Even though ISO regulations are normally associated with administrative procedures (Haywood-Farmer, 1988) rather than health care clinical procedures and results, it is deemed a good standard to use for the following reasons:

1) It will help to document and validate processes and procedures that are currently being used.
2) It will document and visually demonstrate the quality policy of the organisation.
3) It will open communication channels between staff members and clients.
4) It will set high educational standards.
5) It will ensure the continuous clinical development of the staff.
6) ISO can be used in conjunction with other peer review programmes.
7) It is in the interest of the organisation to be part of an international accreditation programme for future legislation.

8) Successful ISO accreditation could be a stepping stone towards international clinical accreditation, creating an organisation of excellence (Shaw, 2000; Haywood-Farmer, 1988; Hoyle, 2001; Oakland, 2003).

Accreditation is a term that was introduced to the medical field in 1917 in the USA and it refers to the systematic assessment of procedures against defined standards that is applied to a specific organisation. The ExPert project sought to establish suitable quality mechanisms for accreditation and ISO assessment in European Union countries (Shaw, 2000).

Brown (1995) strongly advises from his research into the institutionalization of quality assurance programmes that any department wishing to implement a successful quality management system should do so gradually and should develop the system based on the current practices already present within the department. He notes that the implementation of such a programme can be intimidating and that management must take care to prepare the organisation for the inevitable change that would accompany a QM system implementation (Brown, 1995).

2.1.4 QMS requirements according to ISO 9001:2000

The implementation of a QMS would be directly influenced by the nature of the processes carried out to ensure that the service conforms to the customer's requirements. In order to design a quality management system in accordance with the requirements of ISO 9001 one must ascertain whether the characteristics of the system meet the requirements of ISO 9001 (ISO, 2005).

The ISO standard prescribes certain fundamental principles and they can be summarized in Table 2.2.

Table 2.2: QMS requirements according to ISO 9001:2000 (Oakland, 2003)

PRINCIPLE	REQUIREMENT
Management Responsibility	Customer needs/requirements Quality Policy Quality Objectives and Planning Management Review Quality Manual Control of Documents Control of Quality Records
Resource Management	Human Resources
Product Realization	Customer related processes Design and Development Purchasing Product and service delivery processes Post-delivery services Monitoring and measuring devices
Measurement, Analysis and Improvement	Measurement and monitoring Control of non-conforming products Analysis of data Improvement

Every requirement in the ISO standard is explained and it is the task of management to discuss the standards and the expectations of implementing them with the staff. The requirements can be demonstrated by looking at Appendix B, where explanations of the applicable clauses in the 9001:2000 document are given. A detailed list of clauses 4-8 can be seen in Appendix C. These

specific clauses pertains to the requirements for the documentation, the implementation and the maintenance of a QMS. These documents are publicly available.

Standardisation aims to reach the optimum degree of order in that it would provide one or more solutions to problems. The solution of a standard is not customized to work for just one party, but different parties/organisations can use the same solution. These are the reasons why a quality management system should be based on the guidelines that are outlined in the Quality Control Manual, which in turn is guided by proven and international standards. Standardisation in a department is successful when all the parties involved agree on the specifications and criteria in the treatment protocol specifications, delivering of treatment, management of resources and service provision (ISO, 2005; ISO, 2008).

2.1.5 Auditing of a QMS

Redfern and Norman (1996) inform us that auditing involves the assessment of an organisation/institution against pre-determined standards and requirements. Further, that it is a tool that can be used and implemented as motivation to change unacceptable service delivery (Redfern & Norman, 1996).

An auditor is responsible for conducting an audit. Auditors should be independent, competent, impartial and objective (Kwapela Learning and Consulting, 2011). They advise that, in order to follow an evidence-based approach, auditors should decide on the following before commencing the audit:

- Is the evidence or information sought, available?
- Will this evidence/information be appropriate for the expected audit outcomes?
- Are the methods used to gather, analyse and evaluate the evidence/information appropriate?

Once these questions are answered, the auditor can continue to plan the audit, train the relevant staff, carry out the audit and prepare a comprehensive auditing report based on the findings of the audit.

a) Types of audits

Kwapela Learning and Consulting (2011) noted that several different types of audits can be done that will measure conformance with the ISO 9001 standard.

a) Quality system audits – the overall measurement of an organisation's capability to meet the requirements of ISO 9001:2000.
b) Management audits – this type of audit would reflect whether the organisation's strategic plan reflects the set business objectives and whether it is continually meeting the clients' requirements.
c) Process audits – during a process audit there are checks that evaluate a single process to verify that the process will deliver the expected output.
d) Procedural audits – also known as internal audits, these verify that the documented practices would ensure the implementation of the approved policies and that they would be capable of controlling the operations within the organisation.
e) System audit – this audit investigates the management system to ascertain whether it is sufficient to control all the activities within the business.
f) Product/service audits – during these an organisation's proposal to supply a product or service according to specified requirements.

(Kwapela Learning and Consulting, 2011).

They state that these audit types can be further subdivided into third party (organisational personnel), second party (carried out by customers or suppliers) and third party (employees of certification bodies) audits (Kwapela Learning and Consulting, 2011).

b) The credibility of an audit

There are several factors that should be considered in the credibility of an audit. The first to consider is the competence, training and experience of the auditor. Even if this audit is an internal audit, care should be taken when choosing the person responsible for it, since experience in auditing can be the key to successfully completing an audit that will yield the results needed to manage non-conformance (Pilot, 1994).

The training provided by these independent auditors is also critical. Staff should be informed of the auditing procedure that should in turn be describing the methodology that will be used as well as the scope of the audit (Pilot, 1994).

A clear time-line and frequency of auditing activities should also be supplied. It is very important that the findings/results of the audit be discussed with relevant staff in order to facilitate the

management of any non-conformity identified during the audit (Pilot, 1994; Kwapela Learning and Consulting, 2011).

c) The internal (procedural) audit

An internal audit is the key task when reviewing a QMS in order to ensure the on-going performance of the system (Pilot, 1994; Kwapela Learning and Consulting, 2011).

In order to execute an internal audit, it is important to understand the purpose of such an audit. The purpose might vary from one department to the next, but generally it would be to:

- Identify areas of improvement;
- Eliminate unnecessary resources or evaluate available resources;
- Evaluate the applicability of set procedures;
- Verify previous corrective actions;
- Check the availability of working instructions;
- Document organisational changes

(Kwapela Learning and Consulting, 2011).

When looking at the most fundamental level of such an audit, three main phases can be identified:

1) Planning (what is going to be audited)
2) Conducting the audit (implement the approved audit plan)
3) Reporting (communicate the results achieved from the audit)

(Indian and Northern Affairs Canada, 2008).

An example of an internal audit programme can be seen in Figure 2.6.

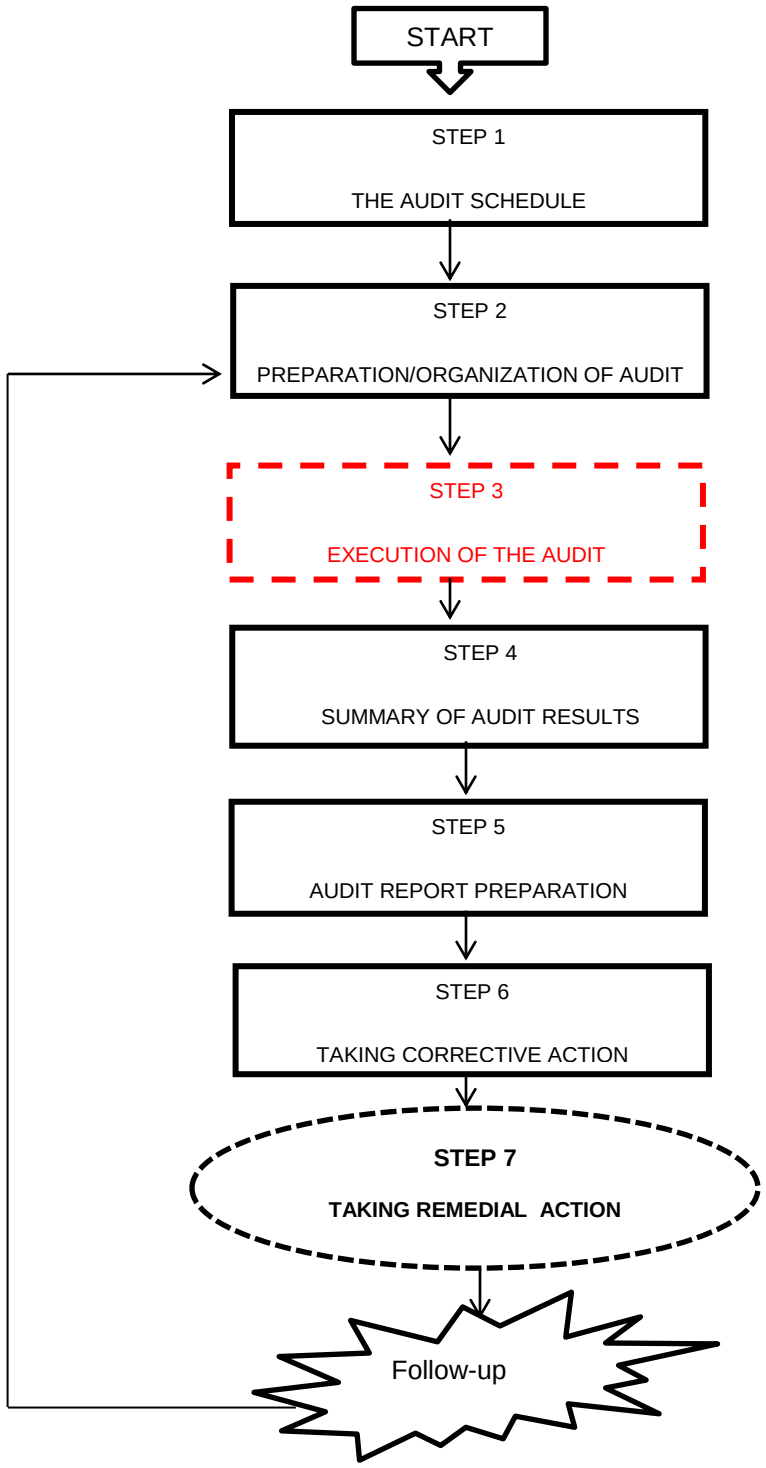

Figure 2.6: Example of an internal audit programme (Adapted from Kwapela Learning and Consulting, 2001)

d) Auditing and QA activities in Radiation Therapy

Various bodies have investigated and audited quality assurance aspects in Radiation therapy during the past decades. One such an organisation is the IAEA (IAEA, 2007). They have a long history of providing guidance and assistance for partial dosimetry audits in radiation therapy.

They have, together with the WHO (World Health Organisation), operated postal audit programmes using thermo luminescence dosimetry (TLD) to verify the calibration of radiation therapy beams. Over a period of 37 years, the IAEA/WHO TLD programme verified the calibration of more than 6200 photon beams in about 1500 different hospitals. There were detailed follow-up procedures for the results that were out of the acceptable limits and a standardised set of procedures aided physicists in resolving these dosimetric discrepancies (IAEA, 2007).

According to the IAEA (2007), a comprehensive audit of a radiation therapy programme would review and evaluate the quality of all the different components of radiation therapy. These different components include equipment, procedures, staff, patient protection, safety, the overall performance of the department and the interaction of the department with other service providers and customers.

It is clear that in order to establish the current situation in the department, all these components should be considered. They should also be included in the QMS and the documentation in order to have a comprehensive programme that would benefit the department, the staff and the patients.

Several 'tools' have been developed to aid in the improvement of quality. They include failure mode and effects analysis (FMAE), fault tree analysis (FTA), process mapping and flow charting (Rath, 2008). In health sciences, these tools have not been implemented successfully, since they are industrial-based tools.

Task Group 100 (TG 100) of the AAPM, have investigated these tools and recommended their use as potential components in the radiation therapy QA programme to assess risk in the radiation treatment processes. Implementing these tools, however, will require additional resources and time (Rath, 2008).

PROCESS TREES

To create a process tree, one has to understand the complete process or procedure involved. An example is given by Huq *et al* (2008) for the process of intensity modulated radiation therapy (IMRT) and is illustrated in figure 2.7.

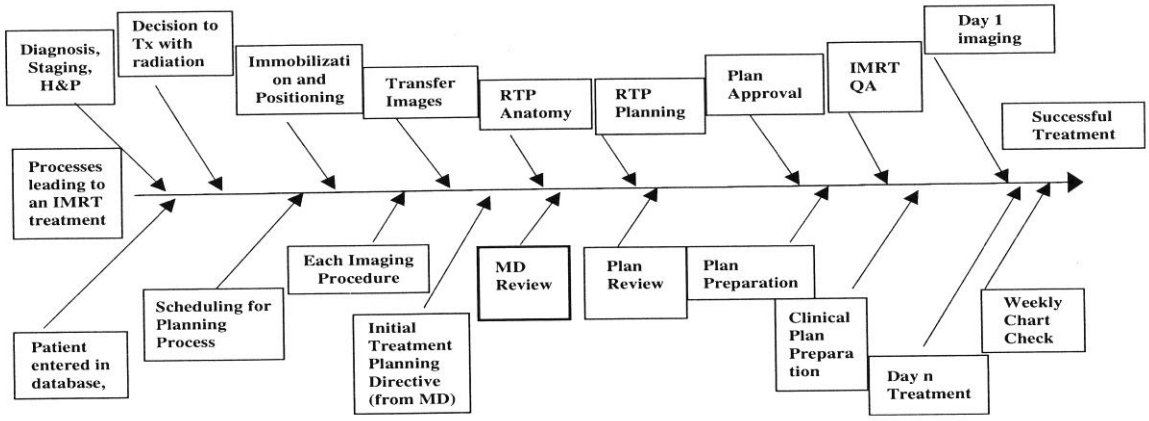

Figure 2.7: A process tree for IMRT (MD = doctor; RTP = radiation therapy planning; TX = treatment; H&P = history and physical) (Figure taken from and used with permission from author: Huq *et al*, 2008)

The 'tree' represents the processes that lead to the successful delivery of an IMRT treatment. In this case there are 20 different 'processes' that are necessary for a successful treatment to occur. It is evident from the example that details for every different process tree would be unique to every department, since the sequence of events could differ from department to department.

FAILURE MODE AND EFFECTS ANALYSIS (FMEA)

FMEA focuses on each individual process, analysing the following:

- What can go wrong?
- How did it happen?
- What effect could it have?

(Huq *et al.*, 2008).

An example of a standard FMEA form is illustrated in figure 2.8. The following is explanatory:

- Occ (occurrence) – the probability that a cause will result in a failure mode

- Sev (severity) – severity of the effects
- Det (detection) – the probability that a failure mode will go undetected
- RPN (risk probability number) – RPN = Occ x Sev x Det

RPN<125 in industry is acceptable, but in medicine the value is still undecided. Conventional numbers from 1 to 10 are used in each category, but TG100 is still working on consistent values for Occ, Sev and Det (Rath, 2008).

Process FMEA

Process/procedure _____ FMEA Dates Original Analysis _____ Latest Revision _____

Review Process Step	Review Process Step Function	Potential Failure Modes	Potential Causes of Failures	Potential Effects of Failures	Current Controls	Existing Conditions				Recommended Actions	Resulting Conditions				Responsible Party And Date of Completion
						Occ	Sev	Det	RPN		Occ	Sev	Det	RPN	

Figure 2.8: A standard FMAE form (Taken from and used with permission from author: Rath, 2008)

This is a documentation tool that would require formal training and the leadership of an experienced facilitator to constantly review and modify each process to suit the needs of the department (Rath, 2008).

FAULT TREE ANALYSIS (FTA)

Fault trees are complimentary to process trees, but it starts with something that could possibly go wrong and the actions and events that leads to the fault or error. The FMEA is helpful in identifying the fault tree and in turn the fault tree can potentially identify steps that are not covered in the conventional QA. It is therefore clear that every process should have QA running parallel to it, but that the QA should also be blocking potential errors before they could propagate the faults before the end (Huq *et al*., 2008).

From this discussion it is apparent that TG100 focuses on applying FMEA as a component of a QA system. A unit still has to have a QA programme in place to use and implement FMEA. According to Huq *et al* (2008), TG100 is striving to identify all possible failure modes. It is also apparent that professional bodies such as ASTRO and AAPM are struggling to develop QA recommendations in a

timely fashion for all the new emerging technologies and processes that are entering the treatment unit domain. It is therefore even more important to have an accredited quality management system in place to be able to identify all processes and incorporate the input of all relevant areas in the treatment unit domain.

Huq *et al* (2008) investigated these tools and is of the opinion that FMAE should be implemented in any QMS in radiation therapy. This implies that the department should, however, have an existing QMS in place to be able to apply FMAE and to be able to identify all processes and incorporate the input of all relevant areas in the treatment unit domain (Huq *et al*., 2008).

e) Auditing and QA activities in Radiation Therapy: South Africa

Currently, South Africa has a two-tier health care structure that consists of private and public health care facilities. The South African Government is aiming to provide a more equitable system to all its citizens by implementing a national health insurance scheme to fund the proposed health care scheme. This in turn will assure that all South Africans, regardless of their socio-economic status, will have access to affordable, appropriate and effective health services (Gouws *et al*., 2012).

The South African Government has never before expected any public hospital to have accreditation, as long as the hospital adhered to local laws and regulations. Implementing ISO standards is labour intensive and the public sector is severely understaffed with limited resources to conduct intensive audit planning and the actual audit (Gouws *et al*., 2012). Internal audits are done between different departments with the physics personnel taking the initiative. This is done according to set standards and it normally involves the auditing of the technical equipment and procedures (Van der Westhuizen, 2012). The physicists are responsible for the QA activities on the equipment used in the Radiation Therapy departments at both the academic hospitals in the Western Cape.

The private oncology centres have been doing internal audits based on international standards as set by ACR and ESTRO, as well as ISO standards. This was all in preparation for accreditation, although none of the private practices have officially been accredited. They have un-officially interpreted, adapted and implemented international standards to assure that they have them in place for future auditing and possibly accreditation. All the standards used in South Africa in the private sector are international standards against which the Radiation Therapy units benchmark themselves (Van der Westhuizen, 2012).

Initially ISO standards were used, but before the ISO developed standards specifically for health care services, the standards were complicated and aimed at big businesses that specialized in manufacturing and distributing. This posed a problem for the service-orientated Radiation Therapy setting and was an issue because of the cost involved in the actual external audit and accreditation (Van der Westhuizen, 2012; Juran, 1999). The South African Government proposed to implement a ten-point plan for the improvement of the health sector in general. This is following a trend that was set by the Australian Commission on Safety and Quality in Health Care (ACSQHS, 2011) in which 10 specific standards/parameters were set against which the quality of health care would be measured for accreditation. These standards are:

Table 2.3: The Australian Safety and Quality in Health Service Standards (ACSQHS, 2011)

Standard 1	Governance for Safety and Quality in Health Care Service Organisations
Standard 2	Partnering with Consumers
Standard 3	Preventing and Controlling Healthcare Associated Infections
Standard 4	Medication Safety
Standard 5	Patient Identification and Procedure Matching
Standard 6	Clinical Handover
Standard 7	Blood and Blood Products
Standard 8	Preventing and Managing Pressure Injuries
Standard 9	Recognising and Responding to Clinical Deterioration in Acute Health Care
Standard 10	Preventing Falls and Harm from Falls

These standards are similar to the clauses in the ISO standards, it is just specifically aimed at health care and not as generic as the ISO standards.

The proposed 10-point plan is a prioritization of what needs to be done in the next 2 years within state and private oncology units (implemented in 2010 until 2014). The ten parameters are:

1) The provision of strategic leadership and creating social compact for better health outcomes;
2) Implementation of the National Health Services (NHI);
3) Improving the quality of health services;

4) Overhauling the health care system and improving its management;
5) Improving human resources management, planning and development;
6) Revitalization of health infrastructure;
7) Accelerated implementation of the National HIV/AIDS and increased focus on TB and other communicable diseases;
8) Mass mobilisation for better health for the population;
9) Review of the drug policy;
10) Strengthening of research and development (Department of Health, 2012).

Eventually all South African health service departments, irrespective of private or state, will have to benchmark their service-delivery against standards as chosen by the Government. These will be similar than or the same as the standards as determined by the ACSQHS (Department of Health, 2012; Van der Westhuizen, 2012; ACSQHS, 2011).

Section B will review the literature regarding employee and client satisfaction.

2.2 SECTION B: EMPLOYEE AND CLIENT SATISFACTION IN RADIATION THERAPY

> ***"Patient satisfaction is now viewed as a highly desired outcome of a health care encounter."***
>
> *Pamela L. Hudak*

2.2.1 The nature of Satisfaction

According to Juran (1999), client satisfaction can directly be related to customer service. He defines customer service as the 'transaction' with customers as well as the relationship with customers that occurs not only before an encounter (transaction/interaction) but also after an encounter or delivery of service.

Even though the traditional models of measuring customer satisfaction does that in order to retain their customer's business and increase profits, this is not true for the health care industry. The characteristics of the service delivery in health care not only need to be addressed, it should be investigated to identify areas where improvements can be made. Areas where there are generally records of complaints include waiting times, incomplete or bad communication practices, lapses in the continuity of care or unprofessional encounters with caregivers or service providers (Juran, 1999).

A satisfied patient in Radiation Therapy can potentially be seen as one that was treated with respect and dignity in a professional manner, whilst receiving optimal treatment for a correctly diagnosed disease. The treatment is delivered according to acceptable, updated and documented standards by trained personnel on equipment that is subjected to rigorous QA procedures to ensure the safety of the patient and the environment according to the proper regulations and codes of conduct (IAEA, 2007; ISO, 2005).

The same principles would apply to staff satisfaction, even though there are other expectations from the working environment that can be added, i.e. proper and continuous training, adequate re-imbursement, self-fulfilment opportunities, equal rights among staff members, professional communication practices, equipment and tools to practice the profession as well as agreeable working conditions and hours. Satisfaction can be very subjective for any group of people involved in the same department. Patients will have different needs than staff members or referring doctors. The nature of satisfaction comes down to how those needs are met and what the perception of the specific individual is regarding the needs that they want to have fulfilled (Andrzejewski & Lagua, 1997).

2.2.2 Employee Satisfaction

The culture of a company, or in the case of this study a department or division, plays a major role in setting the stage for satisfied employees. In the healthcare industry it is important to take into account the role that employees/staff play in the care of their patients. Employee satisfaction can be defined as whether employees are content and happy and whether they are fulfilling their expectations and needs at work (Heathfield, 2011). There is a distinct relationship between job satisfaction and employees' perceptions of the quality of services delivered (Schlesinger & Zornitsky, 1994).

Snipes *et al* (2004) describe the service-profit-chain theory as such:

Figure 2.9: The service-profit-chain theory according to Snipes *et al* (2004)

Although this service-profit-chain theory more likely applies to retail and sales business models, it can be applied to healthcare services, in that the service that is provided and the level at which it is provided can be measured and will be indicative of employee satisfaction levels. It is also proven that intrinsic indicators (motivation and job satisfaction) could be correlated directly to customer satisfaction. Job description, payment, recognition and the work environment are vital factors in determining a staff member's level of satisfaction (Eiselen, 2005).

In the radiation oncology department the staff form an integral part of the radiation therapy process and therefore are imperative in evaluating the standard of the quality of care delivered by the organisation, in this case the radiation oncology department of an academic tertiary state hospital. Staff perceptions and the evaluation thereof, form an important part of the QMS (ISO, 2008). At the department many different staff members from different professional groups have to work together in one department with one aim: to treat the cancer patients that are referred to the radiation oncology department.

Primarily the South African government is aiming towards health promotion and disease prevention rather than curative treatment. In radiation therapy treatment this poses a problem in itself due to the nature of the disease, the poor quality of health care at the community level and primary care level (identifying early disease stages) and equity problems in informing and teaching the general population. Radiation therapy treatment can only take place at the tertiary hospital level as the technology and expertise required is specialised (Zweigenthal *et al*., 2009).

It is necessary that staff should also understand the communities they are serving in order to provide optimal care and the diversity of these communities are evident in South Africa on many different levels. The basic health needs of local communities are not yet fully understood or met, and this creates a resistance from these communities to participate in programmes offered to them that could aid in disease prevention (Zweigenthal *et al*., 2009).

ISO depicts staff as a valuable resource and that a lot of effort is spent on staff training, the infrastructure of a company, defining specific processes relating to human resources, performance reviews and the work environment. ISO further recommends that time should also be spent in training and teaching staff members to embrace the cultural diversities that they encounter (ISO, 2005).

There are certain factors identified by ISO that is seen as essential elements of employee and staff satisfaction. These will now be discussed within the context of QMS and healthcare.

a) Leadership and commitment

Real commitment from management towards the employee's satisfaction is reflected in the role that they play in the implementation of a QMS and their dedication towards delivering quality patient care and treatment.

Not only can you see whether a department is committed to quality care, you will hear and feel a difference too. Things 'happen' in such a department. Problems with suppliers are immediately corrected with the relevant people, equipment issues are corrected by improved maintenance programs or replacement, staff members continuously receive training, changes towards improvement take place and partnerships with different staff groups or divisions are built (Oakland, 2003). In such an environment the commitment is not just lip service, and the staff members are generally happy and content.

The literature supports the theory that there is a direct link between employee satisfaction and productivity, customer satisfaction and financial outcomes for the department/company (Corporative Executive Board, 2003).

- In the early 1980's Benjamin Schneider investigated this by doing a survey to measure the satisfaction levels of the staff and customers in the banking industry – he started to quantify the link between employee satisfaction and customer satisfaction;
- In 1996 and 1997 two different studies by Reicheld ('The Loyalty Effect') and Heskett ('The Service Profit Chain') in the Corporate Executive Board document (2003) respectively concluded that there are direct and quantifiable links between employee variables (satisfaction, enthusiasm, capability, loyalty, commitment and internal service quality), customer service variables (satisfaction and loyalty) and financial results;
- In 1997 a company called Development Dimensions International found that there is a circular relationship between employee satisfaction and retention, as well as between loyalty and customer satisfaction. This showed an increase in profitability;

(Corporative Executive Board, 2003).

More recent studies have had similar findings that can be summarized as follows:

- Unhappy employees seem to be far less productive and have higher absence rates
- On the other hand, satisfied employees are far more productive, loyal and innovative
- If there is an increase in job satisfaction, employee morale increases which in turn causes an increase in employee productivity
- Employee satisfaction leads to customer satisfaction

(Corporative Executive Board, 2003).

These studies findings support the theories that are practiced in total quality management and the fact that all activities in a company or department are related and will influence the quality of the service or product delivered at some stage in the process.

There are, however, criticisms towards some models that link employee satisfaction to performance only. One such an objection is that both strong and poor financial performing companies often report high employee satisfaction levels. Another viewpoint is that the attitudes of employees alone cannot influence the effectiveness of an organisation, since employees are expected to behave in a professional manner and are also governed by regulating bodies, like the Health Professions Council of South Africa (HPCSA) to do so (Corporative Executive Board, 2003).

Typically, employee attitude could reflect the morale of a department. April Shetrone, a human resource expert, believes there are 7 ways that a management team can improve the level of satisfaction amongst employees (Shetrone, 2011). They are:

1) *Give employees more control* – especially over things like their schedules or environment, and by doing so create a work-life-balance-environment.
2) *Ease commuting stress* – staggering work time to avoid traffic could ease commuting stress and decrease frustration.
3) *Do not waste time* – tight deadlines can be a great source of stress; when calling a meeting it should be done just before lunch or at the end of the day, then people will not waste time; offices need to be organized to save time on clearing clutter as well.
4) *Social connections should be encouraged* – communication in the workspace should be encouraged; office celebrations for holidays and birthdays should be encouraged; there should be a comfortable lunch area for the staff; community service projects should be encouraged (the latter is also in line with primary health care principles).

5) *Good health should be promoted* – education on health topics is very important; chronic stress can lead to lowered immune system, weight gain, increased risk of disease and chronic fatigue; positive lifestyle should be encouraged.
6) *There should be an atmosphere of growth* – employees should have the opportunity to grow and learn in their working environment; training and expanding skills and knowledge should be important.
7) *Breaking up routines a bit* – it could help to break up the normal office routine a little in order to create a bit of variety and excitement.

Depending on the work-environment, these guidelines outlined by Shetrone (2011) can give direction on creating a friendly and productive workspace. It is not a simple task to build and maintain a successful team. It is essential to maintain an environment of teamwork in order to make interaction with the patients meaningful and professional (Maxwell, 2001).

John Maxwell (2001), a leadership expert, asks the following questions: "What is the key to success? Is it talent? Hard work? Technology? Efficiency?" He answers himself by confirming that all of these are important aspects, but that it needs one more aspect: leadership. He goes as far as to claim that the ***personnel*** determine the potential of the team, ***work ethic*** determines the preparation of the team, ***vision*** will determine the direction the team goes and the ***leadership*** determines whether the team is successful or not (Maxwell, 2001).

Leadership in Health Care in South Africa was investigated by Harrison (2009) and found to be an area that needs improvement. He pointed out that political leaders as well as managers in the health system should clearly communicate and articulate the vision and the mission of the departments in order to motivate those in charge of implementing the programmes and systems to be used in these departments. A sense of common purpose could be well-established by sharing a common vision, and will aid in the improvement of staff morale and motivation (Harrison, 2009).

b) ISO and leadership

ISO standards are very clear about the role that management should play in the implementation of QMS standards within a department. Clause 5 specifies that management should be committed to the QMS and its requirements from both the customers and the law. Attention should also be paid to continual improvement of the QMS (see Appendix B). Clause 6 addresses the issues of provision of facilities, equipment, the proper infrastructure and adequately trained personnel (ISO, 2005; ISO, 2008).

Management should be seen as the leaders in a radiation oncology department. There is a clear hierarchy in departments of this size, even though a culture of teamwork is adhered to and encouraged. Responsibilities should be documented clearly and communicated thoroughly. Job descriptions should encourage employees to go over and beyond their duties, and offer them the forum to grow in their profession (ISO, 2005; ISO, 2008).

A lack of leadership in the management component of a QMS can influence the commitment that is needed from management for the implementation and the continuous improvement of such a system.

c) Understanding ethics and job behaviour

All professionals on all levels have to make moral choices at some point or the other. This can be referred to as one's values or ethics. It is also closely related with morals and it implies that a worker who values integrity would be less likely to cover up mistakes or less guilty of blaming someone else for a mistake made. Job behaviour is very closely related to one's ethics and values (DuBrin, 2000).

Ethical problems therefore by nature exist in most working environments. Examples of ethical problems, according to DuBrin (2000) include lying to customers, sexual harassment, job discrimination, accepting (or offering) bribes or kick-backs, use of company resources, etc. These problems generally arise from within the scope of four definite influences. They are:

I. The characteristics of the people working together;
II. The environmental characteristics;
III. The combined influence of the people and the environment;
IV. The strength or the weakness of the relationships between the different people

(DuBrin, 2000).

Generally any professional department should improve the ethical decision-making processes of their employees by means of a guide to ethical decision-making or some tool to the same effect. A tool that was developed by the Centre for Business Ethics at Bentley College could be seen as an example. The tool/test implies that, when faced with and ethical dilemma or problem, you should ask yourself the following 6 questions:

1) Is it right?

2) Is it fair?

3) Who gets hurt?

4) Would you be comfortable if the details of your decision were broadcasted everywhere?

5) Would you tell your child (or other family member) to do the same thing?

6) How does it "smell"?

(DuBrin, 2000).

Applying this would facilitate more ethical behaviour and equip staff to get along on all different levels as well. Consistently good ethical behaviour in a department would also encourage higher levels of motivation and morale.

The HPCSA (2012) on their web-site defines ethics as "moral principles". They published a set of guidelines that should be adhered to and maintained regarding ethical behaviour in order to assure that health care professionals practice is based on a mutual trust relationship that exists between themselves and patients (HPCSA, 2008).

Core ethical values and standards that were highlighted in order for a professional registered with the HPCSA to adhere to good practice principles can be seen in the summary in Table 2.4.

Table 2.4: The HPCSA's core ethical values and standards (HPCSA, 2008)

PRINCIPLE	**EXPLANATION**
1) Respect for people	Patients should be respected as people with intrinsic worth, a sense of value and dignity.
2) Best interests/well-being	There should be no action against the best interest of the patients (non-maleficence).
3) Best interest/well-being: Beneficence	Action should be in the best interest of the patients even if it conflicts with personal interest of the health care professional.
4) Human rights	The human rights of all individuals must be acknowledged.
5) Autonomy	The patient's right to self-determination must be respected when making choices about their treatment or to live their lives by their own preferences and values.
6) Integrity	The foundation of the health care professional's character must be based on incorporating these

	core principles and ethical values into their profession.
7) Truthfulness	Professional relationships with patients must be characterized by truthfulness and trust.
8) Confidentiality	Personal and private information of the patient should be kept confidential by health care professionals, except in instances where there is a legal right to disclosure.
9) Compassion	The health care professional should have a sensitive and empathetic approach to the needs of the patients and adopt a supportive and comforting role where necessary or needed.
10) Tolerance	The diversity of a patient's beliefs stemming from religious or cultural convictions should be respected at all times.
11) Justice	All individuals and groups must be treated impartially, fairly and justly by health care practitioners.
12) Professional competence and self-improvement	All health care professionals must strive to attain the highest level of knowledge or education required to be active in their profession continually.
13) Community	The betterment of the society and the community is dependent on health care practitioners because of their professional abilities.

The core ethical values and standards show that as professional health care workers we have a moral obligation to the patients to perform our duties to the best of our abilities and in accordance with set standards. We are registered and licensed as professionals and this implies that we are entering into contractual relationships with our patients regarding their optimal treatment (HPCSA, 2008; HPCSA, 2012).

As human beings we should have the natural duty to behave in an ethical, professional way in order to be accountable to the people in the community we work in. We should promote what is best for the patient by not doing any harm and being fair and just to groups and individuals (HPCSA, 2008).

Combining these moral obligations with our natural duty will enhance professional behaviour and work ethic.

d) Staff motivation and morale

Motivation can be simplified by asking the question: *Why do people do things the way they do them?* It is seen as an energizing force that stimulates the effort a person puts into their job, the nature of the tasks relating to the job the person will choose to engage in and also for how long this specific behaviour will last (DuBrin, 2000).

Whilst doing an overview on Health and Health Care in South Africa, David Harrison (2009) noted a significantly low morale among health care workers. This was noted predominantly among nursing staff and was ascribed to overwork and a sense of neglect as well as a serious lack of support. Up to 2010 there was not another overview of the statistical information that proved this lack of motivation and morale to have improved. There are two well-known theories that explain the force behind motivation and morale. The first is the well-known classical theory of Abraham Maslow and the second is the more recent explanation known as the *expectancy theory.*

MASLOW'S NEED HIERARCHY

The following diagram shows how Abraham M. Maslow (DuBrin, 2000) arranged five specific sets of human needs into a hierarchy system that ascends from the more basic needs to the more-difficult-to-satisfy needs.

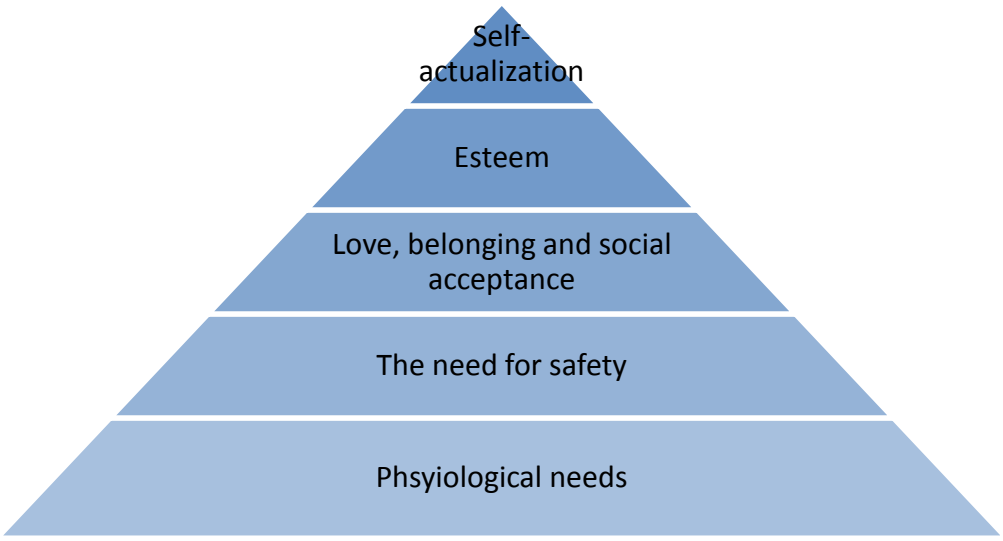

Figure 2.10: The need hierarchy of Abraham M. Maslow (DuBrin, 2000)

The bottom 2 tiers represent the lower order needs, and the top 3 the higher order needs. Maslow theorised that the lower order needs are easier to satisfy, but that it gets harder to satisfy higher order needs. It is also, however, human nature to want to strive towards self-actualization and achieve it.

There are, however, substantial differences in the individual amount of need-satisfaction that is necessary to keep people happy. Physical work can deplete both the physiological need and the need for safety in one individual. A person in an executive position might have more opportunity to realize self-actualization needs than someone occupying a lesser position. The relevance of high-lighting Maslow's need hierarchy lies in the benefit it provides when employers realises the importance of human needs on all levels in a work setting (DuBrin, 2000).

Another theorist that explored the area of need-identification within a work performance framework is David McClelland as discussed in Gunderman (2003). He identified three fundamental needs that individuals develop over time. These needs, according to him, are also dependant on the environment in which the individual might find him-/herself at a particular time. These three needs are:

1. Achieving expected outcomes by adhering to specific standards and solving problems professionally;
2. The desire to have power to influence (control) people through authority;
3. Forming professional work relationships with colleagues by avoiding conflict (Gunderman, 2003).

It is clear that in order to fulfil the first need, there should be clear structure, a systematic approach and constant feedback on performances. The second need can be a cause of concern if the individual is not seeing a position of power as a reflection of his/her commitment to the department and the management team. There should not be a negative connection to the "power" that is perceived by this person's peers and colleagues. The third need would improve teamwork and the morale of the individual team members if applied positively by management and approached sensitively (Gunderman, 2003).

THE EXPECTANCY THEORY OF MOTIVATION

DuBrin (2000) discusses this theory which explains human behaviour in the context that people will expend effort if they believe that the effort will lead to and is worth the desired outcome.

Figure 2.11 visualises the theory and describes the conditions necessary for a person to be motivated.

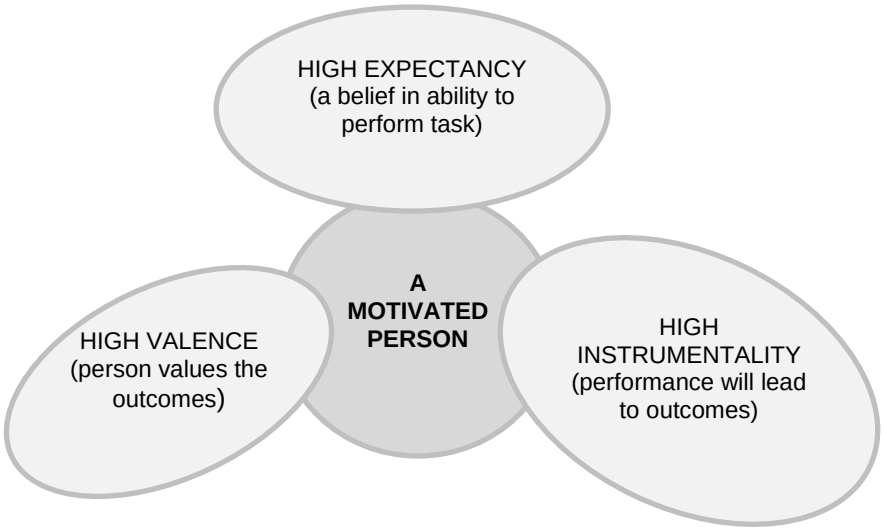

Figure 2.11: The expectancy theory visualised (DuBrin, 2000)

It is clear that this theory is linking motivation and the ability to have an impact on performance. Both have to be present to have an actual job result. Motivation on its own is not enough to establish consistent performance. A person also needs the ability, a decent education and the tools and technology to do a specific job.

Boosting performance in a service setting like Radiation Oncology is a great challenge. It is not always viable to use behaviour modification models and principles to motivate staff, since the setting is professional and the service is the treatment of cancer. There is very little scope for mistakes and the subsequent corrections necessary to rectify those, since quality of life and life outcomes are at stake. Motivation should be on a different level altogether. In a government department financial incentives can be a strong motivator, but can also be seen as bribery and have an ethical implication. Training and education should be seen as a management responsibility, but could also be used as a powerful motivation where people can be offered opportunities to attend conferences or courses as part of their incentive for good job performance or outstanding performance appraisals (Harrison, 2009; Bovier & Perneger, 2003).

e) Work satisfaction predictors

It is important to identify predicting factors that could be taken into account when trying to establish levels of work satisfaction. It is also important to establish any external factors, like the

alarming growth of the cost of health care, that might influence working conditions and therefore indirectly also work satisfaction (Bovier & Perneger, 2003).

These predictors were investigated by Bovier & Perneger (2003) to address factors that might influence the work satisfaction amongst doctors. This study was conducted in Geneva, Switzerland. The predictors that they found doctors were happy with included patient care, professional relationships and personal rewards like enjoyment at work and intellectual stimuli. Low satisfaction scores were seen for work-related problems (workload, personal time and stress) and issues around income and prestige. There were also various variables that influenced these factors, for instance: the specialty of the doctor (paediatricians and internal medicine specialists were more satisfied), the type of practice (trainees were less satisfied), the time that is spent on administrative tasks and also the time spent on continuous medical education (Bovier & Perneger, 2003).

As of yet, predicting factors for doctor satisfaction should still be investigated in South Africa, where the health care system is very different to that of Switzerland. There is an indication of some predictive factors in the survey done by Harrison (2009). The survey highlighted some accomplishments that were achieved in the period between 1994 and 2010 in the health of South Africans as well as the health care system in South Africa. The accomplishments are listed briefly:

- Free primary health care;
- Drug programmes;
- Legal abortions (choice on the termination of pregnancies);
- Anti-tobacco legislation;
- Community service programme for graduating health professionals;
- Greater equivalence in district expenditure;
- The improvements and expansions of clinics;
- The hospital revitalisation programme;
- Improved immunisation programmes and
- Improved malaria control (Harrison, 2009).

The shortcomings can however cause dissatisfaction among health care professionals, since it has an effect on service delivery and is resulting in poor health outcomes in relation to the health expenditure (Harrison, 2009). The shortcomings are summarized in Table 2.5.

Table 2.5: Shortcomings of the past 15 years in South African health care (Harrison, 2009)

PROBLEM	**SHORTCOMING**
1. Epidemics insufficiently prevented/controlled	• Limited control of HIV/AIDS • The emergence of drug resistant TB • The growth of the alcohol abuse epidemic
2. Allocation of resources between public & private sectors	• The imbalance of spending patterns compared to the health needs • Insufficient health professionals in the public sector
3. Weaknesses in the management of health systems	• The poor quality of care in key programmes • Operational inefficiencies • Poor delegation of authority • Persistently low health worker morale • Lack of leadership and innovation

The shortcomings associated with the allocation of resources (problem 2) and the weaknesses in management (problem 3) will cause staff dissatisfaction if not addressed.

Section 2.2.3 will address client satisfaction and why it is important for a QMS to investigate the level of satisfaction needed for continuous improvement. The importance of identifying the clients correctly will also be address.

2.2.3 Client satisfaction

a) What is a client?

Juran (1999) define the word customer (client) as "… anyone who is affected by the product or by the process used to produce the product … internal or external …". When identifying clients in health care and specifically Radiation Therapy, one can have a careful look at any of the processes in the department and safely deduct that the main client would be the patients receiving their treatment in the department. They are the "end-user" of the service that is provided in the form of treatment (Juran, 1999).

A “hidden” client would be the doctors referring patients to the department for treatment.

For the purpose of this study, the patients and the referring doctors would be referred to as clients.

b) What is satisfaction in the context of patients as clients?

Client satisfaction is seen as the point at which the client feels that his/her expectations were met by the product or the service. In the case of Radiation Therapy, this can imply that the client is seeking positive treatment outcomes and/or an ideal environment in which the treatment can be delivered. Deficiency is a term that refers to a defect or an error that can impair a product or service or in this case the patient’s perception of quality treatment received. In Radiation Therapy this can refer to an error that can influence treatment outcomes or cause the patient discomfort. Client dissatisfaction is the result of a deficiency resulting in client complaints or claims. This could be fatal to patients in Radiation Therapy if the deficiency (error) was a radiation incident (over- or underexposure) (Juran, 1999).

c) Clients in the process of quality management

ISO promotes the use of a process approach when developing a quality management system, since it would emphasize the importance of i) understanding as well as fulfilling the set requirements, ii) considering all processes in terms of adding value, iii) obtaining results of effectiveness and process performance and iv) a system of continual improvement that is based on the objective measurement of the systems, i.e. auditing (ISO, 2005).

Appendix B shows the model used by ISO to illustrate the flow of a process-based quality management system (ISO, 2005). Even though the model does not show detailed processes, it does highlight the importance of defining requirements as inputs and the product (in this case the services provided) is clearly defined as an output and thus directly influences the level of client satisfaction.

The model shows the continuous flow between the process of quality management and the interested parties by means of “value-adding activities” and “information flow”. The ‘interested parties’ in the case of this study of a radiation oncology department’s QM systems have been identified as three groups, namely: staff (employees), patients (clients) and referring doctors (clients).

Andrzejewski and Lugua (1997), from their study done under the auspices of the New York State Department of Health, are also of the opinion that health care providers should indeed seek the input of patients (clients) more readily during quality initiatives in order to collect more outcome-orientated data. In their survey study, the patients identified the three highest levels of customer satisfaction as staff courtesy, efficient time-management and respect from provider employees (Andrzejewski & Lagua, 1997). Out of 20 quality indicators, nine were identified to cause dissatisfaction and these were predominately in what was seen as the "judgement domain" where staff members were perceived as inconsistent in decisions and their application of the health care regulations. This study enabled the researchers to make recommendations towards improving the quality of services delivered to the patients (clients). In this study of the QM systems of a radiation oncology department, similar issues have been addressed in the client satisfaction questionnaire. Quality indicators used in the study questionnaire for clients have included tangible qualities such as: reliability, responsiveness, assurance, empathy, access and general satisfaction. These quality indicators were suggested as necessary by Smith and Engelbrecht (2001).

According to international health care literature, consumers/patients see their doctors as the single greatest determinant of quality. It is a known fact that consumers/clients/customers nowadays seek information from many different sources in order to help them make informed decisions. In the FACCT study, the American population sees their doctor as their greatest defence against bad healthcare, since they have regular, direct contact with him/her and they are easier to approach. They are seeking a "partnership relationship" from an experienced expert that can treat them with respect and communicate with them at their level (FACCT, 2000).

d) Research in SA: healthcare and client satisfaction

There is limited research in South Africa that focuses specifically on the perceived quality of care given by healthcare providers (Myburgh *et al*., 2005). The perception of quality of care in South Africa is often influenced by other factors, like race, socio-economic status and the inevitable ethnic differences. In South Africa, patients more often than not do not have the choice of where to go for treatment, especially in the public sector, and can therefore also not always choose the doctor that would be treating them. This creates a totally different picture of the expectancy of good quality service that they might have compared to the Americans.

The first democratically elected government has inherited great inequalities in the provision of health care and the health status across not only the rural/urban boundaries, but also across socio-

economic and racial boundaries. A national survey in 1994 showed that 48% of white respondents reported that they received excellent service, compared to the 24% of coloured respondents and 26% of African (black) respondents. In the public sector, a survey was done that focussed solely on race, and it was found that 26% of the Indian respondents were dissatisfied with services that was provided in the clinics or hospitals compared with the 12% dissatisfied black respondents (Myburgh *et al*., 2005).

There are many health variables that will confirm that there is an association between race and socio-economic status, but either way client satisfaction should be a critical indicator of quality service delivery and must be investigated in detail to incorporate such factors, whether it is in private practice or the public sector.

In this study, the international trend was followed to administer a client satisfaction survey and to then compare the results from this survey to the objectives as set out by the department beforehand. These results can therefore also be used to identify the areas of service delivery that can be improved. This process of improvement should form a part of the continuous feedback and improvement system that is expected to be a part of the QMS in the department (Oakland, 2003; Juran, 1999). This will assure a total quality approach utilizing international standards to continuously measure progress and improvement as suggested by the ISO standard for health services (ISO, 2005).

Quality assurance programmes and accreditation processes require client satisfaction levels to be tested regularly. According to Smith & Engelbrecht (2001) there is a gap in the "expected services" and the "experienced services". Patients expect to have good quality treatment by knowledgeable, expert doctors who are caring and sensitive. They want to be informed in the choices of their treatment and want their doctor to spend quality time with them. They expect to be treated with up-to-date technology and want total dedication to their treatment. On the other hand, bad quality care would be typified by long waits, not enough doctors or a high turnover of doctors and some episodes of misdiagnosis. There would also be a lack of quality time, arrogant attitudes and poor bedside manner (Smith & Engelbrecht, 2001). Their findings can be summarized in Table 2.6.

Table 2.6: Summary of service expectations and experience (Summarized from text: Smith & Engelbrecht, 2001)

SERVICE EXPECTATIONS	SERVICE EXPERIENCE
• Influenced by previous experiences	• Tangibles such as the equipment and surroundings influences the patient's experience
• External influences, i.e. media	• Reliability of the service provided
• Personal needs	• Responsiveness of care-givers
• Personal preferences	• Assurance - confidence and trust in the health care professionals
• Word of mouth – experiences shared	• Empathy received
• Medical needs	• Access – cost and time

From this it is clear that the perception/expectation the patient initially had of the quality service and the level of service that they experience can differ vastly if the patient's needs are not understood fully to meet these expectations of quality service delivery. Understanding the needs of the clients becomes imperative in a service delivery setting (IOS,2008; Smith & Engelbrecht, 2001).

e) Referring doctor satisfaction

It is important to evaluate referring doctor satisfaction in order to prevent the breakdown of communication amongst specialists that treat the same patient and in doing that ultimately compromising the patient's management (Ghandi *et al*., 2000).

Ghandi *et al* (2000) found substantial problems relating to a lack of urgency and timeliness and unsatisfactory content of communication amongst doctors during their survey.

In order for a doctor to refer a patient for specialist treatment to another doctor, they have to engage in some sort of communication process regarding the patient's existing medical condition, prior medical conditions and possible management of the patient for the future. If this communication, whether it is telephonically or in writing, does not exist, there can be mismanagement of the patient's disease. This will lead to dissatisfaction for either the referring doctor or the treating doctor (Forrest *et al*., 2000).

Forrest *et al* (2000) identified that there was greater referring doctor satisfaction where the specialist that was referred to offered feedback to the referring doctor regarding the patient, either telephonically or in writing.

In a multi-disciplinary environment there will be greater communication due to the fact that the doctors decide about the management of the patient in a combined clinic setting. This will lead to greater satisfaction.

2.2.4 Conclusion

The first section of this chapter dealt with process based Quality Management Systems and the context thereof when applying ISO 9001:2000 standard requirements. The characteristics of a QMS system were discussed and there was a brief overview of the history of QM systems to sketch an understanding of the development of a proper system and the elements relevant to the development of such a system. The researcher investigated QMS requirements according to ISO 9001:2000 with the relevant clauses that the standard deems important. The process of auditing was discussed in detail and Section A was concluded with a brief look at national and international trends in auditing and QA activities in Radiation Therapy in South Africa specifically.

Section B reviewed the literature relating to employee and client satisfaction. The employee satisfaction was discussed in the context of leadership, commitment, ethical and job behaviour. The HPCSA core ethical standards were discussed and the issues surrounding morale and motivation were highlighted as important for employee satisfaction. The researcher isolated some important referring doctor work satisfaction predictors and discussed some of the shortcomings in South African health care that could influence employee satisfaction.

Chapter 3 will discuss the research methodology in detail.

CHAPTER 3

RESEARCH METHODOLOGY

> ***"… Improvements will come only with careful service planning, investment in staff and equipment and better access to information and education about cancer."***
>
> *(Barton, Frommer & Shafiq, 2006)*

3.1 INTRODUCTION

The purpose of this study was to investigate the level at which key performance indicators of QM practice were perceived as being met by the radiation oncology staff as well as doctors referring patients to the department and patients that received treatment at the department. This was done by conducting a baseline audit to evaluate existing quality management practices at the department of radiation oncology at an academic hospital. The standards set by the International Standardisation Organisation's 9001:2000 documents were used (ISO, 2000). The main categories of departmental QM objectives were identified as:

- Patient Satisfaction (ISO, 2005; Cotter *et al.*, 2005);
- Referring doctor satisfaction (ISO, 2005);
- Staff satisfaction and harmony (IAEA, 2007);
- Staff development and training (IAEA, 2007);
- Efficient use of available equipment and resources (IAEA, 2007);
- Effective treatment planning and delivery (AAPM as in Fraass *et al.*, 1998; ACRO as in Cotter *et al.*, 2005);
- Patient and environmental safety (Fraass *et al.*, 1998; Cotter *et al.*, 2005)
- Accurate and traceable record keeping (Fraass *et al.*, 1998);
- Continuous quality improvement (IAEA, 2007; Cotter *et al.*, 2005).

The first three objectives were researched in this study in order to measure and analyse the current departmental processes. The aim is to see how these departmental processes satisfy the requirements and needs of the staff, the referring doctors and the patients. It will be recommended that this is repeated in order to assure continuous measurement and improvement, but that will not form part of this study.

The *research question* of this study is: “Do the QM system and practices at the division of Radiation Oncology at an academic hospital comply with ISO standards?”

This research question is further outlined in the form of three sub-questions as follows:

1) What are the ISO standards regarding three quality management objectives, namely: i) staff satisfaction and moral, ii) referring doctor satisfaction and iii) patient satisfaction?

2) What are the existing QM practices regarding these QM objectives?

3) Does the department of Radiation Oncology at an academic hospital meet the objectives regarding these QM objectives according to ISO standards?

The results of this study which is a baseline audit of the QM processes at the department will be presented in Chapter 4 of this thesis. This chapter will describe and discuss the research design and methodology of the study.

3.2 RESEARCH DESIGN

The study design followed a descriptive, exploratory interpretative research strategy with a layered approach in the form of organisational surveys, questionnaires and interviews. The surveys included self-administered questionnaires and administered questionaires with structured questions and interviews in order to determine the level to which the department fulfilled the standards as set out by ISO with regards to staff satisfaction and morale and client (patient and referring doctor) satisfaction.

It was an empirical study with primary data and with a predominance of textual data generated (Mouton, 2001). Numeric data was collected with the use of Likert-scale type questions (Sapsford & Jupp, 2006).

The qualitative research methodology was chosen because of its inductive and interpretative characteristics when exploring and then describing the perceptions and opinions of the target sample groups. It allows the possibility of interconnecting complex concepts and assumptions across different subject matter and applying it to the descriptive and broad concept of “satisfaction”, which could vary from participant to participant (Denzin & Lincoln, 2008).

The flow diagram represents a summary of the design and methodology of this study.

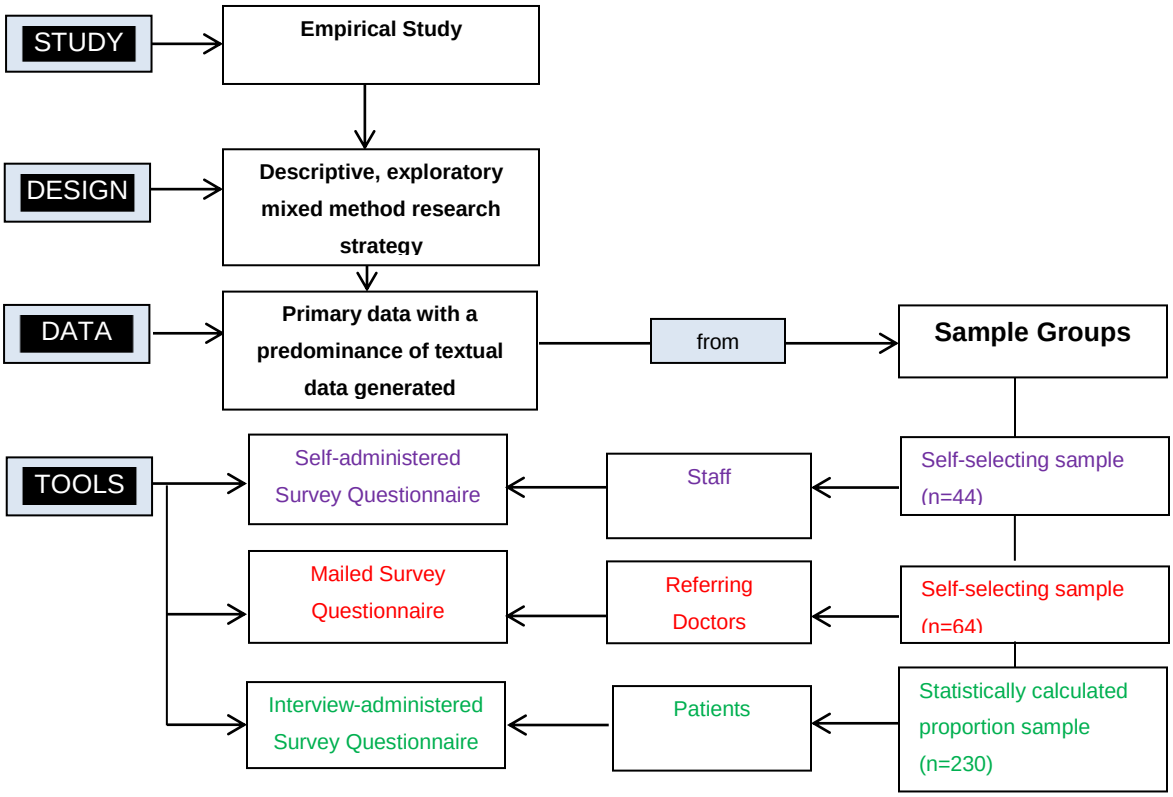

Figure 3.1: Design and methodology (n=number of participants)

The flow diagram illustrates the process followed to obtain the data needed to ascertain whether the academic hospital meets the ISO standards with regards to the QM objectives. It also summarizes the different sample groups and sizes and the tools and methods used to collect the data with. An administered questionnaire in the patient sample group assured a high level of participation and involvement from the patients.

This increased construct validity of the data collected and normally there are very low refusal rates with one-on-one interviews (Fowler,2009; Mouton, 2001).The core of ISO regulations revolve around client satisfaction (ISO, 2008). This means that it was important to encourage the members of the sample groups to take part in this research survey.

Surveys in general have been found to have the following characteristics:

- They can be purposive to produce statistics, which could be quantitative information or descriptions about a specific aspect of a study population (sample group);

- The data can be collected by asking people questions and their answers are part of the data collection for analysis;
- The data are collected from a sample of the overall population (Fowler, 2009).

Special purpose surveys can be designed to attain specific information from the respondent without influencing the results. The organisational survey questionnaires used in this research study are an example of a special purpose survey questionnaire in that it investigated specific areas of interest in specific sample populations (Fowler, 2009).

Section 3.3 will be a discussion on the methodology of this study, including the selection criteria and sampling, assumptions and the delimitations of the study.

3.3 RESEARCH METHODOLOGY

The research method, which includes the selection criteria and sampling used for the different sample groups are discussed below and is illustrated in Figure 3.1. It should be noted beforehand that all participants signed a consent form (see Appendices D and E), confirming that participation was voluntary, that the research design and methodology was explained to them and that their consent was given such that their views and opinions could be used in the descriptive and interpretative analysis of this thesis.

3.3.1 Sample selection

a) Staff selection

All professional staff groups in the department were approached for the purposes of this study. The staff groups included the Radiation Oncologists, Registrars, Medical Officers, Medical Physicists, Radiation Therapists, Professional Nurses and Social Workers. This combined staff group all work in one department, fulfilling different roles in the management of the patients. All were included in order to get a comprehensive understanding of the level of satisfaction. The full staff complement were requested to participate. This means that this was a purposive sample where participation was voluntary and thus in that sense it was also a self-selecting sample.

b) Referring doctors (clients) selection

A list of referring doctors was compiled from data gathered from the computers in the clinics about the doctors referring patients to the different clinics in this department. Care was taken to assure

the information was current and valid. All referring doctors were included in this purposive sample group and since the participation was voluntary the participants were thus a self-selecting sample.

c) Patients (clients) selection

This was a statistically calculated proportion sample. The sample size was calculated based on statistics that showed that the treatment units treat 110 patients on average every day (see section 3.4). The interviews stopped when the researcher achieved the set calculated sample size of 230 patient interviews.

A sample size formula for a proportion was used, which is usually used in the case of analysing responses to survey questions. The formula is:

$$n = \frac{Z^2 p.q.\mathrm{N}}{e^2(\mathrm{N}-1) + Z^2 p.q}$$

Formula 1: Sample size formula for a proportion (Sekaran, 2003)

In this formula, N = the difference between the proportions and an estimated proportion of 0,5 is used with a precision factor (e) of 0,05 (Sekaran, 2003).

The sample size of 230 patients calculated was based on the plan to conduct the interviews within one week. If these were questionnaires that were handed out to the patients to complete, it might have been possible to get 50 responses/day. It was, however, not practical since the researcher only managed to complete between 3-5 interviews per day with the administered questionnaire and only on certain days of the week.

3.3.2 Assumptions

Assumptions for the study are that:

1) Since the official working language of the department is English, the staff at the unit and the referring doctors are proficient to answer questionnaires in English.

2) The opinions expressed are those of the people selected for each sample group.

3.3.3 Delimitations

This study was conducted in the Radiation Oncology Department at an academic hospital in the Western Cape:

- Only current staff members were asked to participate on a voluntary basis and they signed informed consent forms;
- Heads of Departments participated on a voluntary basis and signed informed consent to do so;
- Patients were requested to participate on a voluntary basis after informed consent had been obtained.

3.4 SAMPLING AND FINAL DATA COLLECTION

The sampling and data collection can be tabulated as follows:

Table 3.1: A summary of the sample groups

GROUP	TYPE OF SAMPLE	SURVEY QUESTIONNAIRES	SURVEY QUESTIONNAIRES RETURNED	RESPONSE RATE
Staff (Group 1)	*Purposive* sample of all professional staff groups working in the department	72 handed out	44	61 %
Referring Doctors (Group 2)	*Purposive* sample of all documented doctors referring patients to the department	120 questionnaires mailed or handed out	64	53.3 %
Patients (Group 3)	*Statistically calculated proportion* sample based on amount of patients treated/day	230 questionnaires administered in an interview setting	230	100 %

The sample size for the patient group was statistically calculated by a statistician based on the amount of patients treated in the radiation oncology department per day.

Achieving a high response rate was imperative in order to increase the usefulness of the data collected (Burford *et al.*, 2009). A reminder was e-mailed to the staff participants in order to remind them of the deadline for returning completed questionnaires.

Questionnaires were numbered and a corresponding number on the consent form was the only identifier, allowing the researcher to withdraw a questionnaire should the participant in hindsight decide to withdraw his/her responses and comments. No questionnaires have been withdrawn.

Confidentiality was assured to participants by separating the consent forms and the questionnaires and storing them separately in a locked file cabinet.

3.5 INSTRUMENTATION

Three different survey questionnaires were used to collect the data. The survey questionnaires were adapted from questionnaires used by the Nuclear Medicine Department for a similar survey done in 2005 (Eiselen, 2005). The survey questionnaires can be seen in Appendices F, G and H. The researcher adapted the questionnaires to comply with the specific procedures of radiation therapy.

The researcher aimed to increase trustworthiness and validity in the data by avoiding common mistakes that can be made with the use of survey questionnaires. These mistakes could include the following:

- Ambiguous or vague questions;
- Double-barrel question i.e. two aspects in the same question;
- Questions in the wrong order;
- Asking irrelevant questions;
- Asking leading questions;
- Negatively phrased questions;
- Too many questions;
- Sensitive or threatening questions (Mouton, 2001).

These mistakes were avoided by discussing the research questionnaire for staff satisfaction and morale with the middle management team and by asking them to critique the questionnaire. The feedback they gave resulted in some language changes.

Data was collected from two main focus areas. These two focus areas were:

1. ISO documents, guidelines and policies were used to establish the required ISO standards regarding staff harmony and satisfaction, referring doctor satisfaction and patient satisfaction.

2. Data was collected from three different source groups, as discussed in section 3.4.

A summary of the data collection and production methods can be seen in Table 3.2.

Table 3.2: A summary of the data collection and production methods

SOURCE GROUP	PARTICIPANTS	DATA COLLECTION METHOD/TOOL	DATA PRODUCTION
Staff (Group 1)	All current consenting staff members (purposive/self-selecting sample)	Survey questionnaires were handed out to the combined staff group (Appendix F)	• Thematic content analysis by means of coding and categorising the data generated from the open questions • Quantitative descriptive analysis to analyse the data generated by the Likert-scale questions
Referring Doctors (Group 2)	All the consenting referring doctors currently on the data-base (purposive/self-selecting sample)	Self-administered questionnaires to be mailed or hand-delivered (Appendix G)	• Thematic content analysis by means of coding and categorising the data generated from the open questions • Quantitative descriptive analysis to analyse the data generated by the Likert-scale questions
Patients (Group 3)	230 voluntary, consenting patients (statistically calculated proportion sample) within a specific time-frame	Pre-set patient questionnaires completed in an interview setting (Appendix H)	• Thematic content analysis by means of coding and categorising the data generated from the open questions • Quantitative descriptive analysis to analyse the data generated by the Likert-scale questions

3.5.1 Staff satisfaction questionnaire

The questionnaire requested certain demographic details that would not identify the participants. This was done to enrich the possible discussion that might arise from different groups of staff in the

department. A variety of generations are working together in this department and adding the age, the years qualified and different types of qualifications could help to explain some of the issues identified.

Five specific areas were investigated in the questionnaire. They were: 1) working environment, 2) physical environment and safety, (3) job description, (4) recognition and (5) reimbursement. There were 74 Likert-scale questions, giving answering options of *Strongly Agree, Agree, Disagree, Strongly Disagree* and *Unsure*.

Two open-ended questions followed prompting responses on opinions and suggested changes.

See Appendix F for full questionnaire.

3.5.2 Referring doctor satisfaction questionnaire

There were some questions posed to establish the referring doctor's context without physically identifying him/her. These demographic questions also clarified the doctor's role in the process of referring the patients to the department.

It was followed by 13 specific, closed questions that investigated telephone etiquette, follow-up of patients, information, communication and perceptions of quality.

The questionnaire concluded with an open-ended question that could help to identify possible problem-areas.

It was a short, concise questionnaire (see Appendix G).

3.5.3 Patient satisfaction questionnaire

This administered survey questionnaire covered some basic demographic details to clearly define the patient population that are being treated at the department. It also provided information regarding the patient's socio-economic state, which could lead to a better understanding of the results of this survey. This questionnaire was administered by the researcher in an interview setting. This was done to assure that all questions were understood and completed by the participants. The researcher's experience and knowledge of the field of Radiation Therapy placed her in a position to explain any issues the patient might have had during the interview, or refer the patient to the relevant disciplines to help the patient.

There were open-ended questions asking for a patient's understanding or opinions. This allowed for discussion on topics that the patient found relevant and important or needed to discuss at that stage.

Twenty five thematic questions followed this with the ease of Likert-scales to answer the questions. The Likert scales started with *Strongly Agree* and was followed by *Agree*, *Disagree*, *Strongly Disagree* and *Unsure*.

Themes that were covered in the questionnaires ranged from the general administration, the atmosphere and comfort in the department, cleanliness in the department, the level of professionalism of the staff and general information sharing.

A section at the end of the questionnaire focused specifically on ward patients (11 questions) and an open-ended question was included to establish the ward patients' satisfaction during their stay.

The questionnaire can be seen in Appendix H.

3.6 DATA PRODUCTION AND ANALYSIS

The analysis process was layered and based on the identification of different perspectives from different groups of people involved in the same setting (Sapsford & Jupp, 2006). Thus the initial data was collected in the form of documentation and three questionnaires from three intersecting sample groups and then data production occurred with the collation and transcription of the contents of the documents and questionnaires.

3.6.1 Analysis of the literature collected

The first layer of analysis involved deconstructing and discussing the ISO documents, guidelines and policies in order to establish the required ISO standards regarding the three QM objectives researched in this study. The deconstruction of the documents consisted of identifying all the aspects that referred to the three QM objectives. This analysis answered the first research sub-question: What are the ISO standards regarding three QM objectives, namely: i) staff satisfaction and morale, ii) referring doctor satisfaction and iii) patient satisfaction?

3.6.2 Analysis of survey questionnaires

The second layer of analysis involved quantitative descriptive analysis methods used to analyse the data generated by the Likert-scale questions. Each questionaire had specific quality parameters

identified under which questions were grouped, for example, the staff questionnaire had five quality parameter or indicators (working environment, physical environment, job description, recognition and re-imbursement). Themes emerged from each of these quality parameters (see table 5.1) and the data is presented as informative, using charts and diagrams to show these emergent themes from the categories investigated.

The quantitative analysis as described was used to answer the second research sub-question: What are the existing QM practices regarding the three QM objectives?

3.6.3 Analysis of narrative data from questionnaires

The third layer of analysis involved all narrative data generated from the open ended questions and patient interviews. Thematic content analysis was used to identify from the transcribed narrative data the emergent themes and categories used in the second layer of analysis, the qualitative descriptive analysis.

Data from the open questions on the questionnaires were subjected to thematic content analysis where common petterns were identified and categorised and coded. The emergent themes from the narrative data were tested against those themes that emerged from the quality parameters (see 3.6.2). The experience of the researcher as an expert in the field of Radiation Therapy and with sound knowledge of the international guidelines and standard helped the researcher in the categorisation of the content. Thus the data collected from the different groups and sources could be triangulated and was analysed and discussed within the categories identified within the same context. This qualitative analysis addressed the second research sub-question as well.

3.6.4 Final integration of data

The final layer of analysis was to compare the findings of sub-question 2 with the ISO standards generated in answer to sub-question 1 in order to answer the third research question: Does the department of Radiation Oncology at an academic hospital meet the criteria regarding the three QM objectives according to ISO standards?

It is noted that the data may identify and construct the specific departmental objectives as set out to investigate. It could potentially identify areas of improvement, which could clarify the extent to which the department is meeting objectives according to ISO standards.

An outcome of the analysis for Question 3 could mean relevant findings and recommendations that could be incorporated into the eventual construction and design of a quality manual for the research site.

3.7 VALIDITY, RELIABILITY AND CREDIBILITY OF THE DATA

Yin (2003) discussed four sets of criteria for judging the quality of any empirical research design similar to this particular study. These criteria are: construct validity, internal validity, external validity and reliability.

3.7.1 Construct validity

Construct validity is the valid data collected when the researcher has established the correct working measures for the concepts that are being studied (Yin, 2003). It refers to the consistency of the study environment. This was tested by piloting the questionnaire with a sample group from the chosen sampling populations. Construct validity was established by piloting and discussing the staff satisfaction questionnaire with middle management staff members (n=7) before finalising the questionnaire. The researcher checked whether specific questions were consistently not completed by a number of respondents. This could indicate meaningless or misunderstood questions. The participating staff responded very positively, but suggested some word-changes that aided in understanding the questions better (Burford *et al*., 2009).

3.7.2 Internal or construct validity

Internal validity is only of consequence where the researcher is trying to establish whether one event is leading to another event (Yin, 2003). During data analysis this can also imply the exploration of the different dimensions of the data. These dimensions need to be interpretable and several sub-divisions can be used to describe them (Sapsford & Jupp, 2006). Since the research was exploratory and descriptive, no causal claims or inferential claims were being looked for or would be made.

3.7.3 External validity

External validity refers to the fact that the findings of the survey can be generalized to population groups beyond the scope of the department. This is important, since the data collected will rely on statistical generalization which in turn could ensure that the survey questionnaires could be incorporated in a quality manual for future use and surveys. This can be checked by applying shortened version of the questionnaires. The external validity will be verified at the department

with the next survey where a recommended shortened version of the questionnaires could be used (see Appendices L, M and N). It can also be verified by comparing data collected from this study to similar surveys done by the Department of Health (2012) in the department. In this case the researcher can use pattern-matching that can link the data and compare the different data-sets (Yin, 2003).

3.7.4 Reliability

Reliability ultimately aims to minimize bias and errors in a study by being able to repeat the study. The approach to follow is the test-retest approach. This means the questionnaire is completed by the same respondents after a specific interval. This would ensure internal consistency over time (Yin, 2003; Burford *et al.,* 2009; Sapsford & Jupp, 2006).

Test-retest reliability can be checked by means of member-checking after the second set of responses has been checked and discrepancies found. It was found by Burford *et al* (2009) that discrepancies could almost always be explained in line with changes or specific events that happened in the department. This could reinforce the validity of the questionnaire's responsiveness to actual changes in the opinions of the participants. Member checking was done within the department with the staff sample group as the researcher presented the results and conclusions of the initial analysis as a peer seminar group session.

3.7.5 Credibility

The credibility of the data is ensured by the expertise of the participants in the first and second sample groups. Since all the participants are trained professionals, their expertise in the field of radiation therapy makes them trustworthy to judge their own level of satisfaction and morale.

The same argument can be used when looking at the first sample group. By the time patients end up in the oncology unit for treatment, they have been to many doctors and have been submitted to various diagnostic procedures. The level of care they received can easily be judged by their level of satisfaction, given that treatment outcome is measured on its own and not taken into account.

3.8 POSITIONALITY OF THE RESEARCHER

At the time of data-collection, the researcher had just completed her contract working as a locum radiation therapist in the department. This simplified her interactions with the patients, since the patients did not feel as if they were interviewed by a member of the staff, therefore felt less

intimidated. The researcher placed herself in a position of objectivity and expertise as a practicing radiotherapist by explaining her current position to the patients. It was clarified to them that the researcher was not involved in the department or the management there of and that any information shared by them would purely be used to improve conditions in the department. The patients also felt comforted in knowing that the researcher was a radiation therapist since any questions relating to their treatment could be answered and being familiar with the department and its processes, the patients could be referred to the relevant departments for questions or problems beyond the researcher's knowledge.

There was no bias involved in the evaluation of the QM or QA processes, since the researcher was not involved in the development or implementation of the processes under investigation.

The researcher was also in a position to evaluate the credibility of the responses due to her qualification and the rapport that she has developed with her colleagues in the department. Establishing rapport with the staff further increased validity of the data collected due to the in-depth insight the researcher had into the subjects' opinions and experiences. The researcher acted as a neutral expert throughout the research process.

The department supported the research fully and did not attempt to obstruct or bias the responses of the staff regarding the staff-satisfaction surveys. Management gave their full support towards the research activities and the staff participated voluntarily.

3.9 ETHICAL CONSIDERATIONS

There are various ethical considerations that need to be taken into account when embarking on a participatory research project. These are issues like informed consent, documentation of data, control of the whole participatory process, confidentiality, privacy, trustworthiness, ownership of the acquired data and responsibility by the researcher. Being attentive to the participants' needs during the interview is important. Another important aspect is dealing with queries they might have regarding their treatment that has nothing to do with the radiation therapy they are receiving. The researcher had to display the ability to deal with queries and appropriate referrals during the interview process (McIntyre, 2008).

The following ethical considerations were taken into account for this research project:

- All data collected were treated as confidential.

- The data was stored by the principle investigator in a locked cabinet.
- The participants all signed informed consent forms to participate in the research and for the results of the research to be used in publishing the findings of the study.
- Participation in the research was completely voluntary and participants could withdraw their responses at any time during the research period.
- Permission was gained from the Heads of Department at the Radiation Oncology Department at the academic hospital.
- Ethical approval was applied for and obtained from CPUT Faculty of Health and Wellness Sciences Research Ethics Committee.
- All questionnaires were available in English, and a trained interpreter was available on site to overcome language barriers.

3.10 CONCLUSION

The design and methodology of this research survey were aiming to provide statistical information from specific participants by asking relevant questions. This was done in order to obtain baseline statistical data that could inform future surveys in this department. The purpose of this type of organisational survey would be to improve staff and client satisfaction levels. The details of every aspect of an organisational survey like this could affect its accuracy and credibility.

The specific design and methodology of this survey study was planned scientifically by attending to the following aspects: sampling, instrumentation, data collection, data analysis and the integration of the data. The reliability and credibility of the data are related to the planning and implementation of all these aspects.

Chapter 4 will give the results of the surveys in detail and will lead into the discussion of the results in Chapter 5.

CHAPTER 4

RESEARCH RESULTS

"It is common sense. When people feel great about the place where they work … they provide better customer service."

Dick Clark, Group Leader of Financial Services at Monsanto

4.1 INTRODUCTION

The results of this research study can be divided into a theoretical research component as well as the actual research.

The theoretical component addresses the specific ISO standards and the requirements the department needs to adhere to in order to meet the QM objectives to comply with the ISO standards (ISO, 2005; ISO, 2008).

The research component is described in the results of the internal organisational audit that was done on the three sample groups. These three sample groups were: staff, referring doctors and patients. This audit was done to establish baseline parameters that could in future be used for statistical comparison to the follow-up internal or external audits. This could assist in identifying improvement measures as well as rate the overall improvement or deterioration of staff and client satisfaction.

For the purpose of presenting the results of this study, responses that were higher than 90% were seen as very good, those between 50% and 90% were acceptable and any response below 50% was indicative of areas that are deemed in need of improvement.

Furthermore, the results for the response choices of "strongly agree" and "agree" were added together as well as the responses for "strongly disagree" and "disagree". This simplified the results presentation since both terms indicated a positive response or negative response.

The comments and suggestions for change from the participants have been coded as follows: (group number: survey number). The group number for the combined staff is 1, for the referring doctors it is 2 and for patients it is 3. The survey number is the unique number on every research

questionnaire that links the questionnaire to a specific staff member. This unique number is only known to the researcher by means of a matching number on the informed consent that was signed and stored separately in order to ensure confidentiality. This coding was used as identifiers for direct quotes.

4.2 ISO STANDARDS AND REQUIREMENTS REGARDING THE QM OBJECTIVES

Sub-question one of the research study is: "What are the ISO standards regarding three quality management objectives, namely: i) staff satisfaction and morale, ii) referring doctor satisfaction and iii) patient satisfaction?"

ISO 2000 and ISO 2008 standards are applied in answering this sub-question. The general requirements (clause 4.1) that an organisation should adhere to when implementing a QMS are specified by ISO (2005; 2008).

Clause 4.1 specifies that the organisation shall:

Determine which processes are important for the QMS and how they are applied throughout the organisation (identifying the specific processes are an organisation-specific task);

a) Determine the specific sequence and the interactions of these processes;

b) Determine the criteria and methods that are needed to assure that these processes are operated and controlled effectively;

c) Ensure that resources (including staff and equipment) and information are readily available to support the operation and the monitoring of these processes;

d) Monitor, measure (where possible and applicable) and analyse these processes continuously and

e) Implement the necessary actions to achieve the planned and desired results and assure the continual improvement of these processes (ISO, 2005; ISO, 2008).

ISO states that the documentation needed for a QMS shall include documented declarations of a *quality policy* and *quality objectives*, a *quality control manual*, *documented procedures* and all *documents*, including records, that are necessary to ensure the effective planning, operation and control of the chosen processes (ISO, 2008).

The main clauses in the ISO system (as illustrated in Appendix B) deal with the responsibility of management to use the resources available to manage the processes and to measure, analyse and improve the QMS continuously. This system also illustrates the feedback loop necessary to assure continuous feedback and improvement of the QMS. Feedback and complaints are monitored by getting feedback and input from clients as well as the staff, and in this case organisational surveys were used to measure this feedback and input.

Clause 6 of the ISO standard specifies the requirements for the first quality management objective, namely staff satisfaction and morale. It states that management should provide the facilities and the equipment, the infrastructure and training to personnel in order for them to function in their professions and therefore be satisfied in their working environments. The ISO standard defines this as Resource Management and the extent of clause 6 is summarized as follows:

Table 4.1: ISO requirements for staff satisfaction and morale (ISO, 2008)

CLAUSE 6: RESOURCE MANAGEMENT	
6.1 PROVISION OF RESOURCES	The organisation shall determine and provide the necessary resources needed: 1. To implement and maintain the QMS and to continually improve this system, and 2. To increase customer satisfaction by meeting the requirements/needs of the customers.
6.2 HUMAN RESOURCES	
6.2.1 General	Personnel that are performing work/tasks that could affect the end-product/service shall be competent and have the appropriate education, training, skills and experience.
6.2.2 Competence, training and awareness	The organisation shall: 1. Determine the competence needed by personnel; 2. Provide the necessary training where there is a lack of competence; 3. Evaluate the effectiveness of such training; 4. Create awareness amongst personnel regarding the importance of their activities and participation/contributions towards achieving these quality objectives and 5. Keep appropriate records of education, training, skills and experience of their staff.
6.3 INFRASTRUCTURE	There are certain infrastructural needs to assure conformance to the product/service requirements. They are: 1. Workspace, buildings and utilities needed;

	2. Equipment needed for job performance, both hard and software and 3. Supporting services to assure proper service delivery.
6.4 WORK ENVIRONMENT	The organisation shall establish and manage the work environment that is needed to achieve conformity to the product/service requirements.

Clauses 7.2 and 8.2 refer to ISO standards for customer/client related processes and their requirements which is the second and third quality management objective.

Clause 7.2 describes the customer-related processes specifically and is summarized in Table 4.2.

Table 4.2: ISO requirements for customer-related processes (ISO, 2008)

CLAUSE 7.2: CUSTOMER-RELATED PROCESSES	
7.2.1 DETERMINING THE REQUIREMENTS THAT RELATES TO THE PRODUCT/SERVICE	The organisation shall determine: 1. Specific requirements the customer has regarding the product/service; 2. Requirements necessary for specific purposes for the service/product; 3. Statutory and regulatory requirements applicable to the product/service and 4. Additional requirements the organisation deems necessary.
7.2.2 REVIEWING THE REQUIREMENTS RELATING TO THE PRODUCT/SERVICE	Product/service review by the organisation shall assure that: 1. The requirements for the product/service are defined; 2. Contract/order requirements are expressed clearly and 3. The organisation had the ability to meet these requirements. In the case where customers do not define the requirements, such requirements shall be determined by the organisation.
7.2.3 CUSTOMER COMMUNICATION	The organisation shall communicate with customers regarding the: 1. Product/service information; 2. Enquiries, contracts or amendments thereof; 3. Customer feedback as well as customer complaints.

Clause 8.2 describes the requirements for monitoring and measuring the customer satisfaction levels. These requirements are described and summarized in Table 4.3.

Table 4.3: ISO requirements for monitoring and measuring customer satisfaction (ISO, 2008)

CLAUSE 8.2: MONITORING AND MEASUREMENT	
8.1 CUSTOMER SATISFACTION	The performance of the QMS can be measured by monitoring information relating to the customers' perceptions as to whether the organisation has met the customers' needs or requirements
8.2 INTERNAL AUDIT	It is a requirement that the organisation conducts internal audits at specific intervals to determine whether the QMS: 1. conforms to the requirements as established by ISO and the organisation and 2. is effectively implemented in the organisation and maintained properly. It is further stipulated that an audit programme shall be implemented and that the following should be taken into consideration regarding audits: a) prioritize the more important processes for auditing; b) previous audit results should be consulted when analysing the collected data; c) audit criteria, scope of the audit, the frequency of audits and the methodology shall be defined by the organisation; d) auditors cannot audit their own work; e) there shall be a documented procedure for planning and conducting audits and f) audit results and records of audit information shall be kept and maintained. After audits are done and concluded, corrective actions should be taken by the responsible management representatives in the areas where non-conformities were identified.

This section concludes the specific requirements in the ISO standard for the three quality management objectives investigated in this study.

Section 4.3 will provide the results obtained from the organisational survey conducted in the department. The results are divided in the different groups that were investigated; namely i) staff, ii) referring doctors and iii) patients.

4.3 STAFF SATISFACTION

The sample group consisted of 44 participants, representing the different professional groups in the department. For the purpose of the discussion, they will be referred to as the combined staff group. Figure 4.1 illustrates the represented groups. Only 41 participants indicated which professional group they were representing.

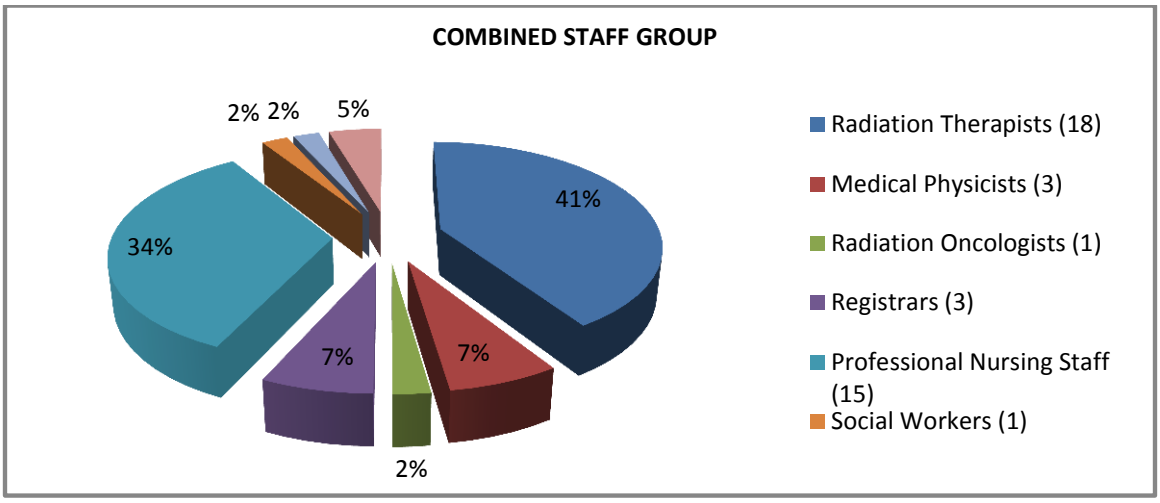

Figure 4.1: Participation of the combined staff group

A total of 72 questionnaires were handed out in the department and 44 questionnaires were voluntarily returned, thus giving an overall response rate of 61%. An outline of the answers to the questions asked in the survey can be seen in Appendix I.

The individual participants in the combined staff group were at different professional levels with regards to qualifications and studies they were doing at the time of the research. At the time of completing the survey 6 out of the 44 participants (14%) were busy with studies that varied from BTech degrees (Nursing and Radiography) to MMed degrees.

Table 4.4 summarises the variety of different qualifications amongst the group of Radiation Therapists that participated in the survey.

Table 4.4: Different qualifications in the Radiation Therapy staff group (n=18)

QUALIFICATION	FREQUENCY
National Diploma (ND): Radiation Therapy (RT)	44.4% (n=8)
ND: RT and Diagnostic (D)	11.1% (n=2)
ND: RT + Certificate in Dosimetry and Specialized Planning	16.7% (n=3)
ND: (RT)(D) + Certificate in Dosimetry and Specialized Planning	5.5% (n=1)
ND: RT + BTech Degree	16.7% (n=3)
No indication of specific qualification	5.5% (n=1)

A diverse age group was represented in the combined staff group. Figure 4.2 illustrates the represented age-groups.

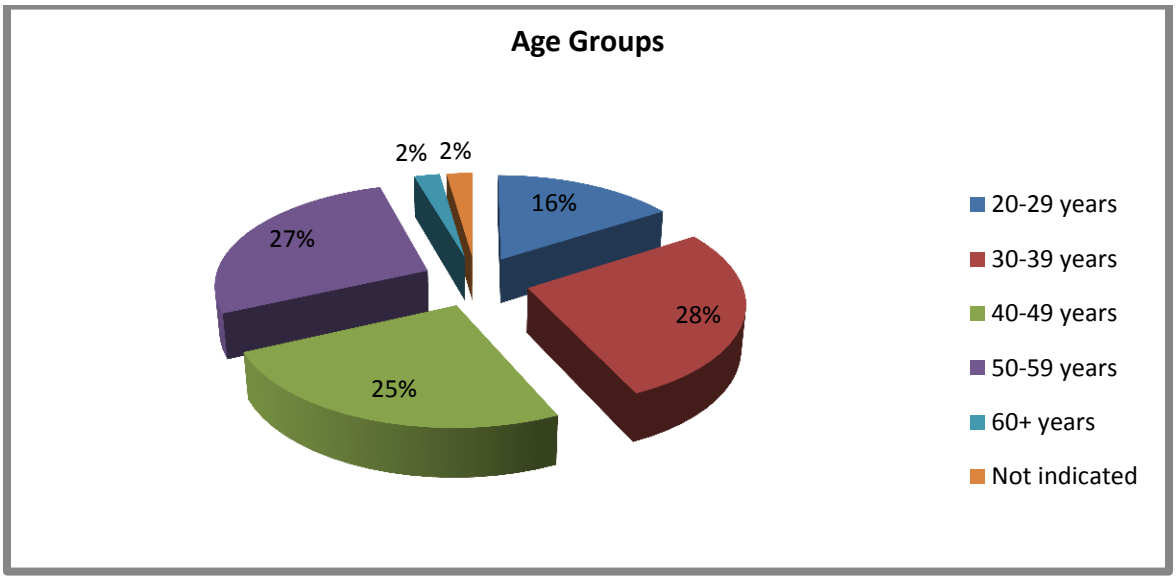

Figure 4.2: Age groups represented in the combined staff group

The work-experience that was represented in this group showed that 25 (55%) of the participants have been qualified for more than 15 years. Only 6 (14%) have been qualified for less than 5 years, and the remaining participants have between 6 and 14 years of experience.

Specific quality parameters were investigated within the questionnaire (see appendix A) in order to reflect if the departmental objectives regarding staff satisfaction were being met adequately. These quality parameters were:

- Working environment,
- Physical environment and safety,
- Job description,
- Recognition and
- Re-imbursement.

The results for each of these parameters will be presented separately.

4.3.1 Working environment

The elements of the working environment can further be divided into different themes or categories. These themes were initially generated by the researcher when developing the questionnaires which were adapted from questionnaires previously used in the health science industry and they are: the role of middle management, departmental spirit, work ethic and personal attitude, and communication (Smith & Engelbrecht, 2001; Eiselen, 2005). The narrative data was analysed within these themes/categories.

4.3.1.1 Role of middle management

The working environment section of the questionnaire had ten statements that investigated the *role of middle management* and the general relationships with different role-players in the management team. Figure 4.3 summarizes the responses of the participants.

Using 50% as the benchmark, it can be seen that the departmental objectives regarding relationships with middle management are generally met. There are two instances where the benchmark was not met. The first instance is where 38.7% of the respondents agree that their HOD *does not* favour specific people, with the converse of 36.4% disagreeing and with 25% unsure or not answering the point. The second instance is that only 47.8% of the participants feel that they can relate to their HOD with 36.3% saying they are unable to relate to their HOD. Relationships and communication with direct supervisors seem to be good and valued with 72.7% and 77.3% agreement respectively. Confidentiality was rated highly with more than 70% of participants feeling that their supervisors and HOD's treated discussions as confidential.

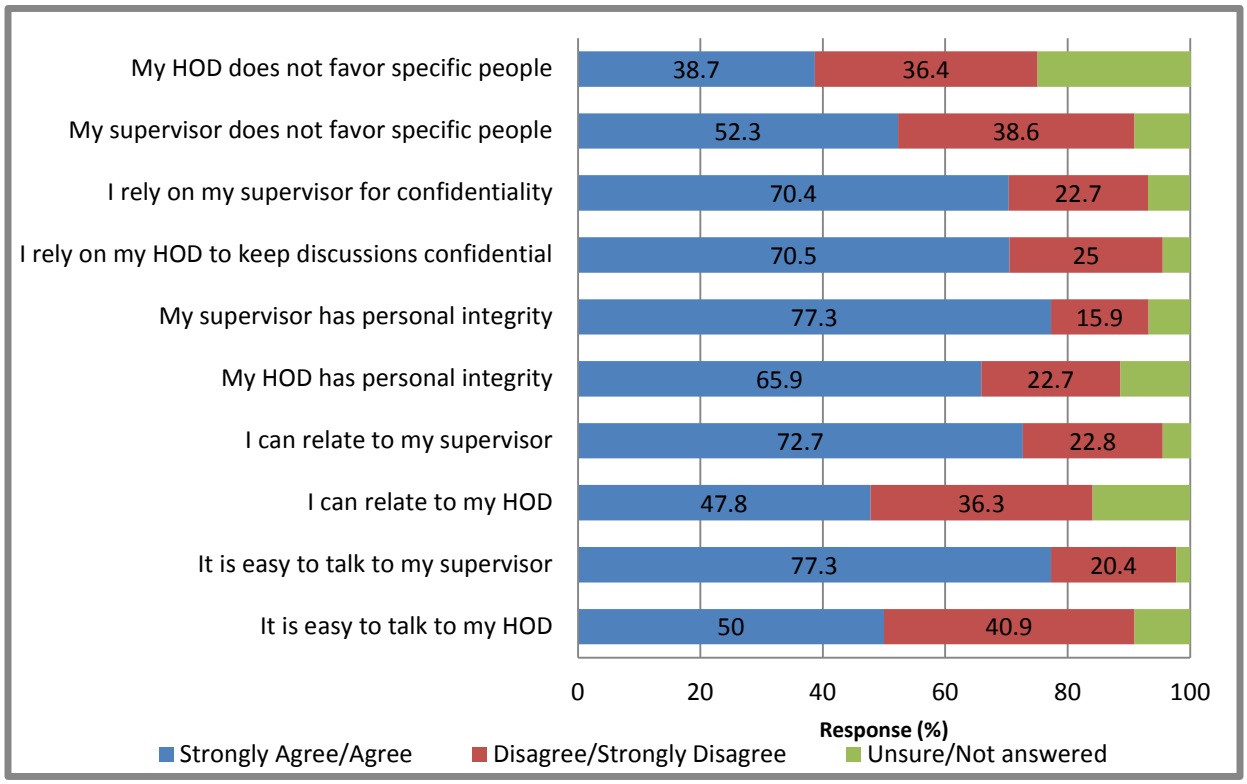

Figure 4.3: The role of middle management

The role of middle management emerged as an important factor in the feedback received through the open questions at the end of the questionnaire (see Appendix I). Thirty (30) suggestions for change for an improved workplace were made of which nine (n = 9/30) were suggestions towards the need for an improved role of HOD's and supervisors in terms of better communication and consistency in approach to staff members. There were ten statements under the "*other comments*" of which four (n = 4/10) referred to a wish for better communication with HOD/ supervisors and the need for security within a job they love.

4.3.1.2 Departmental spirit

The next theme that was isolated as an important factor influencing the working environment was the *departmental spirit*. Eight statements, as shown in Figure 4.4, describe the results for the general atmosphere in the department as well as the departmental spirit.

Seven of the statement-results met the benchmark. Two statements had good results: 84.1% of respondents felt that there is ample opportunity to mix with their colleagues and 86.4% of the respondents felt that they shared common interests with their colleagues. Further statements showing positive agreement were staff taking a personal interest in each other (56.8%), staff getting

on well (59.1%) and staff willing to help each other (63.6%). One statement showed that 47.7% of participants felt there was a good team spirit amongst staff at that point, with fifty (50%) of participants disagreeing that there was good team spirit. Fifty percent (50%) of staff believed that the department has a relaxed atmosphere, however 45.5% disagreed with the statement and 4.5% were unsure or did not answer this statement.

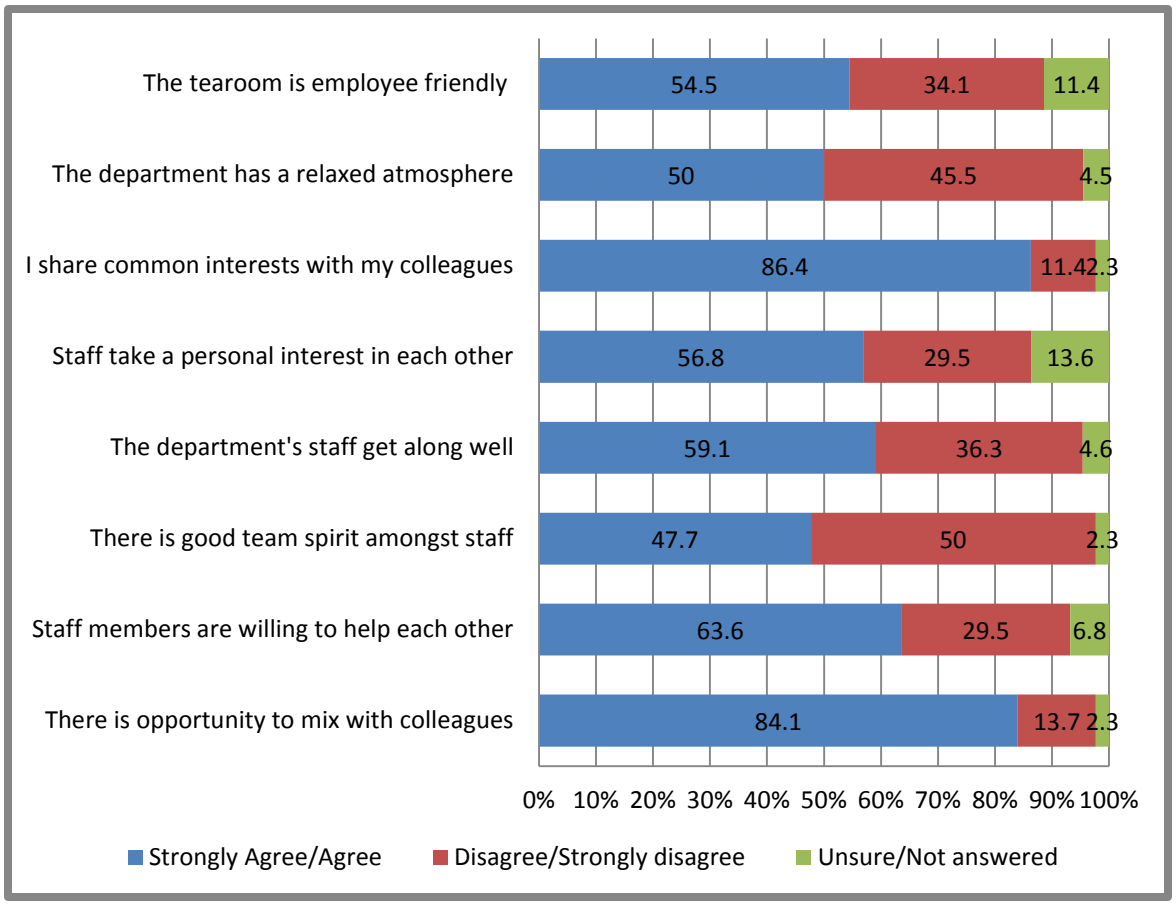

Figure 4.4: Departmental spirit as seen by the combined staff group

Departmental spirit emerged as a theme in the feedback received through the open questions at the end of the questionnaire (see Appendix I). More than fifty percent (n = 16/30) of suggestions for an improved workplace addressed issues of increased team spirit and team building, friendly cooperation, staff attitude, interest in each other and respect for each other. A further four comments (n= 4/10) from the "*other comments*" addressed departmental spirit in a positive and encouraging light with suggestions for increased team building in the form of a *"staff of the month award (1:17)"*. Departmental monthly meetings were suggested as well as more open discussion to increase communication and improve interpersonal and interdepartmental relationships. Two comments showed a positive spirit towards the department and the atmosphere:

"The department stands out as one that delivers an excellent service. We get many compliments for the initiative of staff to beautify their working environment" (1:26).

"I love my job, enjoy it … feel that is value to my patients. (1:106)"

4.3.1.3 Work-ethic of the employees

The *work ethic of employees* emerged as an important factor could possibly influence the departmental spirit. Work ethic can be seen as a staff member's 'attitude' towards their job. Figure 4.5 illustrates the response of the combined staff and the general attitude expressed towards their respective workplaces.

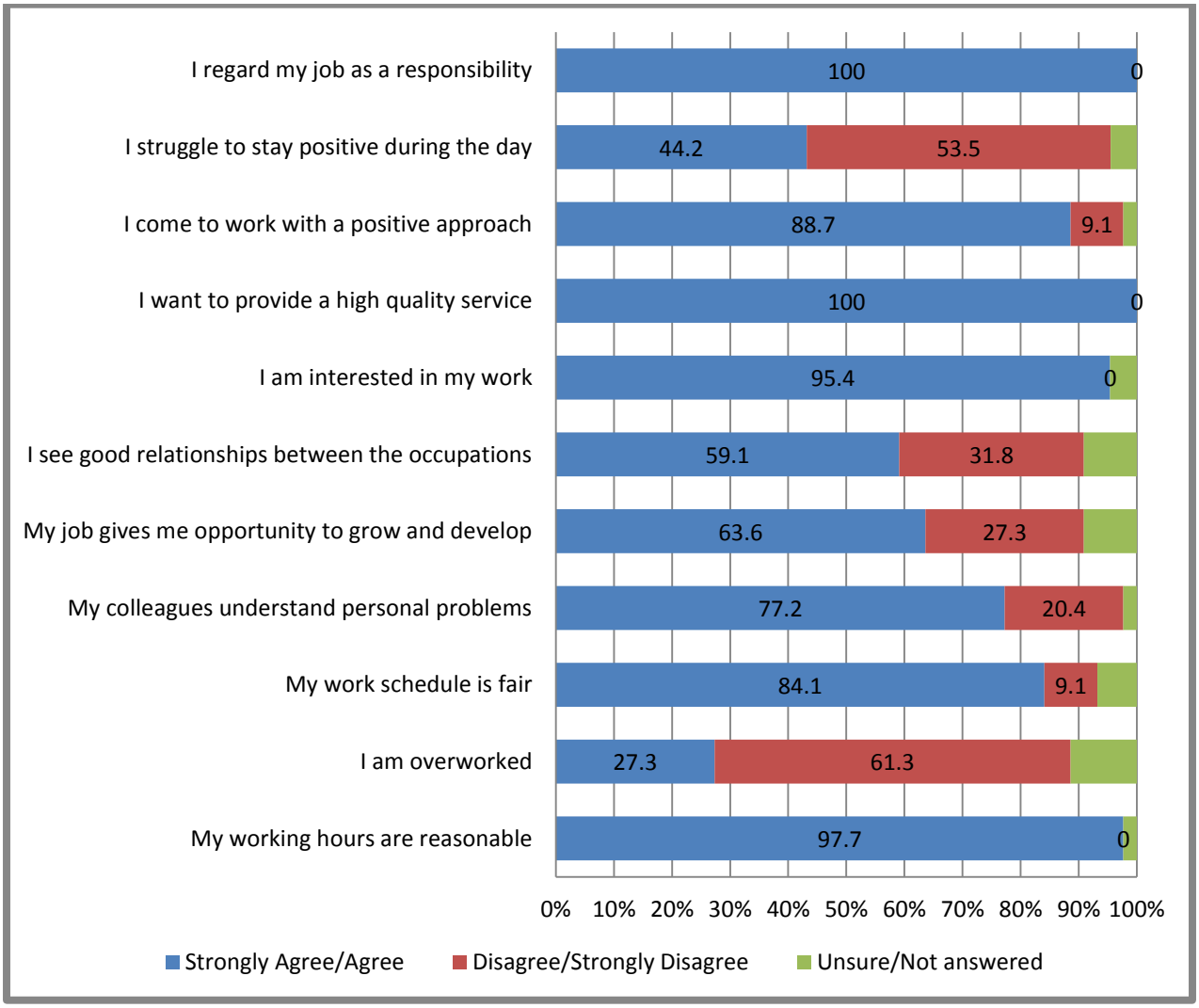

Figure 4.5: The work-ethic and personal attitudes as displayed by the combined staff group

Eleven statements from the questionnaire were identified as relating to work ethic and attitude. All the participants (100%) regard their jobs as a responsibility and are striving to provide a high quality service. The majority (97.7%) feel their working hours are reasonable, are interested in their work (95.4%) and come to work with a positive attitude (88.7%). In contrast, 44.2% struggle to stay positive during the day even though 53.5% of participants say that they do stay positive during the day. Eighty-four percent (84.1%) note that their work schedule is fair and conversely, 61.3% disagree that they are overworked. Twenty-seven percent (27.3%) agree that they are overworked with 11.4% unsure or not answering. Participant responses agreeing with further statements are as follows: sufficient understanding of personal problems among staff (77.2%); there are good relationships between the different occupational groups (59.1%); and the job allows growth and development opportunities (63.6%).

Work ethic and staff attitude emerged as a theme in the feedback received through the open questions at the end of the questionnaire (see Appendix I). From the thirty comments, ten (n = 10/30) addressed work ethic and attitude with suggestions such as: *"I feel all staff should work hard … equal job/duty distribution (1:8)"*; *"... if staff make a habit of coming late they should be dealt with … (1:15)* and *"Respect one another in their different functions … (1:55).*

Two comments from participants illustrate a contrasting attitude of staff, in that:

> *"In all my 35 years of working in different departments I have never felt as insecure in my job as at this moment. It is very sad for me to end my career like this (1:12)".*
>
> *"X-Block is a good place to work (1:107)".*

Workload was addressed in some comments, with referral to staff shortages, for example:

> *"The shortage of staff is sometimes a source of frustration (1:49)".*
>
> *"Better teamwork. More staff (1:61).*
>
> *"That we as staff must work in co-operation of each other (1:104)".*

4.3.1.4 Communication in the department

The final theme identified in the category of the work environment covers aspects of communication in the department. The response of participants to eight statements of departmental communication practices is shown in Figure 4.6.

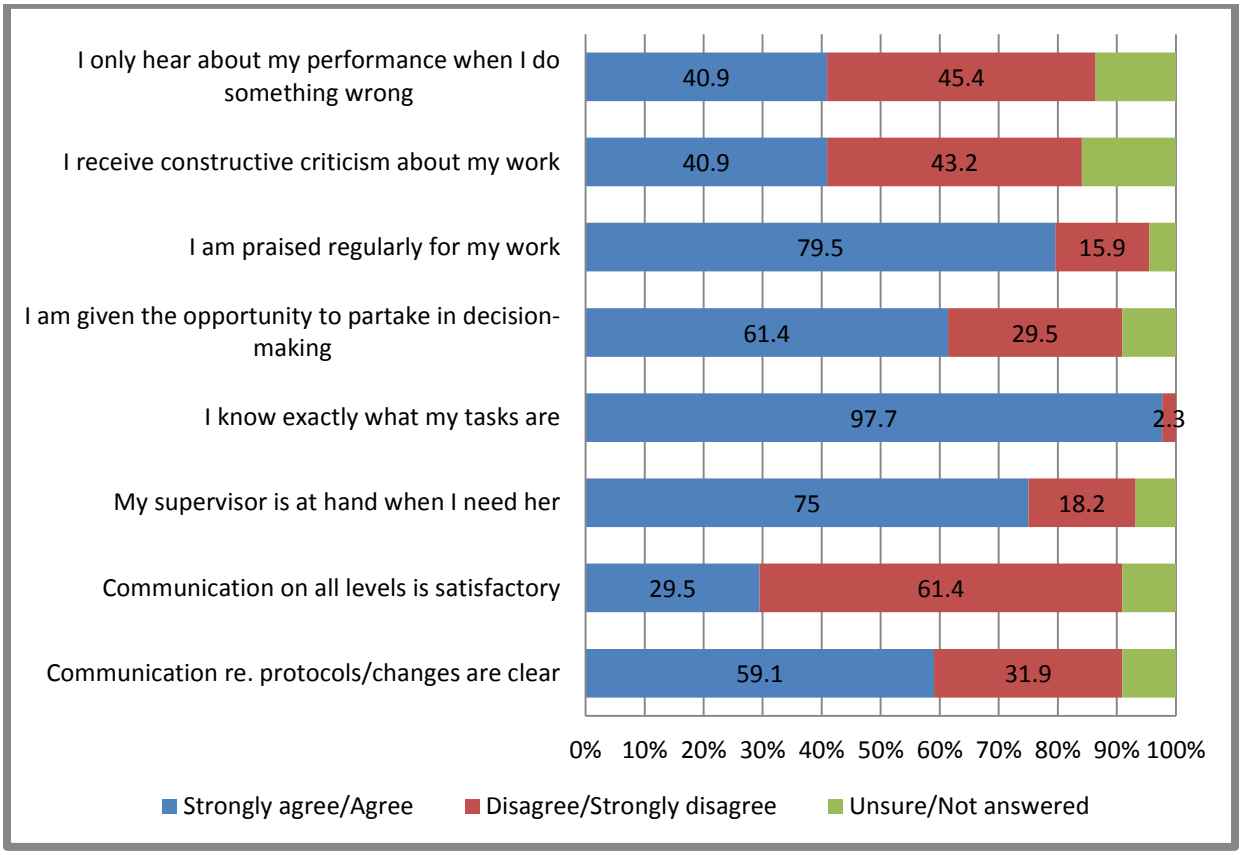

Figure 4.6: Communication in the department as seen by the combined staff group

Almost all of the participants (97.7%) feel that they always know exactly what their tasks are and although this could be seen as a job-specific question, it also relates to good communication practices. Communication regarding protocols and changes of protocols are seen as satisfactory (59.1%). Seventy five percent of staff is of the opinion that their direct supervisors are at hand when they need them. Staff members seem to feel confident that they are praised for their work on a regular basis (79.5%) and that they form part of the decision-making process (61.4%).

Statements where participants are not in full agreement are as follows: 40.9% of the participants feel that they are receiving constructive criticism and a similar amount are in agreement that they only hear about their performance when they do something wrong; 29.5% agree that communication levels are satisfactory with a majority disagreeing (61.4%).

Participant suggestions regarding departmental communication include: *"… a departmental newsletter for important communication and information to be circulated to all staff … (1:17)"* and *"More open meetings and discussions about changes in department protocol before it happens (1:58)".*

4.3.2 Physical work environment and safety

This section will present the results for the second quality parameter investigated namely the physical work environment and safety. Figure 4.7 illustrates the results for this part of the survey.

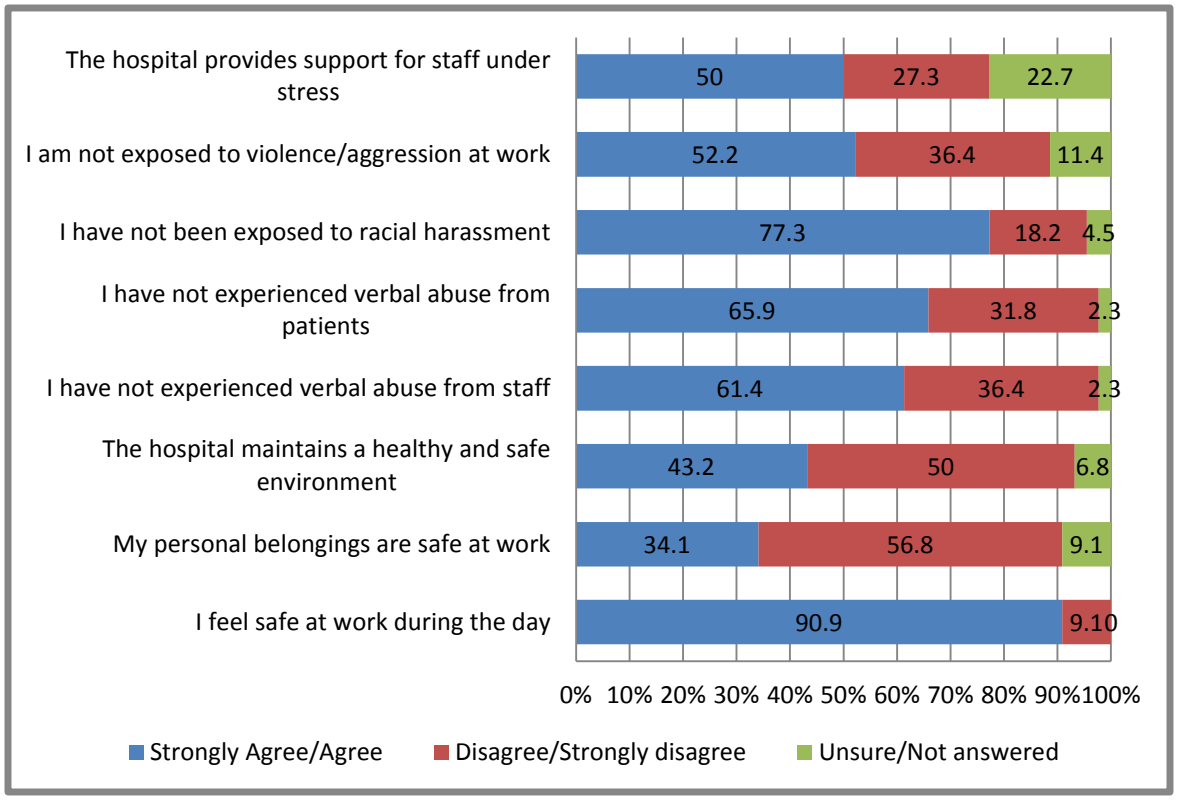

Figure 4.7: Physical work environment and safety results

The survey showed that 90.9% of participants feel safe at work during the day, however a third of those (34.1%) believe that their belongings are safe at work with 56.8% in disagreement and feeling that their belongings are not safe at work. One participant commented that: *"The in- and out-doors are too open for everybody. You don't know if the persons are really booked or if they come in to do their own things (1:53)".*

Forty-three (43.2%) of participants agreed that the hospital is maintaining a healthy and safe environment according to the Occupational Health and Safety Act with 50% of participants in

disagreement. Participants commented that *"… better upkeep of the infra-structure such as floors, walls and garden (1:26)"* is needed and *"… a clean environment and well-maintained buildings could make a difference (1:30)"*. In contrast another participant noted that *"… we get many compliments for the initiative of the staff to beautify their working environment (1:26)"*.

Racial harassment is not deemed a problem by 77.3% of the participants that claim that they have not been exposed to it, however there are 18.2 % who disagree. A number of respondents (36.4%) feel that they have experienced verbal abuse from other staff members and 31.8% agree that they have received verbal abuse from patients. Thirty-six percent (36.4%) of participants disagree that the hospital takes adequate precautions to ensure that violence or aggression is not experienced in the workplace.

4.3.3 Job Description

This section states the results for the section of the questionnaire that addressed the third quality indicator, namely job description.

Two themes emerged from this section, namely: the participants' view on his/her personal perceptions of their job or career and their perception of the departmental job description.

Figure 4.8 illustrates the results for the first theme which is the participants' personal view on their job or career. Six statements were measured and they all met the benchmark. Four statements resulted with 97% participants being proud of their career, and 90.9% each agreeing that their work is challenging, expert and that their tertiary education is sufficient to perform the required duties. A further two statements, namely that the participant's work was valued by the department and the participant's desire for future career development, resulted in strong agreement with 86.4% for each item. The results show a strong sense of professional value and worth among the participants in respect of their careers.

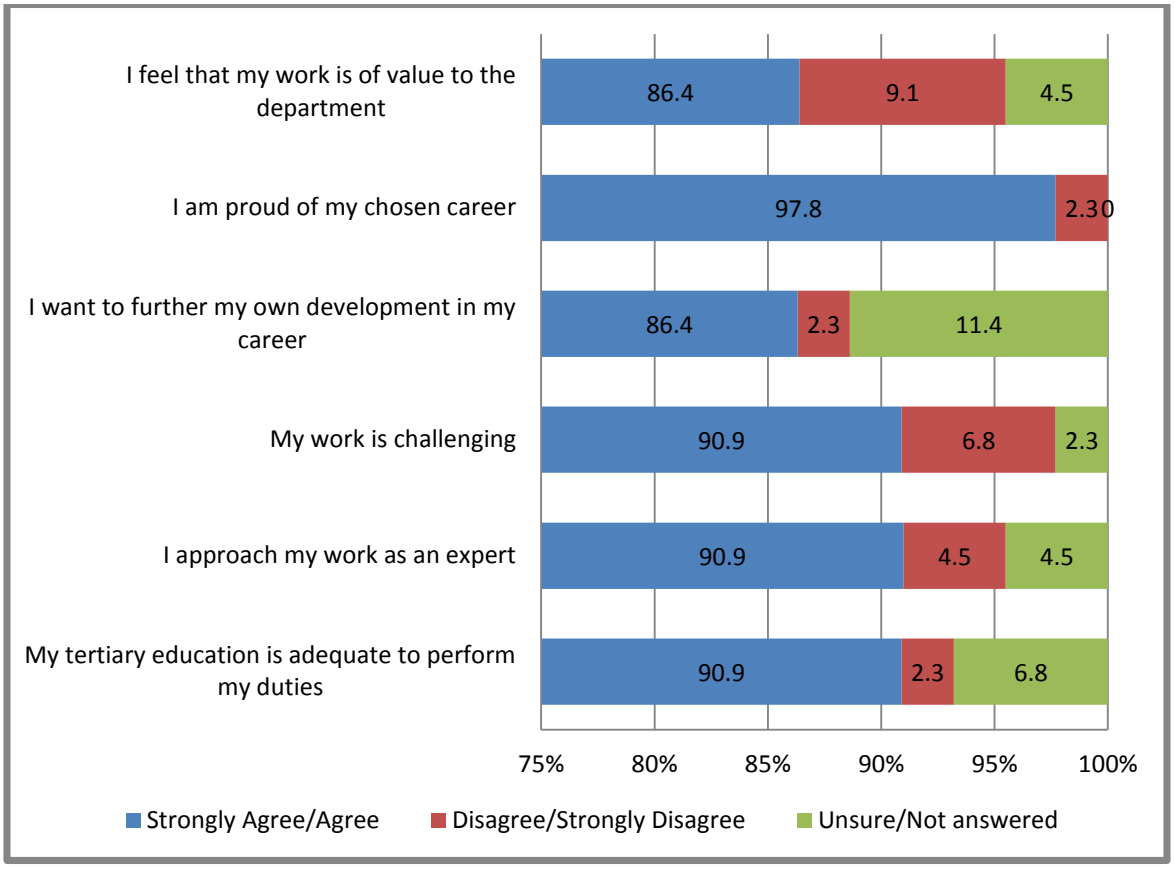

Figure 4.8: Combined staff group's personal view on job and career

Figure 4.9 illustrates the results of the second theme to emerge from this quality parameter. This theme centres on the participants' perception of the departmental job description. Eleven statements from the survey addressed aspects of the departmental job description and participants were asked to express their opinion on each.

There was unanimous agreement (100%) regarding two statements where respondents agreed that there is an adequate variety in the type of work required and that there is a need to exercise skills and competence at all times. The issue of receiving training on a regular basis had 59.1% of participants agreeing and 40.9% feeling that they do not receive training on a regular basis. A specific suggestion for improvement of this item was that *"… regular CPD activities in the department allowing organising of work duties to allow 100% attendance (1:57)".*

Seventy percent (70.4%) of participants believe they have the equipment and supplies required to do their work, which is above the 50% benchmark recommended level, however 29.5% disagree and feel the equipment is not adequate. A participant suggestion for improvement of this item

suggested that the *"upgrade of equipment and technology is essential (1:5)".* A majority of participants (88.7%) feel that their workload is achievable with 9.1% of participants disagreeing.

Three statements addressed issues of staff autonomy where participants responded as follows: staff is encouraged to work independently (86.3% are in agreement with 11.3% in disagreement); staff can set their own performance standards (86.4% in agreement) and staff have a certain amount of authority in their work (70.5% in agreement and 18.2% disagree). The participants indicated that they (54.5%) were allowed to decide on their working methods, however the type of work does not allow for staff to decide on their own working methods as it is highly reliant on standardized protocols and operational procedures and thus 38.7% participants disagreed.

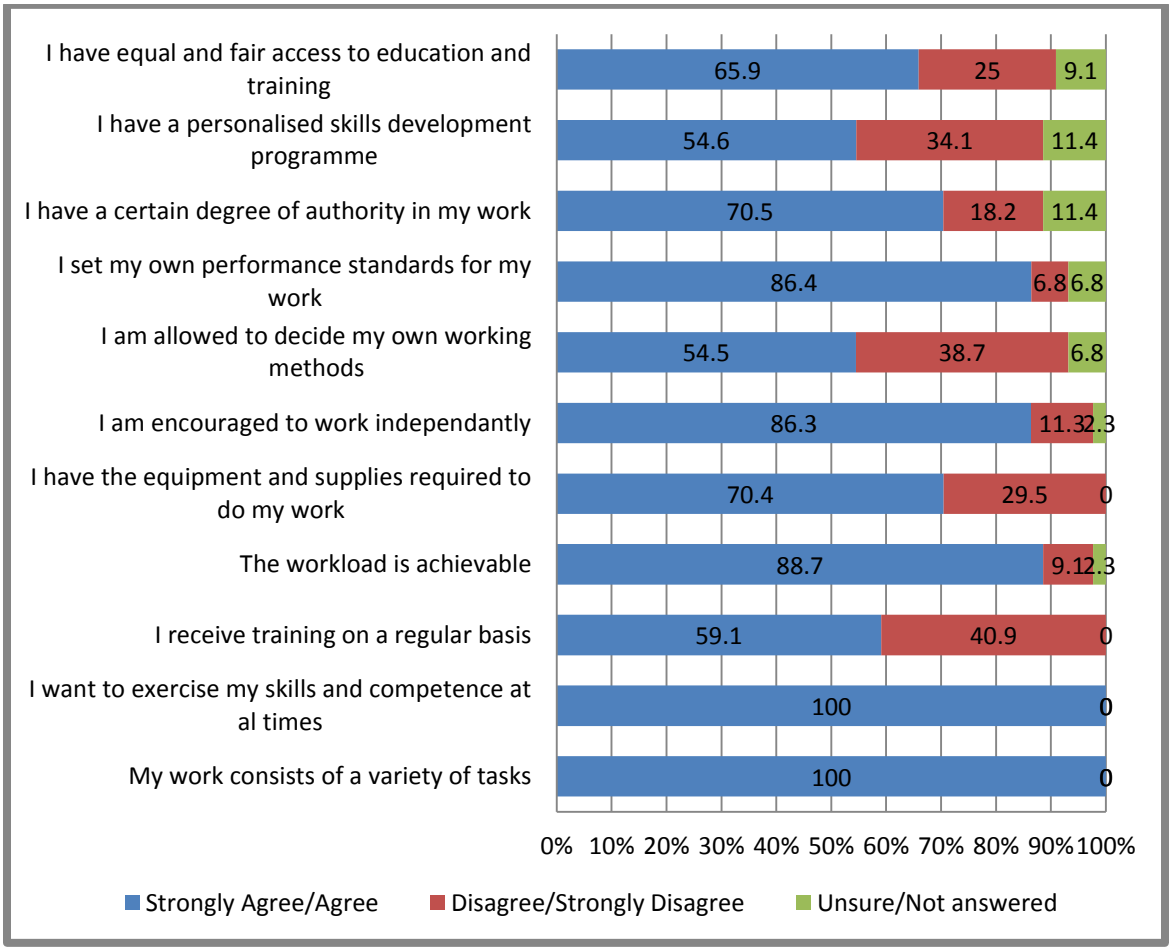

Figure 4.9: Participants' opinion on the departmental job description

Two statements relate to self-actualisation namely: presence of personalised skills development programme and access to further education. Although the majority of participants (86.4%) agreed

that they set their own standards for their work, it was noted that 54.6% of participants agreed that they have a personalized skills development programme with 34.1% of participants in disagreement.

Equal and fair access to education and training showed a categorical difference between agreement and disagreement with 65.9% of respondents feeling that they have equal access and 25% of participants disagreeing that there was equal access to education and training.

4.3.4 Recognition

The fourth quality indicator parameter investigated how, when and whether recognition is perceived to have been given to the participants. Eight statements addressing recognition in the workplace were included in the survey and the results are illustrated in figure 4.10 as follows:

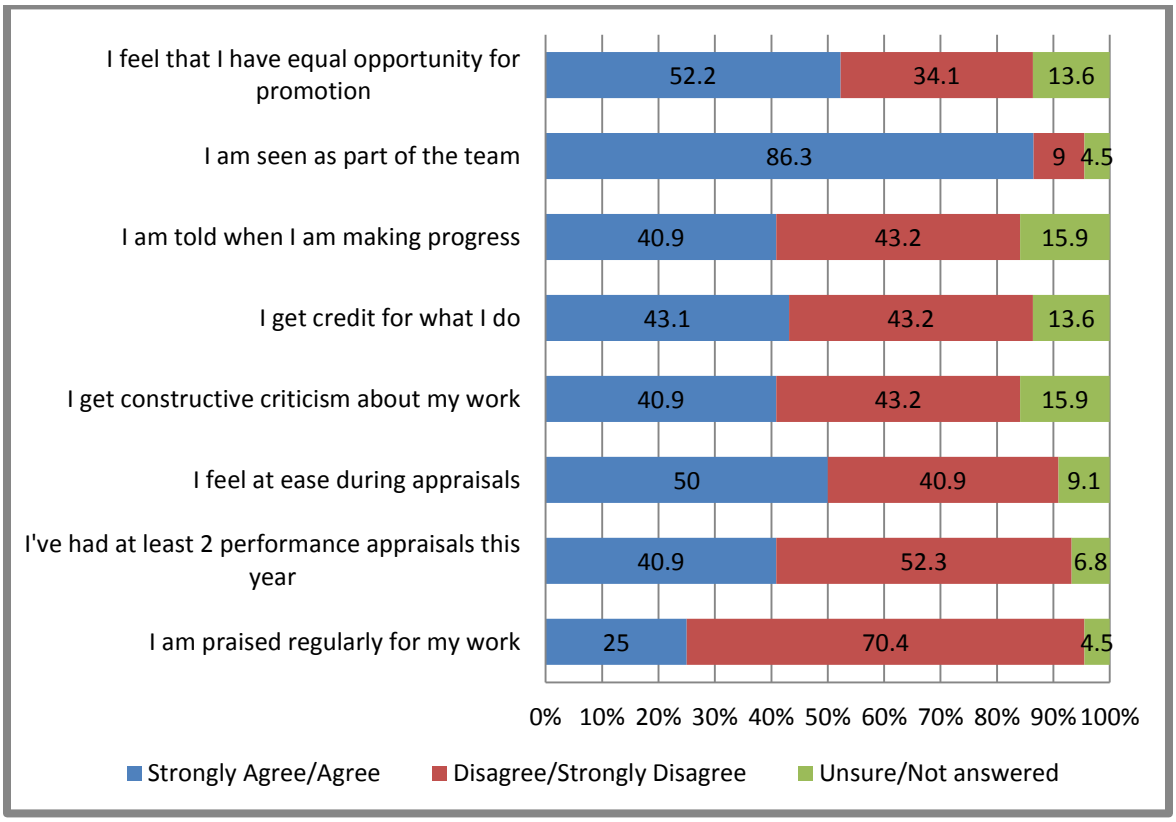

Figure 4.10: Results regarding recognition of participants in the workplace

Five of the 8 statements with regards to recognition indicate that there seems to be a need for improvement in this quality parameter. All five statements scored less than 50% and are therefore not meeting the benchmark. Thus, 70.4% of the participants felt that they are not praised for their work regularly with 25% feeling that they regularly receive praise. Fifty-two percent (52.3%) have not had two performance appraisals done and 50% of participants did not feel at ease during the

appraisals that were done. Forty-one percent (40.9%) of participants feel that they get constructive feedback about their work while 43.1% feel they do get enough credit for the work they do. Work progress is discussed according to 40.9% of the participants with 43.2% of participants in disagreement. Three of these statements (work progress, credit due and constructive criticism) have participants (13.6% - 15.9%) who indicated unsure or who chose not to answer the item.

The final statements address promotion and collegiality (i.e. recognition as part of the team). In terms of promotion 52.2% of participants believe they have an equal opportunity to be promoted with 34.1% disagreeing with this proposition and 13.6% participants unsure or not answering the point. Collegiality is addressed as part of the comments where eleven comments (n = 11/30) specifically refer to teamwork as an area for possible improvement with suggestions ranging from *"… team building events across staff groups… (1:17)"* to *"… team building activities to build relations and trust … (1:57)"*, to *"… improve team spirit… (1:51)"* to a broader ethos of *"… respect one another in … different functions and see them as valuable, no matter if you are a doctor or a cleaner … (1:55)".*

Positive recognition as part of the team was noted by 86.3% of participants with 9% disagreeing and saying they are seen as part of the team, and 4.5% unsure or did not answer.

4.3.5 Re-imbursement

The fifth quality parameter assessing staff satisfaction to be discussed is the re-imbursement of the staff participants within the workplace

Participant responses on the three statements regarding re-imbursement (basis of payment, comparable salary and salary commensurate with job scope) were negative as none of the three criteria met the 50% positive benchmark (i.e. agreement) level in terms of staff satisfaction. Forty-eight percent (47.7%) of respondents agreed that the basis of payment was reasonable while 45.4% disagreed with 6.8% unsure or not addressing this item. Thirty-nine percent (38.6%) of respondents agreed that they earn a comparable salary with people in similar jobs, with 47.8% disagreeing and 13.6% unsure or choosing not to answer the item. The final item of whether the participants thought that the salary they received was commensurate with the scope of the job, 40.9% agreed, 52.3% disagreed, with 6.8% unsure or not answering the item.

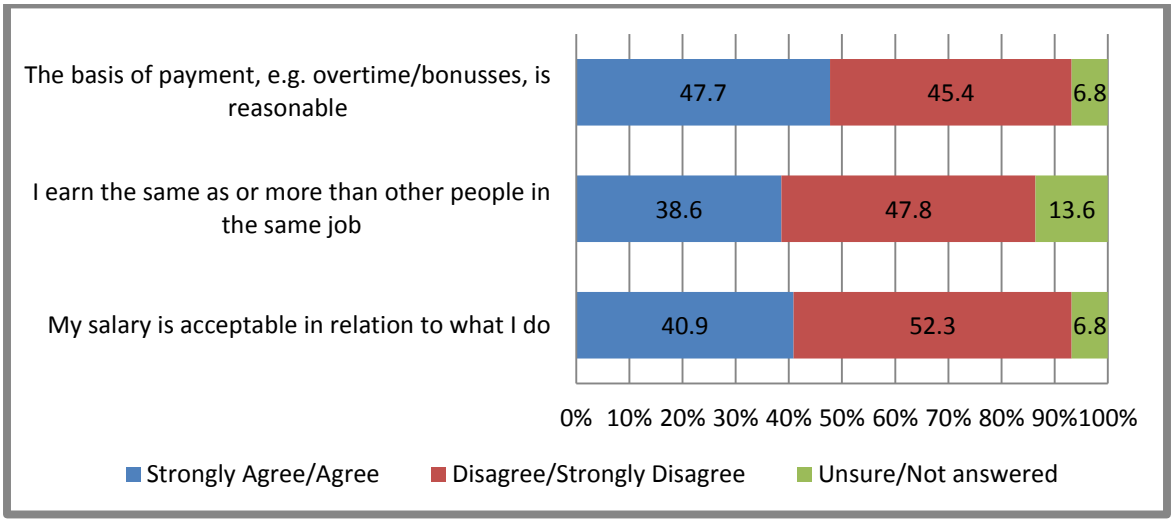

Figure 4.11: Results regarding re-imbursement from the combined staff group

Despite the negative response to these three statements, there were no comments about re-imbursement in the general comments or suggestions for improvement.

Section 4.4 will illustrate the results as shown for the second sample group, the doctors referring patients to the department.

4.4 REFERRING DOCTOR SATISFACTION

Of the 120 questionnaires mailed to referring doctors all over the Western Cape, 64 questionnaires were returned by mail, therefore giving a response rate of 53% to the survey. Please refer to Appendix J for a summary of the responses from the referring doctors.

Of the 64 respondents, 29 (45.3%) were from a tertiary academic hospital, 16 (25%) were from secondary hospitals, 8 (12.5%) were from day hospitals or clinics, 1 (1.6%) was from a military hospital and 10 (15.6%) of respondents were from private practices.

A variety of departmental specialities were represented, as seen in Table 4.5.

Table 4.5: Representation of the different specialities

FROM WHAT DEPARTMENT ARE YOU?	FREQUENCY
No answer	12(18.8%)
No departments	2 (3.1%)
Breast Clinic	3 (4.7%)
Day Clinic	1 (1.6%)
Dermatology	3 (4.7%)
Ear, Nose and Throat	5 (7.8%)
Gastro-enterologist	2 (3.1%)
Gynaecology and Obstetrics	7 (10.9%)
Haematology	2 (3.1%)
Internal Medicine	2 (3.1%)
Nephrology	5 (7.8%)
Neurology	5 (7.8%)
Oncology	1 (1.6%)
Orthopaedics	2 (3.1%)
Paediatrics	3 (4.7%)
Pulmonology	4 (6.3%)
Urology	5 (7.8%)

The frequency with which the responding doctors referred patients to the Radiation therapy department is illustrated in Figure 4.12.

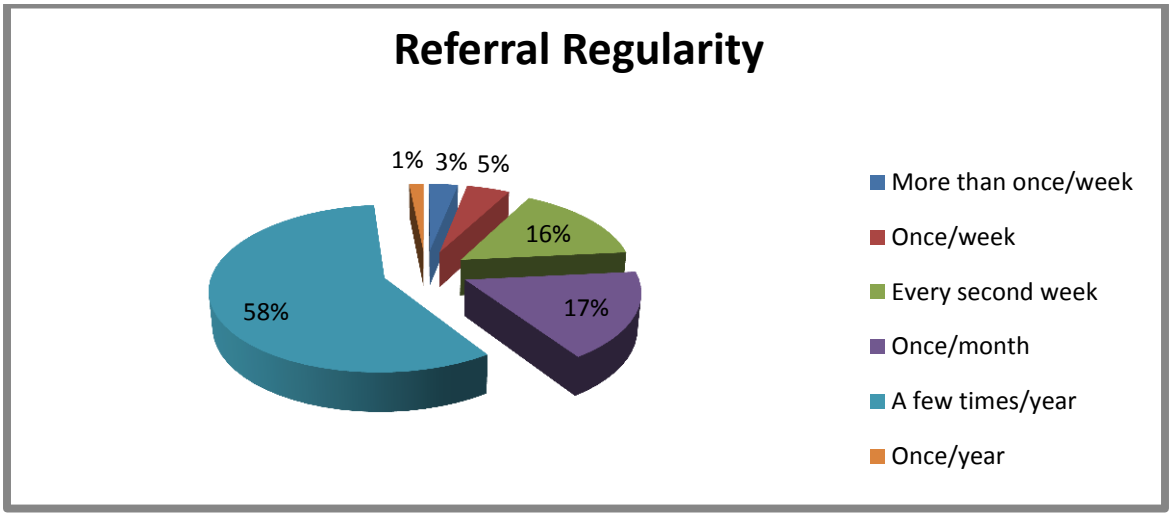

Figure 4.12: The regularity of referral for sample group 2

It is clear from this that the majority of doctors (58%) refer the patients a few times/year while 17% refer patients about once/month.

Eighty-four percent (84.4%) of the doctors indicated that the patient's appointment at the department would be made by his/her receptionist.

Three indicative areas regarding quality management systems were investigated through the survey questionnaire, namely: telephone etiquette, follow-up reports and patient management. Responses were based on closed questions requiring YES/NO answers. There was one open-ended question where the respondents were invited to comment further on anything specific regarding their interaction with the department and fifteen specific comments were recorded.

4.4.1 Telephone etiquette

Figure 4.13 illustrates the responses to the questions about telephone etiquette as experienced by the referring doctors when in contact with the department.

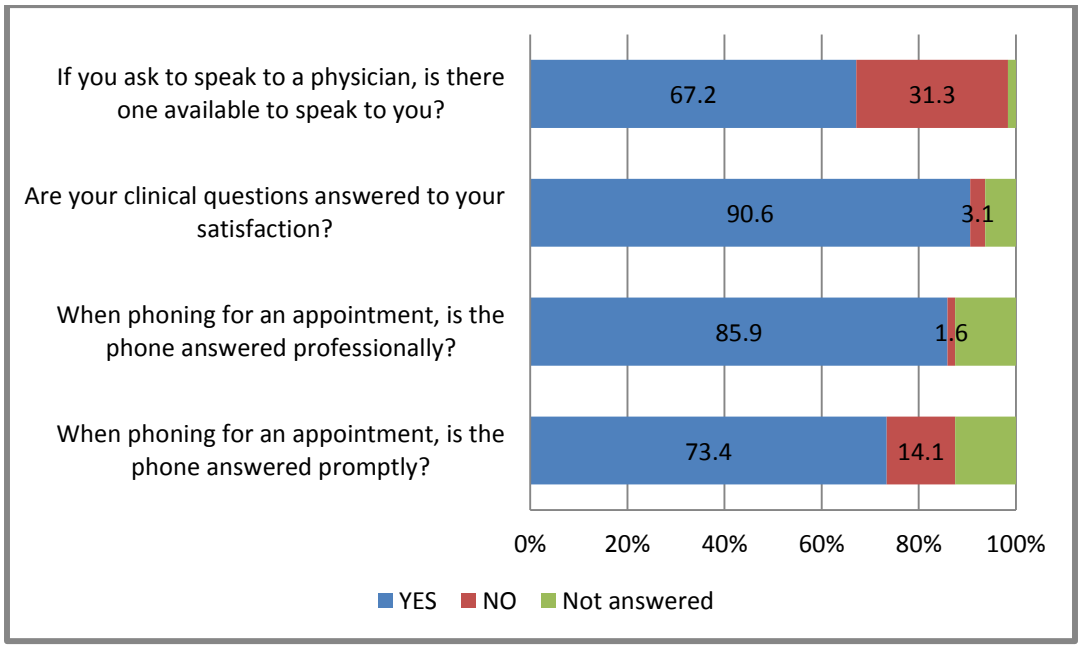

Figure 4.13: Doctor responses regarding telephone etiquette

The results show that the general telephone etiquette is satisfactory in that all four statements are predominately positive and are meeting the quality benchmark. The availability of the doctor telephonically could be addressed, since only 67.2% (n = 43/64) of referring doctors felt that someone was available to speak to them. Clinical questions were deemed to be answered satisfactorily by 90.6% (n = 58/64) of the respondents. The respondents further felt that the phone was answered professionally (85.9%, n = 55/64) and promptly (73.4%, n = 47/64). No specific comments were made about telephone issues.

4.4.2 Follow-up reports

The survey questionnaire posed questions regarding follow-up reports to the referring doctor, and the results are illustrated by Figure 4.14. The first four statements shown were predominately unanswered (n = 63/64, 98% to n = 57/64, 89%). The fifth item, "do you receive follow-up reports about your patients?" had a predominately negative response with 87.5% (n = 56/64) responding "NO". This makes it clear that follow-up reports are not done to referring doctors, or are not requested from referring doctors.

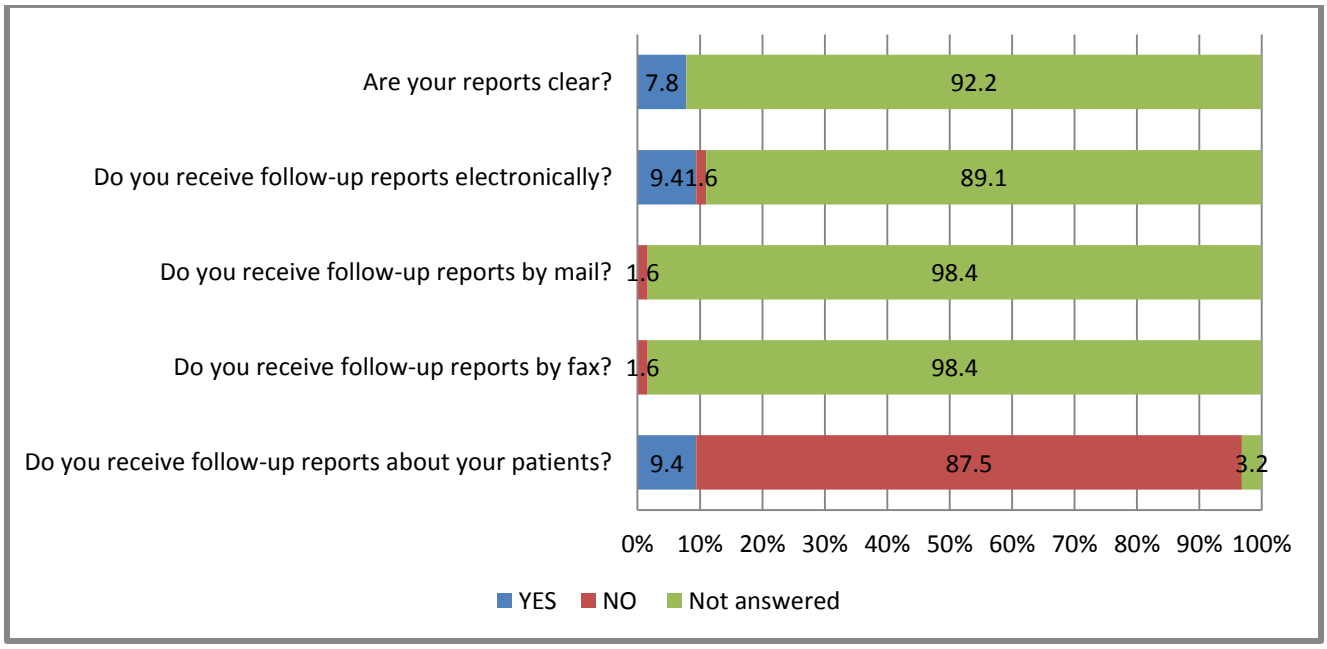

Figure 4.14: Follow-up reports

Specific comments illustrate the response or lack thereof to these statements in terms of saying that the "reports not too important" (n = 3/15) and that the doctor is part of patient's management team via the oncology departments combined clinic system (n = 5/15).

4.4.3 Patient management

The questionnaire requested some responses from the referring doctors regarding their patients' management at the department. Their responses were as follows:

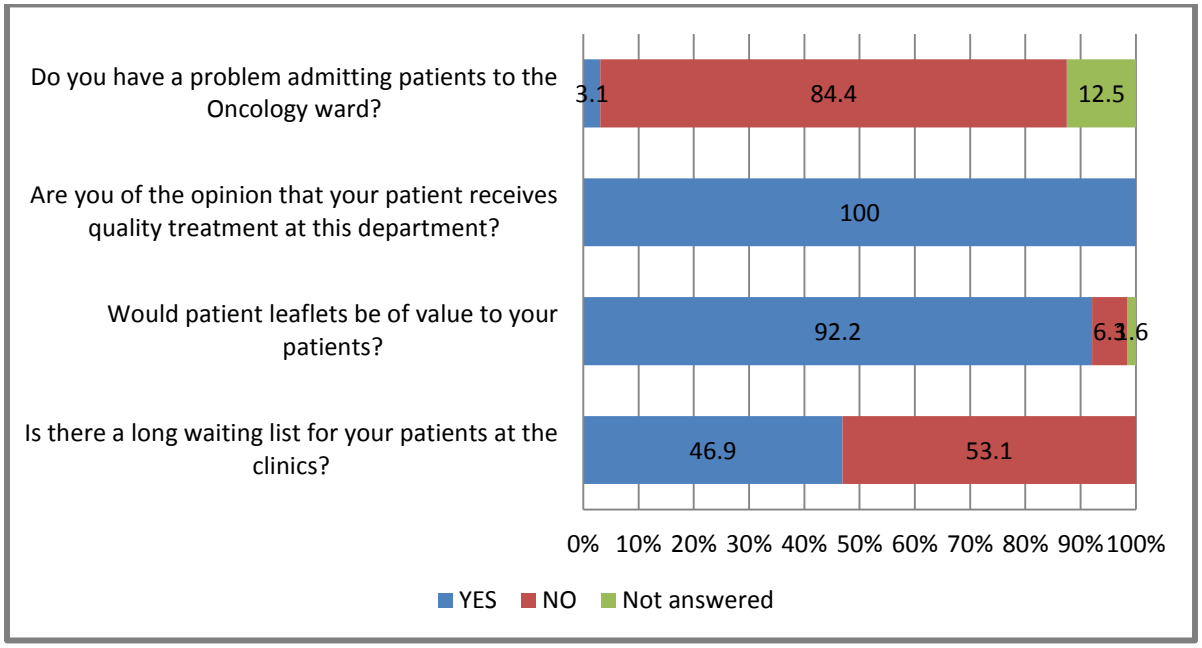

Figure 4.15: Responses regarding patient management from the referring doctors

All the participating referring doctors (100%, n = 64/64) are of the opinion that their patients receive the best possible care and treatment. There were 53.1% (n = 34/64) of respondents that did not feel their patients had a long waiting list at the clinics. Ninety two percent (92%, n = 59/64) of the respondents indicated that patient information leaflets would benefit their patients. A high 84.4% (n = 54/64) of respondents did not have a problem admitting patients to the Oncology ward.

Specific comments from the referring doctors to further illustrate were two (n = 2/15) comments stating that they refer patients primarily because of financial reasons. In terms of admitting patients, three (n = 3/15) said that the oncology clinic admitted the patients. One participant said that they had their own patient information leaflets. A final comment was that *"staff …always very helpful (2:192)".*

4.5 PATIENT SATISFACTION

This section will describe the results of the structured interview questionnaire that was administered by the researcher to the patients at the department in order to establish a baseline result regarding patient satisfaction in the department.

A total of 230 patients were interviewed by the researcher, half of which was male and the other half female (115:115). The gender ratio was completely coincidental. A summary of the participant's responses can be seen transcribed in Appendix K along with the tabulated specific comments to the

two open questions asking patients for “any further comments about your experience” (n = 115 comments) and “is there anything else you would like the department to be aware of?” (n = 40 comments). These comments have been further analysed into the emergent themes and are included in the presentation of the results of the five definitive areas, namely: administration, atmosphere and comfort, cleanliness of the department, professionalism and information sharing.

The ages of the participants ranged from 13 years to 93 years. At the time of the study, there were 52 (22.6%) participants that visited the department (radiation therapy department) less than 5 times, 56 (24.3%) have visited it more than 5 times, 70 (30.4%) have visited it more than 10 times and 52 (22.6%) have visited the department more than 20 times. There was an item that asked if other radiation therapy departments were visited, but 182 (79.1%) of the participants indicated that they have not visited other Radiation therapy departments.

The participants of the survey had a range of qualifications and educational levels. This range is illustrated in Figure 4.16.

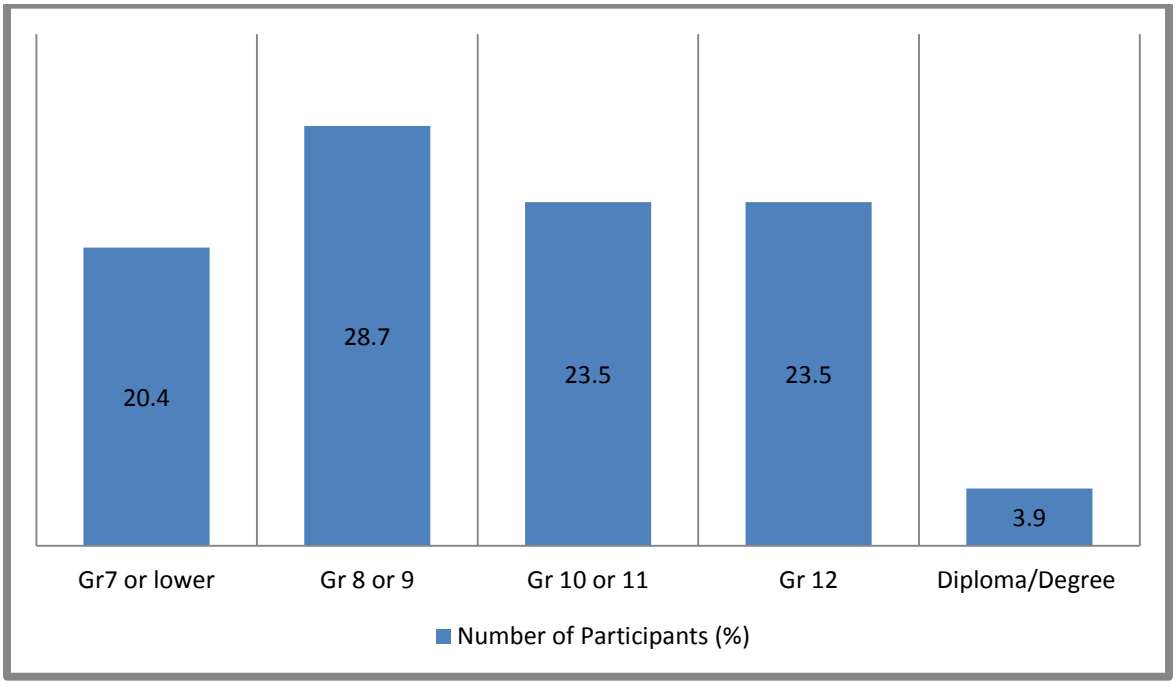

Figure 4.16: The education level and qualifications of the patient participants

From the bar chart in figure 4.16 it can be seen that 20.4% have Grade 7 or lower with 75.7% of the participants have Grade 8 to Grade 12. Four percent (3.9%) of participants have a higher education qualification.

The majority of patients (67.5%) were making use of public transport (taxi, bus and train) to get to the department for their treatment. About 28 (12.2%) of the participants relied on a lift from a relative or a friend and 47 (20.4%) used their own transport.

The time taken for patients to get to the department varied and was as follows: 112 (48.7%) of the patients took less than 30 minutes to get to the department, 73 (31.7%) took more than 30 minutes but less than an hour to get there and 44 (19.2%) took more than an hour to get there.

The patients' cost of travel to the department were as follows: 116 patients (50.4%) paid R7 or less; 51 patients (22.2%) paid more than R7; 37 patients (16.1%) paid more than R15; and, 26 patients (11.3%) paid more than R20.

The majority of participants, 161 (70%) had their appointments made by the referring doctor's receptionist. Forty six patient appointments (20%) were made by the referring doctor himself. The rest (10%) either made their appointments themselves or it was made by a sister in the ward.

All participants were asked "do you know why you are here?" and to explain their understanding briefly. All the participants, except one, explained that they were at the department for radiation for their cancer. One patient had no idea why he was there and this was possibly because he had brain metastases and was very confused. Some of the participants indicated that they realize they are there for radiation for cancer, but did not clearly understand the disease or the process of the treatment. Of the 230 patients interviewed a 115 (50%) were ward patients at some point during their treatment. This was coincidental and not planned.

The survey statements investigated 5 definitive areas. These areas were: administration, atmosphere and comfort, cleanliness of the department, professionalism and information sharing.

4.5.1 Administration

The six statements relating to administration are illustrated in Figure 4.17.

The results indicated that the patients in this sample group were satisfied with the six identified administrative issues. All six statements had a greater than 50% positive response which is more than the quality benchmark requirement of 50% The department was easy to find according to 209 (90.8%) of the patients and was well sign posted inside according to 156 (67.8%) of the participants with 44 (19.2%) disagreeing and 30 (13%) unsure as to the efficacy of the signposting.

Two hundred (87%) of the patients were happy with the hours that the department was open with 9 (3.9%) disagreeing and 21 (9.1%) unsure. In terms of the appointment time-keeping, 174 (75.7%) were happy that their appointment time was kept with 37 (16.1%) disagreeing and 19 (8.2%) are unsure about appointment timekeeping

There were 187 (81.3%) of the respondents that disagreed that they had to wait a long time for their folders. Thirty-two patients (13.8%) disagreed and thus felt they did have to wait a long time for their folder and 11 patients (4.9%) were unsure. The waiting time for medicine at the pharmacy was also seen as not long by 178 patients (77.4%), with 27 (11.8%) disagreeing and 25 patients (10.8%) unsure in this respect.

Thirteen (n = 13/115) patients especially commented on lateness of appointment-keeping at the treatment units and in the clinics. Typically, the comments are that “they are always late”. One patient (n = 1/115) noted about waiting for medication “it is better here than at the main hospital, there you wait a whole day for your medicine. No further comments were made about the other four administrative issues by patients.

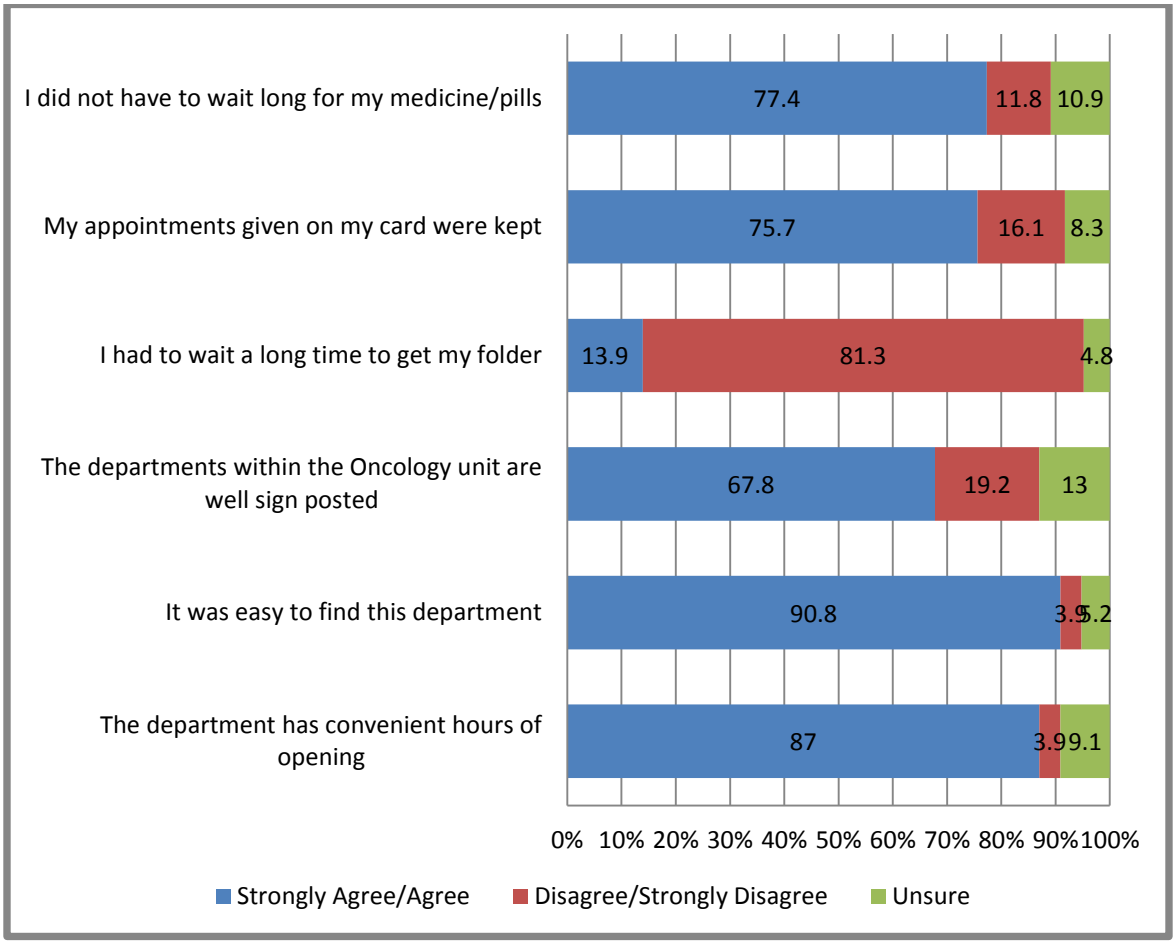

Figure 4.17: Patients' responses relating to administrative issues

4.5.2 Atmosphere and Comfort

Five statements were used to investigate the general atmosphere and patient comfort. The results are illustrated in Figure 4.18. Two statements, namely appointment keeping and length of time waiting for medication, were also addressed in the administration, but are also felt to relate to patient comfort. The five statements ranged in positive agreement from 75.7% to 96.1% which was more than the 50% quality benchmark.

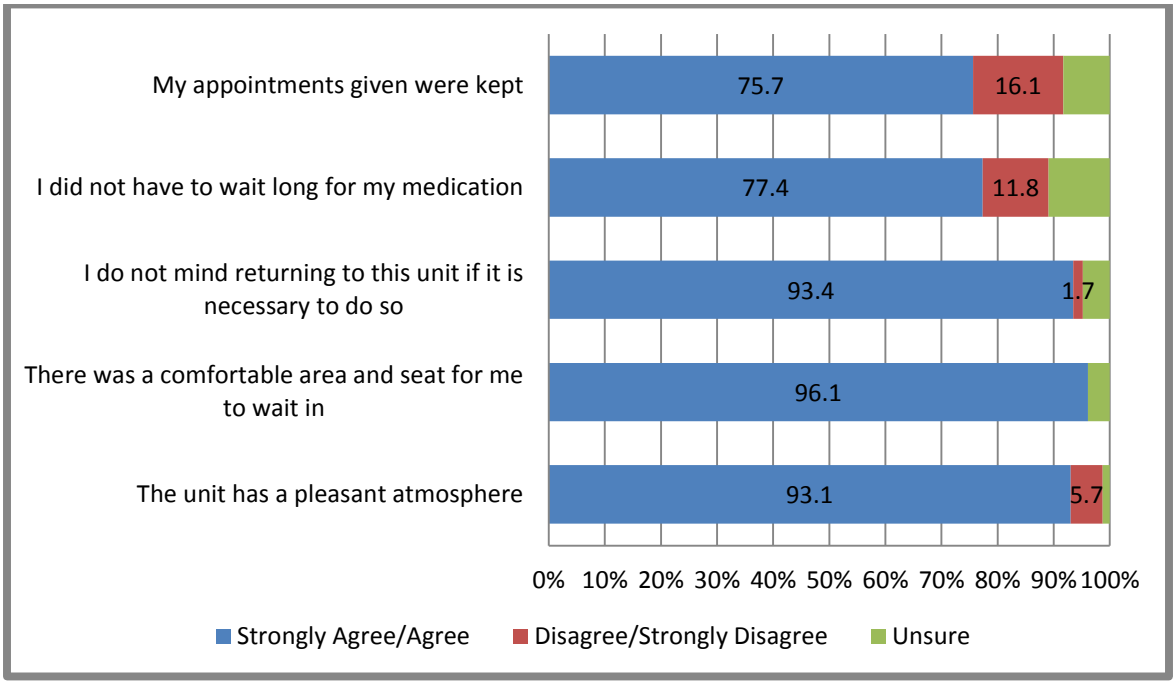

Figure 4.18: Patients' perceptions of the general atmosphere in the department and comfort

Two hundred and fourteen (93.1%) patients felt that the department had a pleasant atmosphere, with 5.7% disagreeing.

Two more statements displayed predominately positive results with 221 patients (96.1%) agreeing that there was a comfortable waiting area and seats. Further, 215 patients (93.4%) stated that they would not mind returning should they need to.

Five specific comments (n = 5/115) addressed patient comfort in the waiting areas, with three noting that it was *"nice, clean and attractive (3:14)".* One patient expressed the wish that *"some entertainment in the waiting areas would be nice, especially when the machine breaks down (3:36)".* Another patient noted that *"the waiting room is very friendly and you can always sit and chat there (3:52)".*

4.5.3 Cleanliness of the department

Three statements related directly to the cleanliness of the department. The results were as shown in Figure 4.19.

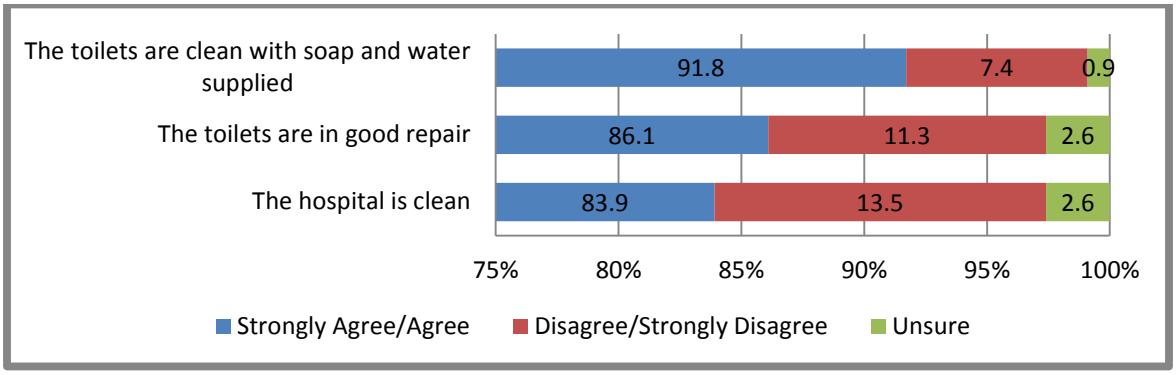

Figure 4.19: Responses regarding the cleanliness of the department

The responses to these three statements were predominately in agreement in terms of clean toilets, in good repair and clean hospital. There was 13.5% disagreement about hospital cleanliness although 83.9% patient participants expressed satisfaction with the overall cleanliness of the department.

Five patients (n = 5/115) made specific comments addressing general cleanliness of the environment and toilet hygiene. Two of these comments were negative in terms of a lack of toilet paper and that the toilet was not always clean.

4.5.4 Professionalism

Seven statements investigated the level of professionalism displayed by the various staff groups in the department. The staff groups included doctors, nurses, administrative staff and radiation therapists. A summary of the results can be seen in Figure 4.20.

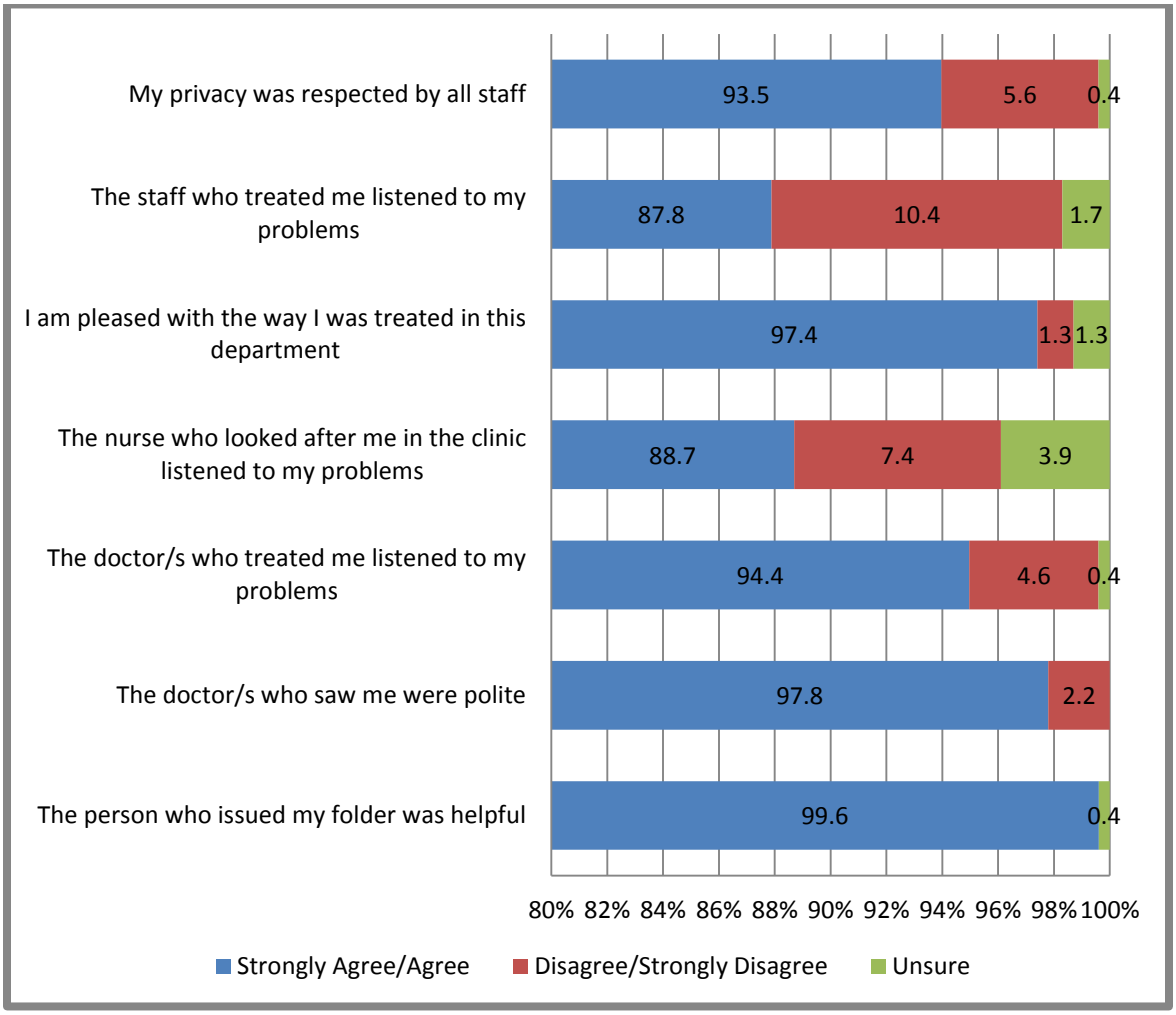

Figure 4.20: Patients' opinion about the level of professionalism in the department

Patient responses scored the level of professionalism highly in all seven statements where the different sections of the department were addressed starting with the front desk where patients fetch their folders all the way through to the doctors and the treatment units. Ninety-nine percent (99.6%) of patients agreed that the administrative officer who issued their folder was helpful.

Two hundred and twenty five (97.8%) of patients felt that the doctor that saw them was polite and a further 217 (94.4%) of these patients were happy that their doctor was listening to their problems and issues with a small segment of 4.6% in disagreement. The positive attitude to the professionalism displayed by staff was shared by 224 (97.4%) of patients in that they were pleased with the way they were treated at the department.

The nurses in the clinics were seen as good listeners by 204 (88.7%) of the participants and the treatment personnel are good listeners according to 202 (87.8%) of patients.

There were 215 (93.5%) respondents that felt that their privacy was respected by all the staff with 5.6% disagreement and 0.9% unsure of their answer.

4.5.5 Information sharing

The sharing of information is an important aspect that helps the patient to understand his disease and to feel comfortable that the choices he/she makes regarding their treatment are the correct choices for their personal circumstances. Six statements were used in the survey to investigate patients' perceptions and satisfaction with information sharing and the results are shown in Figure 4.21.

The overall opinion for five statements is agreement ranging from 77.4% (explanation of taking medication) to 94.3% (doctor explained satisfactorily) and thus showing a perception that information is shared satisfactorily for the patient to form a level of understanding regarding their disease and treatment. Ninety percent (90%) of patients agreed that the radiation therapists explained the treatment process with 6.6% disagreeing and 3.4% unsure of this point. Two hundred (87%) of the participants were pleased that their right to be addressed in their own language was respected with 11.3% of patients that disagreed. One participant commented that he was *"very glad the girls can speak Afrikaans, he does not understand English very well (3:71)"*. Eighty-eight percent (88.3%) of patients agreed that staff ensured that they understood everything, with 8.7% disagreeing and 3% unsure of the point.

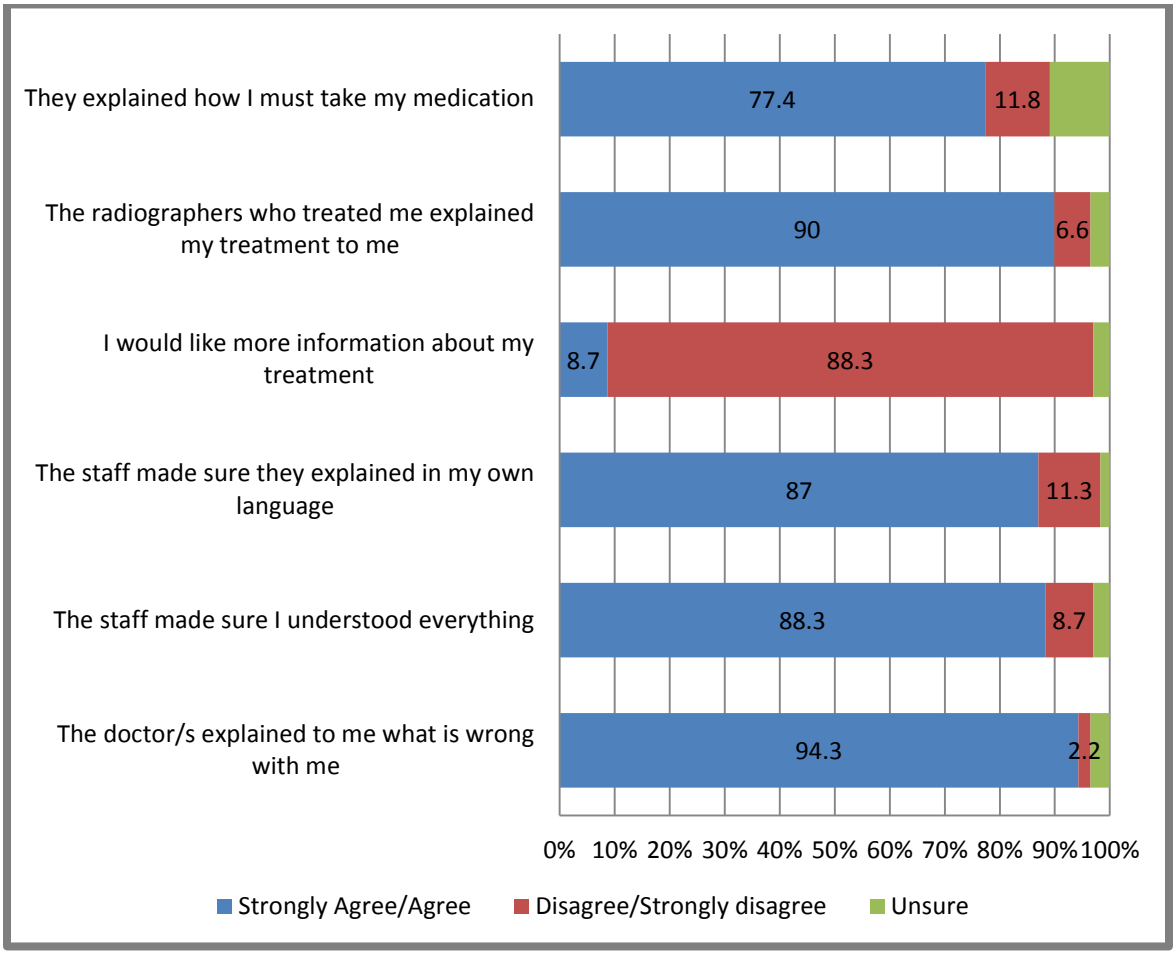

Figure 4.21: Patients' satisfaction levels regarding the sharing of information in the department

The item regarding desire for more information has a response of 20 (8.7%) of participants who felt that they needed more information about their treatment and 203 (88.3%) patients that felt that they had sufficient information.

4.5.6 Further comments from the entire patient sample group

The patients were asked whether they have any further comments about their experience at this hospital, and their responses (n = 115) are tabulated in Appendix K and are discussed below in their thematic categories.

Specific comments regarding professional attitude totalled 22 (n = 22/115) and described staff as friendly, always helpful, respectful and professional towards themselves. One comment noted that *"everybody is very positive and always treats me with respect (3:29)".* One comment noted that *"the*

personnel in the ward are not very friendly … sometimes feel that they can go through a little more trouble to be friendly (3:109)".

Specific comments (n = 23/115) in connection with patient satisfaction with sufficient information sharing were made by patients. Five (n = 5/15) comments were practical requests for knowledge about follow up appointments with the doctors and indirectly expressed the patients' worry of "what is going to happen next?"

Fourteen comments (n = 14/115) were direct and indirect requests for information about treatment, side-effects experienced and various related worries expressed by the patients, for example, *"… is it normal to be 'burning' when he urinates …(3:89)"*, *"… very worried about her daughters and wants to know if they will also get breast cancer if she has it (3:81)"* , the *"… treatment is so fast: do they give him enough to kill the cancer? (3:184)"* and *"… worried about the cancer, does not understand where it comes from (3:203)".*

Three comments (n = 3/115) comment directly with the issue of not explaining, for example *"I did not understand everything they explained, but they were very busy and I did not want to bother them (3:26)"* and "*I felt as if the doctors were too rushed to really listen and just wanted to explain what they were going to do without really explaining to me (3:34)"*, and *"… does not really know what is wrong … uninformed … (3:66)"*.

One final comment complimenting staff reads that the *"staff displays a unique combination of competency and humanity. I am forever grateful to have benefited from their shared wisdom and clinical expertise (3:21)".*

Seven responses (n = 7/115) from patients dealt with the need to see a social worker to resolve their worries which involved worry about family (6) and cost to travel for treatment each day (1).

Thirty-eight responses (n = 38/115) dealt with the physical side-effects and psychological issues that arise while having radiation treatment.

4.5.7 Ward patients

A total of 115 patients, 50% of the original sample group, were admitted to the ward at some stage during their treatment. There was a section at the end of the survey questionnaire that was

completed by the ward patients in order to establish their level of satisfaction of the facilities available to them.

The ward patients were asked to assess a series of statements related to the departmental image regarding cleanliness, comfort for the patient and safety.

The responses of the participants can be divided by grouping the questions in two sections. The first section is cleanliness and safety and the second section is patient general comfort.

Patients were asked to comment on anything else that they would like to bring to the department's attention. Forty participant (n = 40) comments were made and tended to address issues of food, noise and staff attitude. These will be addressed in section 4.5.8.

4.5.7.1 Cleanliness and safety

Five statements in the ward survey addressed the issue of cleanliness and safety. The responses of the participants are summarized in Figure 4.22.

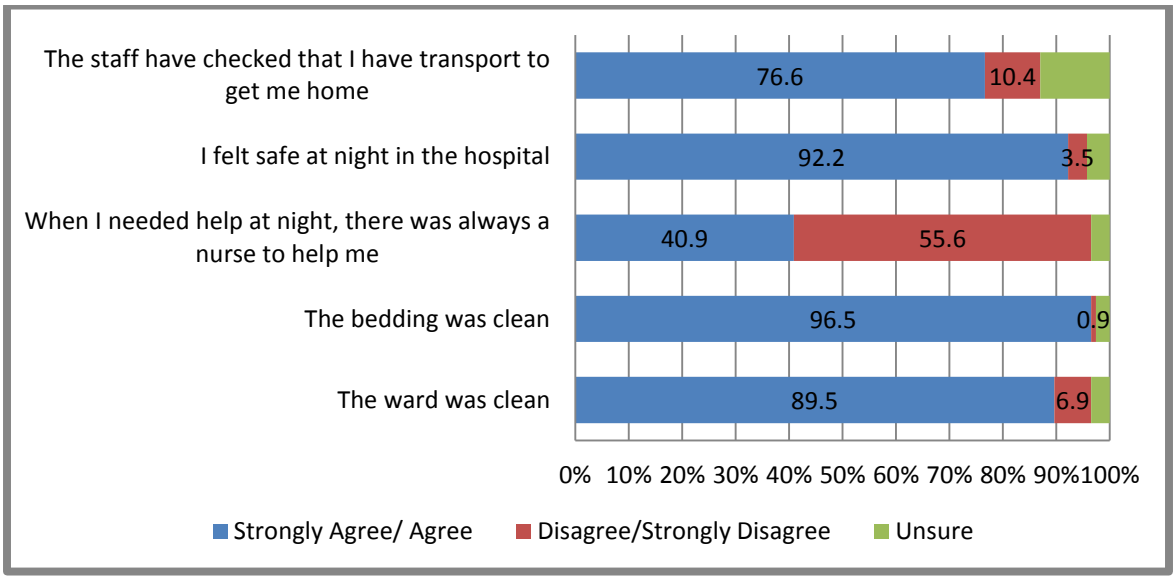

Figure 4.22: Patients' responses to cleanliness and safety in the ward

The results show that 103 (89.5%) of the participants in the ward was of the opinion that the ward was clean with 6.9% of participants disagreeing. Participant responses of 111 (96.5%) were happy with the clean bedding. There were six specific responses dealing with cleanliness (n = 6/40) which commented on lack of pillows, days without clean bedding, waiting for clean towels and finally the shortage of toilet paper.

In terms of safety, even though 106 (92.2%) of the patients felt safe at night in the hospital, 64 (55.6%) did not feel that there was any nursing staff available to help them at night. This is below the acceptable 50% benchmark, since only 40.9% of patients agreed that there was someone to look after them.

There were 88 patients (76.6%) that indicated that the staff checked on their transport home at discharge with 10.4% disagreed and 13% of participants were unsure of this point.

4.5.7.2 Patient general comfort

Six statements in the ward survey addressed the general comfort of patients in terms of information, visiting hours, food and activity while in the ward. The following responses were obtained for the statements pertaining to the general comfort of the patients and are shown in Figure 4.23.

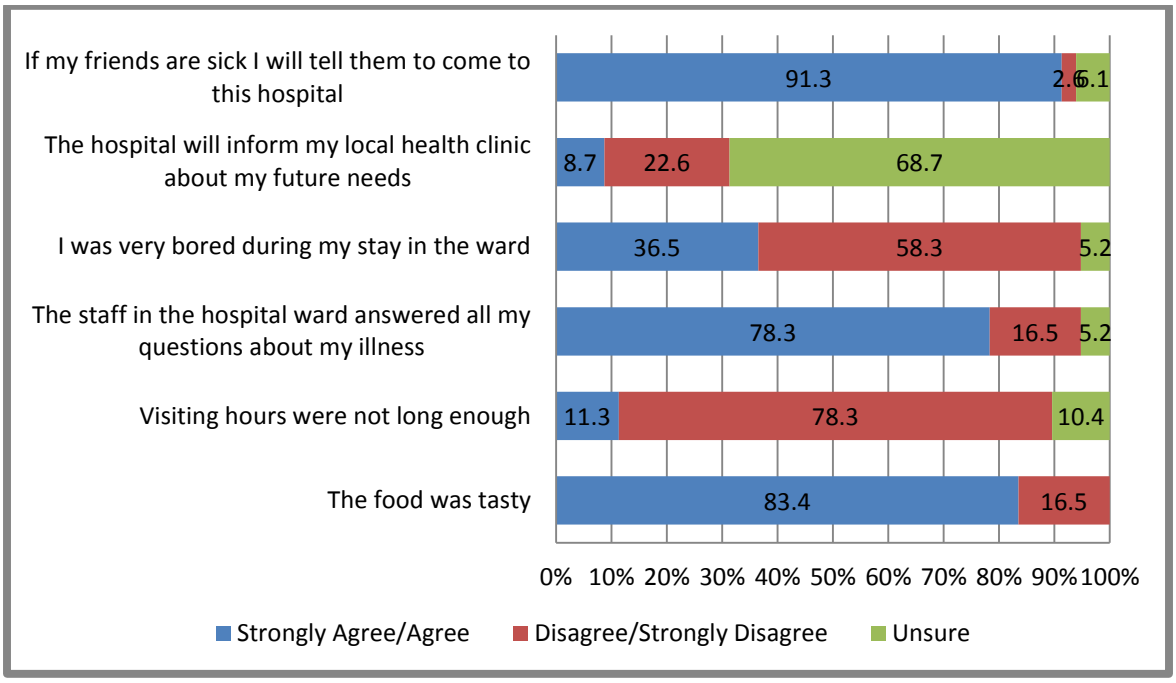

Figure 4.23: Patients' responses to general comfort

The responses show that 96 (83.4%) of the patients agreed that the food was tasty, with 16.5% disagreeing with the quality of the food. A number of specific comments addressed the issue of food (n = 5/40) where patients noted that it lacked salt, was cold and *"was not the best (3:33)".*

Only 13 patients (11.3%) thought that visiting hours were not long enough, the majority of patients (78.3%) were satisfied with it, with 10.4% unsure on this point.

Ninety patients (78.3%) agreed that their questions were answered in the ward, with 16.5% disagreeing and 5.2% unsure. This was illustrated by specific comments such as *"… patient needs more explanation (3:26)"* and *"… the doctor is too busy, he does not have time for the patients …* (3:138)".

Forty patients (36.5%) felt that they were very bored during their stay in the ward which is below the acceptable benchmark level of 50%. Fifty-eight percent (58.3%) disagree that they were bored during their stay in the ward, for example, the comment of *"… bored and disgusted… (3:14)"* and patient *"is relieved to go home (3:1)".*

Patients (91.3%) felt that they will refer their friends to this department should they ever need to be treated for cancer.

Only 10 patients (8.7%) were convinced that the department will inform their local health clinic about their future needs. Seventy nine patients (68.7%) were unsure whether this would happen

4.5.8 General comments from the patient sample group

The patients were asked whether they wanted to share any comments that they wanted the department to be aware of and a total of 40 patients had issues to bring to the department's attention. Their responses are tabulated and are in Appendix K.

There were six comments (n = 6/40) about staff attitude and professionalism. Four of the comments are positive and comment on the happy, pleasant staff, their professional attitude. For example, *"… the doctors at this department are all angels … (3:197)"* and *"… everyone working here deserves medals… (3:211)"*. One patient feels that the nursing staff "… *only do what they are supposed to be doing … (3:139)"* and nothing further and another comment involved the doctor being too busy and that *"… everyone is complaining … (3:138)".*

Another aspect that emerged from the specific comments is that of noise (n = 3/40), lack of privacy (n = 1/40) and general dislike of the ward system (n = 3/40) where a patient notes that the ward is *"… not very private … (3:82)"* and another find it*"… a negative and morbid place… (3:164)"* and one more states that *"… not very happy in the ward, everybody is in a hurry and the nursing sisters are loud – no peacefulness… (3:188)".*

Five comments (n = 5/40) were positive with patients saying that they felt welcomed and everyone was very nice and one patient who was very relieved and noted that *"… it was nice to have a bed and meals three times a day… (3:39)".*

4.6 CONCLUSION

This concludes the presentation of the results of this study. The next chapter will discuss these findings in detail.

CHAPTER 5

DISCUSSION, RECOMMENDATIONS AND CONCLUSION

> ***"In world class organizations there is clear evidence that knowledge is shared to maximize performance, with learning, innovation and improvement encouraged."***
>
> (Oakland, 2003)

5.1 INTRODUCTION

This chapter will address the research question in accordance with the evidence of the internal organisational survey results and the discussion will draw on those results as well as the literature reviewed in this thesis.

The specific thematic content that emerged from the data will be documented in detail and summarised to inform the recommendations with evidence from the survey data.

The chapter will conclude with an overlook of the limitations of the study and a final conclusion to summarize the main findings in context with the discussion of QMS and the implementation there-of.

5.2 ORGANISATIONAL SURVEY RESULTS DISCUSSIONS

For the purpose of comparability and standardisation, the results of this survey have been benchmarked against a 50% level of agreement/disagreement which indicates satisfaction/dissatisfaction dependent on the statement. This was based on similar satisfaction surveys that are being done by the Department of Health in district hospitals in South Africa (Smith & Engelbrecht, 2001).

Literature (e.g. Andrzejewski & Lagua, 1997; Babakus & Mangold, 1991; Eiselen, 2005) noted that there were various benchmark levels used which were based on the type of satisfaction survey that was done. One such an example used a maximum of 10% dissatisfaction as the benchmark. This means that they rated a 90% satisfaction level as acceptable, which is high (Andrzejewski & Lagua, 1997).

The Department of Health conducts regular patient satisfaction surveys in the tertiary hospital setting. The survey questionnaires that are used by them are based on the SERVQUAL scale of satisfaction. This means that a score is given to each level of satisfaction. A score of 2 would be allocated to a question if 100% of participants were satisfied with the question/statement. If 50% were satisfied the statement would get a score of 1 and if none of the participants were satisfied, a score of 0 would be given. In the case of their questionnaires, any score below 1 (50% satisfaction) would identify an indicator in need of improvement (Department of Health, 2012; Babakus & Mangold, 1991).

The results of this survey are discussed whereby responses that were higher than 90% were seen as very good, those between 50% and 90% were acceptable and any response below 50% was indicative of areas that are deemed in need of improvement. The 50% benchmark was chosen on recommendation of a similar study that was done in a Nuclear Medicine Department to measure baseline satisfaction survey results as well as organisational surveys that were previously done in provincial hospital departments in South Africa (Eiselen, 2005; Smith & Engelbrecht, 2001).

The discussion will start with the first group (combined staff group) and continue to the findings pertaining to the clients (the referring doctors and patients).

5.2.1 Staff satisfaction and morale

The survey questionnaire investigated five specific quality parameters which were summarised in Table 4.1 of clause 6 of ISO 2008. They were:

- Working environment (clause 6.3),
- Physical environment and safety (clause 6.4),
- Job description (clauses 6.2.1 and 6.2.2),
- Recognition (clause 6.2.2 d) and
- Re-imbursement (covered in clause 4 of the standard).

The specific quality parameters are discussed individually and the areas identified in need of improvement (satisfaction level < 50%) are further illustrated in Figure 5.1.

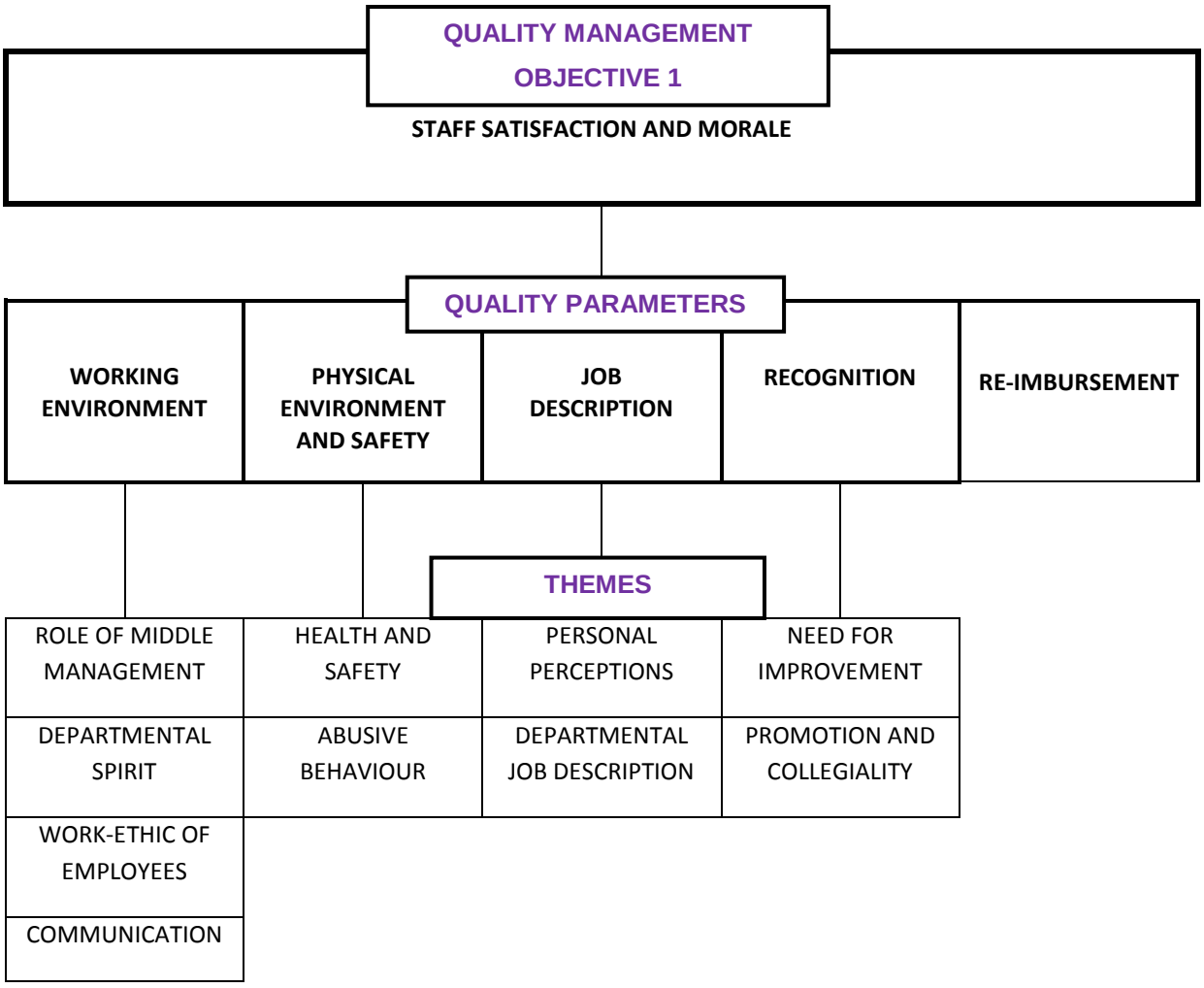

Figure 5.1: Staff satisfaction and morale: quality parameters and identified themes

5.2.1.1 Working environment

The first quality parameter to be discussed relates to the working environment of the employees. Four themes were identified in this quality parameter. These themes were: the role of middle management, departmental spirit, work ethic and personal attitude and communication (as illustrated in figure 5.1).

a) The role of middle management

Participants were asked to express agreement or disagreement with statements reflecting their relationship with and perceptions of their respective supervisors and HODs, thus the department middle management. Two statements will be discussed, since they did not achieve the benchmark. They were: the perceptions of HOD consistency towards staff and communication with staff. The first statement, where 38.7% of the respondents agree that their HOD *does not* favour specific people, 36.4% disagreeing and with 24.9% unsure or not answering the point suggests that there is a disconnect between HOD and a number of staff. The second statement, where 47.8% of the

participants feel that they can relate to their HOD, has 36.3% of participants disagreeing that they relate to their HOD. There are 15.9% of staff who are unsure or choose not to answer.

These figures could reflect disconnect between staff and the HOD. However the same two statements referring to staff participants' supervisors both met the benchmark with 52.3% and 72.7% respectively. Supervisors are typically direct line managers at the department and other workplaces so these results suggest that staff may feel more comfortable and more trusting of their immediate 'boss' than of the higher hierarchy represented by the HOD.

The survey results reflect the comments made in the open (free) section of the survey questionnaire where participants were invited to give suggestions towards improving the department as a workplace. There was a clear need expressed for an improved workplace, which to the participants (n = 9/30) meant an improved role of HOD's and supervisors, better communication and a more consistent approach to staff members. There was also staff that expressed a need for job security. One such an example is:

"In all my 35 years of working in different departments I have never felt as insecure in my job as at this moment." (1:12)

From the suggestions for change the department seemed to have been going through a difficult time which could support that there was a level of between the staff and management:

"The last year was extremely challenging in the department with unacceptable (in my view) action from the university to remove our Head of Department. The interpersonal relationships at work were and are placed under tremendous strain."(1:13)

"The situation is getting better." (1:35)

"It will take much time before relationships improve in the department." (1:13)

The following was a positive comment suggesting change:

"A motivated, positive HOD with adequate interpersonal and people skills."(1:33)

The department was experiencing changes in the management structure and this coincided with the survey at that time. It is therefore understandable that staff members experienced management change from a variety of viewpoints.

An example of where the management approach was criticized in a general comment is:

"Department Heads not very approachable or transparent." (1:58)

A result is the fact that 38.7% of the staff feels that there was no favouritism from HOD's towards staff members. This is below the benchmark and is thus an area of improvement. A further 24.9% of participants did not answer the question or felt unsure about answering it. This non-response should be noted.

The results for supervisors regarding perceived favouritism are positive, with 52.3% believing that their supervisors are not favouring people unfairly. However there are 38.6% participants who disagreed (with 9.1% unsure or choosing not to answer) and thus felt there was favouritism displayed by their supervisors. This aspect of the survey could have been investigated further with a multivariate analysis to establish exactly who felt this way.

Both these aspects need to be addressed as areas of improvement in terms of QM. It can be motivated that a feeling of distrust or disconnect will undermine the role of management in the implementation of a QMS. It is therefore important to build a trust relationship to ensure harmony that would add to staff satisfaction and ultimately help with achieving the objectives set to indicate the success of the QMS system's holistic approach (DuBrin, 2000; ISO, 2005; ISO, 2008).

b) Departmental spirit

The next theme that was isolated as an important factor influencing the working environment was the *departmental spirit*. Eight statements show the survey results describing the general atmosphere and departmental spirit in the department.

One statement did not meet the 50% QM benchmark, and that was related to the team-spirit amongst the staff where 47.7% of participants felt there was a good team spirit amongst staff at that point, with fifty (50%) of participants in disagreement. Thus team-spirit amongst the different staff members was not deemed adequate. Half the personnel (50%) agreed that the department has a relaxed atmosphere, however 45.5% disagreed with the statement and 4.5% were unsure or did not answer this statement.

The results are further supported by the comments in the suggestion section of the questionnaire where more than fifty percent of the comments (n = 16/30) expressed the need for improved team spirit and team building, friendly cooperation, staff attitude and interest in each other and respect for each other. Examples of these comments were:

"Better teamwork and some members of staff must be addressed regarding their poor patient care." (1:14)

"Regular team building events across staff groups." (1:17)

"The atmosphere between senior staff members and junior staff members need to be addressed." (1:35)

"Team building activities to build relations and trust." (1:57)

There were, however, positive undertones in some of the general comments made by the staff. One comment stood out:

"We get many compliments for the initiative of staff to beautify their working environment." (1:26)

In a multi-disciplinary, diverse working environment it is important to address the issues surrounding the departmental spirit swiftly and effectively (DuBrin, 2000). These issues can determine a department's successful implementation of a QMS, since poor team-spirit can influence the impact of a well-planned QMS negatively (ISO, 2000; ISO, 2005).

c) Work ethic and personal attitude

The *work ethic of employees* addressed in this section is felt to influence the departmental spirit and the level of service offered by the department. Work ethic can also be seen as a staff member's 'attitude' towards their job. In this section there were 11 statements that indicated the level of satisfaction or dissatisfaction of staff members toward their work ethic and personal attitudes. All of the statements met the 50% satisfaction benchmark for QMS.

Work ethic plays an important role in determining staff satisfaction. Productivity and work satisfaction are greatly determined by the feedback and acknowledgement received (DuBrin, 2000).

The personnel were satisfied with their working hours (97.7%) and work-schedules (84.1%). This indicates that that the scheduling and work-rotation in the department is satisfactory. Participants (n = 25/44) strongly agreed that their working hours were reasonable. There seems to be no evidence of so-called "burn-out" amongst the personnel, as 61.3% disagreed that they were over worked with 27.3% of feeling that they are over-worked. Two examples of such comments that justified the percentage of personnel that did feel over-worked were as follows:

"Some people in the department get away with doing nothing, while others have to do all the work. Management knows about this, but it would be nice if they can do something about it." (1:16)

"The shortage of staff is sometimes a source of frustration." (1:43)

These feelings can influence the attitude staff has towards their work. Other comments that relates to their work attitude and ethic were:

"An effort to address underlying conflict at work needs to be done." (1:35)

"Staff need to be equipped to deal with conflict better." (1:36)

"I work in Radiation therapy, but my HOD and supervisor … have little knowledge of what Oncology Social Workers should know or do." (1:43)

"Respect one another in their different work functions and see them as valuable …" (1:55)

When looking at work predictors amongst doctors as investigated by Bovier & Perneger (2003), it was stated that doctors felt that time spent on administrative tasks was counter-productive. This can be intensified in situations where there is a shortage of staff. The department is still paper-based in terms of all the medical record-keeping and administrative tasks are part of all the different groups' daily routines. Delegating the administrative tasks properly and setting time out in the daily schedule to perform these tasks would alleviate the problems (Bovier & Perneger, 2003).

The staff seems to be content with their opportunities for growth and development (63.6%). ISO standards are clear about the fact that there must be organisational commitment toward the level of competence necessary to perform the job. The training involved in achieving and maintaining this level of competence is seen as a quality indicator, as is the constant evaluation of this training and its results (ISO, 2008). The level of training and continuous development will directly influence the personnel's perception of the quality of service that they provide. In this survey, the participants showed a 100% intention of delivering high quality service. It correlates with the unanimous indication that their job is seen as a responsibility and that they are interested in their work (95.4%).

Positive comments made by participants were:

"The department stands out as one that delivers an excellent service. We get many compliments for the initiative of staff to beautify their working environment." (1:26)

"I love my job, enjoy that it feels that it is of value to my patients …" (1:106)

d) Communication

One of the key quality indicators for staff satisfaction is the issue of communication. Staff co-operation and harmony is dependent on efficient/good communication (Bovier & Perneger, 2003; DuBrin, 2000). Mutual collaboration and better communication were commented on by the participants. There were eight statements investigating this phenomenon in the survey questionnaire and the results of three of these statements did not meet the 50% QM benchmark for satisfaction.

Participants viewed overall communication on all levels in the department as poor, with 61.4% of participants indicating that in their opinion overall communication in the workplace it is not satisfactory. Comments supporting these findings were:

"Communication is almost absent" (1:10)

"Ask staff input on decisions that concerns them, don't just tell them what to do." (1:15)

"Better communication between colleagues." (1:19)

"English as the universal language." (1:33)

"Regular open discussions to eliminate misunderstandings." (1:57)

"Honesty between the personnel. Better communication." (1:107)

A positive trend is the fact that 97.7% of the respondents state that they always know and understand their tasks. This indicates that at a departmental level, the processes and procedures involved in delivering treatment to the patients are understood clearly. However, only 59.1% of the participants felt that the communication regarding the protocols and the changes is clear. This is an interesting contrast, and it could be explained by the fact that the last scenario refers purely to the actual physical documentation and not to the content of the protocols as such. ISO stipulates that there should be clear communication regarding the documentation and the working processes at all levels in the organisation (ISO, 2005; ISO, 2008) and that these documents should be readily available to all personnel.

Another contrast that emerged is the fact that 75% of participants were satisfied that their supervisors were available when needed compared to the dissatisfaction with overall communication practices. This could be related to the disconnectedness of staff with the HOD's that emerged in section (a). More studies with multi-variate analysis should be done to isolate the specific areas of improvement to address this problem.

Staff members felt that they were praised for their work (79.5%) and that they form part of the decision-making in the department (61.4%). The latter is an important motivating factor for personnel, since it is a human tendency to be and feel valued when your opinion is taken into account on minor or even major decision-taking processes. Staff self-worth is also valued when communication takes place properly and in the appropriate manner (DuBrin, 2000).

Only 40.9% of the participants felt that they receive constructive criticism on their work. The importance of feedback on a person's learning approaches should not be disregarded in a highly technical and professional setting like Radiation Therapy. Constructive feedback at the appropriate time on specific tasks can create a culture of lifelong learning in people of all levels. This can create an environment of learning and will simplify the process of continuous education. It will also stimulate cognitive processes that could trigger reflective thinking that would in turn help the staff member to be able to think "on their feet" in situations that are out of the norm (Brigden & Purcell, 2012).

The following statement from a participant described a specific problem with communication:

"Communication is almost absent. Radiographers are not informed or given feedback on a regular basis, except through e-mails." (1:10)

Even though the internet is an acceptable means of communicating with large numbers of people, there is a need for information to be shared in person. There should be a clear distinction about what type of information should be communicated via the internet and what should be communicated in the form of a meeting or notice. Electronic communication methods are used frequently in departments of this size in the industry (Van der Westhuizen, 2012).

This indicates a need for participation in decision-making processes, specifically where the individual has an interest in the matter. Proper communication justifies that staff members be consulted where they are concerned or where the decision will influence them either personally or professionally.

"… ask staff input on decisions that concerns them, don't just tell them what to do." (1:16)

A need for mutual collaboration was expressed in the following two statements. Team work initiatives should help with this, as well as better communication practices that would help to bridge possible generation gaps.

"The atmosphere between senior staff members and junior staff members need to be addressed." (1:35)

"… that we as staff work in co-operation of each other." (1:104)

5.2.1.2 Physical environment and safety

The second quality parameter that was investigated is the physical environment and the overall safety of the workplace (ISO, 2005; ISO, 2008; ARPANSA, 2008). Two distinct themes emerged from the questionnaire as well as the comments from the participants, namely: health and safety and abusive behaviour. This is illustrated in the flow chart of figure 5.1.

Of the 8 statements investigated, 2 were below the 50% benchmark and 2 were borderline 50%. There were a high number of non-answers for two borderline items namely: hospital support for staff under stress (22.7%) and exposure to violence at work (11.4%). There were higher levels of dissatisfaction amongst the combined staff group in relation to safety aspects, namely: safety of personal belongings (56.8%); and 50% of respondents felt that the hospital did not provide a healthy and safe environment.

a) Health and safety

The survey showed that 90.9% of the participants felt safe at work during the day. This is a positive response. The contrast to that is that even though they feel safe at work, 56.8% do not believe that their belongings are safe at work. This illustrates distrust in the security systems currently in place and could cause anxiety amongst employees in that they feel they have to lock everything away constantly.

The following comment could illustrate a possible answer to this insecurity:

"The in and out doors are too open for everybody. You don't know if the persons are really booked or if they come in to do their own things. I sometimes feel a bit un-save." (1:53)

Access control could be a problem in the department. This could be a case of patients and their families moving about from one point to another in the department, but it could also be members of the public wandering into the department without having any reason to be there. The department/department is situated at the periphery of the hospital grounds, and is accessible.

According to the Radiation Safety Guide by ARPANZA (2008), access to this department should be controlled as it contains radioactive sources and thus it is necessary to assure that there is no unauthorised access to any of these areas. There must also be visible radiation warning signs with the contact information of the Radiation Safety Office of the department at the relevant storage site of any source and at access points to the building (ARPANSA, 2008). The fact that there are two

wards above the department using the same access points complicates the control of access for the department.

Fifty percent (50%) of the participants felt that the department does not maintain a safe environment according to the Occupational Health and Safety Act of South Africa. Only 43.2% felt that it is maintained, which is below the 50% benchmark and will need to be addressed. A comment regarding suggestions for change was:

"A general manager to co-ordinate the maintenance of the building and surroundings. Better upkeep of the infra-structure such as floors, walls and garden." (1:26)

In a study that investigated work satisfaction of professional nurses in South Africa (Pillay, 2009), areas of dissatisfaction identified among public sector nurses were: remuneration, workload, available resources to do their work, career development opportunities and *safety of the work environment.* Even though the majority of participants of this study felt safe, the perceptions about their environment and surroundings could negatively influence that sense of safety.

b) Abusive behaviour

The opinion of participants regarding violence/aggression at work is border line. There was a 52.2% agreement of participants to not being exposed to any violence or aggression at work. However more than a third (36.4%) of participants felt that they have been exposed and the rest (11.4%) were unsure or did not complete the question.

Racial harassment was not perceived to be a major problem, with 77.3% of participants not being exposed to it. However there were 18.2% of participants that felt they had experienced racial abuse. Verbal abuse from both staff members (36.4%) as well as patients (31.8%) has been experienced and even though these numbers are also below the 50% benchmark, these percentages should be noted since they could impact on job satisfaction.

The following comment showed a negative connotation that was perceived by an employee:

"… any discussion is seen as criticism and therefore one does not even attempt it. Verbal abuse from management is also part of any discussion on a sensitive manner." (1:12)

5.2.1.3 Job description

From a technical point of view, this is one of the most important quality parameters investigated. The importance of employees understanding their job descriptions cannot be over emphasized. The

processes in the QMS are based on an understanding of these job descriptions or working instructions and the employee should be familiar with these (ISO, 2008).

In this section, there were two dominant themes investigated from the combined staff group opinions, namely: the participant's view on his/her personal perceptions on job and career; and, their opinion on the departmental job description.

a) Individual's personal view on job and career

In this section there were 6 statements that were investigated and they were all above an 85% satisfaction level. Personnel indicated that they were satisfied (90.9%) with the tertiary education they received. This is a positive perception since knowledge and competency are valuable attributes within any professional group (Eiselen, 2005). A further 97.8% of participants indicated that they are proud of their career and 90.9% sees themselves as experts in their fields.

The work is deemed sufficiently challenging by the combined staff group, according to 90.9% of the personnel and an equal number (86.4%) believe their work is of value to the department and want to further their careers.

Continuing medical education and training is an important aspect of a QMS. Not only does it keep the personnel on a specified competency level (HPCSA, 2012), it also creates the opportunities for individuals to develop their own careers in order to be promoted to more senior positions (IAEA, 2007).

b) Combined staff group's opinion on the departmental job description

The second theme identified was the departmental job description. Eleven statements address aspects relating to departmental job description and all of them satisfy the 50% benchmark for satisfaction.

The variety of work and the need to exercise skills and knowledge at all times displayed 100% satisfaction levels.

Part of the department's responsibility towards job specification is training and education of the staff.

In the results it can be seen that 59.1% of participants feel that they receive training regularly and yet in section (a) more than 90% of participants see themselves as experts and feel that their tertiary education is adequate to do their job. This contrast could indicate a discrepancy in the understanding of the statements, in that staff could confuse the term "training" with continued professional

education. Training in this sense would rather indicate specialized education in the personnel's specific discipline (Kwapela Learning and Consulting, 2011).

The need for continuous professional educational activities is illustrated in the following comment:

"Regular CPD activities in the department allowing organising of work duties to allow 100% attendance." (1:57)

Equipment and supplies in the department satisfied 70.4% of the participants. It is, however, a technical department, and though the benchmark is 50%, it could be debated whether this figure should be revised for this specific incidence. The technicality of the treatment delivery in this department lends itself to rigorous QA measures and the availability of equipment and resources should be continuously monitored (IAEA, 2007; ISO, 2008).

Staff autonomy was investigated, and it was established that staff should be able to set their own performance standards (86.4% agreement) and have a certain amount of authority in their work (70.5% agreement). It is however to be noted that the type of work that is done in Radiation Therapy is highly reliant on standardized protocols and operational procedures and therefore the staff cannot decide on their own working methods but should follow the recommended standard operating procedures that would form part of the QMS (IAEA, 2007; Oakland, 2003).

When asked whether or not they were encouraged to work independently, the response was positive (86.3% agreement). It is important to keep in mind, though, that different professional groups answered this question and in some aspects of Radiation Therapy one is allowed to work independently. Mainly, however, Radiation Therapists are obliged to work with a colleague in order to be able to check on the specific treatment parameters and techniques followed.

Self-actualization is important for development, and the satisfaction level for the 2 statements investigating this were above 50% and this is seen as satisfactory. Personalised skills development processes are important to set goals for development. It should form part of the performance and development review that staff ideally should complete twice a year (ISO, 2005).

5.2.1.4 Recognition

The fourth quality indicator investigated how, when and whether recognition is perceived to have been given to the participants. There were eight statements that addressed this issue. Two main themes emerged: need for improvement; and, the need for promotion and recognition as part of the team (i.e. collegiality). Five of the eight statements indicated a satisfaction level of less than 50%

which means that recognition at the department is one of the quality indicators that needs to be addressed.

Praise for work well-done will open communication channels amongst team members, increase the feeling of being part of a team and raise the overall morale of a team (DuBrin, 2000). In this study it must be noted that 70.4% of participants that felt they were not praised for their work regularly. Morale amongst the staff members can also be influenced negatively if they do not have a sense of accomplishment. Performance appraisals were not done according to 52.3% of staff. This should be part of the QM process and should be enforced in order to adhere to ISO standards (ISO, 2008).

Constructive feedback is seen as a positive experience by 41% of staff, which is below the 50% benchmark. Progress is not discussed according to 43% of staff and a substantial portion of the participants (13.6%-15%) choosing not to answer or felt unsure about work progress, credit due and constructive feedback.

The second theme identified is being recognised as part of a team, or collegiality, and was noted by 86.3% of participants agreeing with only 9% disagreeing on being part of a team. There is a positive belief (52.2%) in the equal opportunities of promotion; however, 34.1% disagree with 13.6% unsure or choosing not to answer. This could indicate that the issue is not of importance to the respondent or the respondent fears that there could be consequences if this is answered.

Collegiality is further addressed as part of the comments where 11 out of the 30 comments were specifically referring to teamwork as an area for possible improvement. The suggestions ranged from *"…team building activities to build relations and trust…" (1:57)* to *"…improve team spirit…" (1:51).*

The following comment describes the deeper need for interaction on a different level:

"Respect one another in their different functions and see them as valuable, no matter if you're a doctor or a cleaner." (1:57)

5.2.1.5 Re-imbursement

The fifth quality parameter to be discussed is re-imbursement. There were three statements to indicate a level of satisfaction for this parameter and all three of them were below the 50% benchmark as can be seen in Figure 4.11.

Of the combined staff group, there was 40.9% of staff that believed that their salary was acceptable in relation to the work they do. However 38.6% of staff agreed that they earn the same or more than

other people doing a similar job with 47.8% in disagreement. This figure is in line with the 45.4% of participants convinced that the basis for payment is unreasonable.

These results show a state of discontent with the remuneration packages in general. Imbursement packages in Government departments are not comparable to those in private practices (Abratt, 2012). This can lead to professional people leaving the state hospitals to work in private practices. This is a reality, but it is still seen as an extrinsic motivation factor and is normally always seen in conjunction with other causes of dissatisfaction, i.e. the working environment, recognition and job description (Eiselen, 2005).

In research about work satisfaction of professional nurses in South Africa, Pillay (2009) states that the main indicator for dissatisfaction amongst nurses in both the private and the public sectors were their pay. In the private sector, the only other indicator for dissatisfaction was career development opportunities. In the public sector, the other indicators included workload, available resources, career development opportunities and safety of the working environment (Pillay, 2009).

Even though findings from the questionnaire indicate that re-imbursement is in need of attention, there were no comments from the participants regarding this issue in the suggestions for improvement or the general comments. This re-iterates the fact that it is seen as an extrinsic motivator and calls for measures beyond re-imbursement to improve as well.

Section 5.2.2 will discuss the results obtained from researching the second quality management objective, namely the referring doctor satisfaction.

5.2.2 Referring doctor satisfaction

The referring doctors were investigated as the first client-group in this survey. ISO (2005) sees them as clients, since they/their patients are at the endpoint of receiving a service/treatment from the department.

A total of 64 doctors participated out of a possible 120. There were 120 referring doctors on the database at the different clinics in the study-site. The questionnaires were mailed to this sample group. A response rate of 53% was achieved.

Almost half (45.3%) of these doctors were based at the tertiary hospital where the study-site is. The referral process is a regional one, in that the patients will go to the closest geographic tertiary hospital to their residence.

The majority of participants in this group (58%) referred patients just a few times/year while17% of participants refer patients at least once/month.

There were three main quality parameters investigated in the survey. They were:

- Telephone etiquette,
- Follow-up reports,
- Patient management.

The three quality parameters investigated client satisfaction processes that are related to clauses 7.2.1, 7.2.2, 7.2.3 and 8.1 of the ISO standard (ISO, 2005; ISO, 2008).

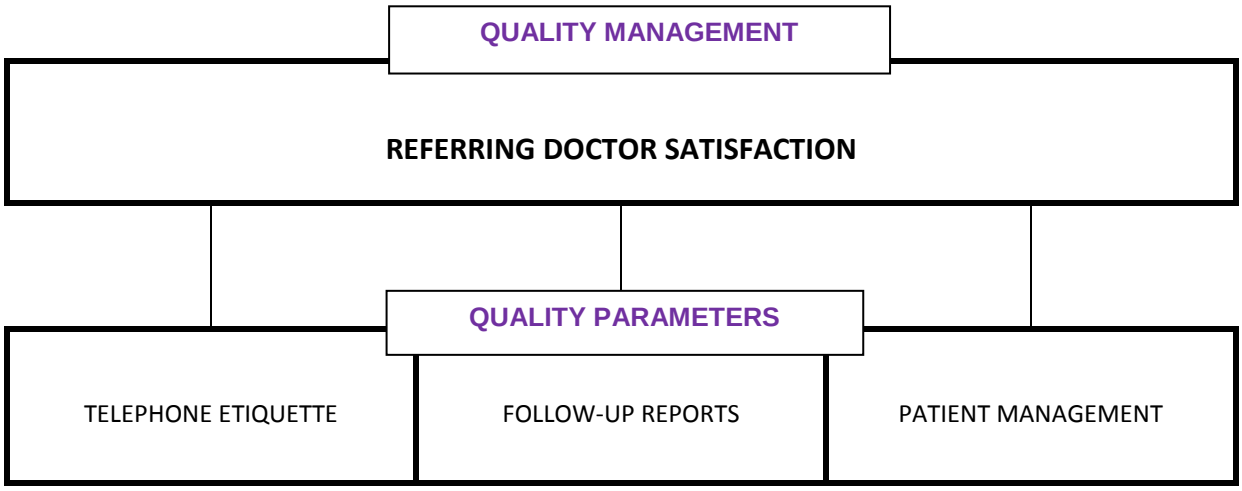

Figure 5.2: Referring doctor satisfaction: quality parameters and identifie themes

The quality management parameters will be discussed in detail in the sections following. Specific closed-ended questions were asked and a yes/no response option were offered. The same benchmark parameters were used: positive responses higher than 90% were seen as very good, between 50% and 90% were satisfactory and responses below 50% were indicative of areas that are deemed in need of improvement.

5.2.2.1 Telephone Etiquette

Four questions were asked to investigate whether the personnel in the department adheres to professional telephone etiquette habits. Results are illustrated in Figure 4.13. All four questions had positive responses above the 50% quality benchmark. This indicates that the general telephone etiquette is satisfactory.

An area that could be addressed is the availability of the doctor when the referring doctor requests to speak to one, since 31.3% of the doctors said that no-one was available to speak to them upon request. The shortage of staff in the department could account for this. The fact that the Oncologists often find themselves in another part of the department (i.e. radiation planning or therapy) is also explanatory of the fact that they probably were not available to speak on the phone when requested to do so. Good communication practices in very busy clinic set-ups could assure that the Oncologist receives a message to this regard that will result in a return phone call to address the referring doctor's concerns (Bovier & Perneger, 2003).

The participants were happy that their clinical questions were answered satisfactorily (90.6%) and that the phone was answered professionally (85.9%) and promptly (73.4%).

No specific comments were made in the general comment section of the questionnaire about telephone etiquette or issues.

5.2.2.2 Follow-up Reports

Five questions investigated the satisfaction regarding follow-up reports. Results are shown in Figure 4.14. The first question asked the doctor whether follow-up reports are sent to him/her about the patients that they refer. Fifty-six of the 64 doctors (87.5%) answered "NO". This could explain why the remaining four questions were predominantly unanswered. It is clear from the responses that follow-up reports are not done to the referring doctors or are not requested by them.

Specific comments illustrate that the lack of response to these questions and the lack of the need for follow-up reports:

"Follow-up reports are not that important, the patient stays at Oncology after the initial diagnosis." (2:4)

"Part of combined clinic with Oncology" (2:37)

"Reports not a problem – part of a combined clinic meeting weekly." (2:50)

The remaining six doctors (n = 6/44) that did report receiving follow-up reports mainly received them electronically and five of the six felt that the reports were clear.

5.2.2.3 Patient Management

Four general questions were asked to investigate the management of the patients at the department. The results are shown in figure 4.15. All the participating referring doctors (100%) were

of the opinion that their patients received the best possible care and treatment at the department. They felt that patient leaflets would be of value to their patients (92.2% of participants). One participant (2:78) commented that they had their own patient leaflets.

The waiting times at the clinics at the department are of concern, since 46.9% of doctors felt that their patients had long waiting times at the clinics.

Admitting patients to the ward also does not seem to be problematic to 84.4% of the doctors. Four of the respondents commented that they do not really need to admit patients, since it is done through the Oncology unit's clinics. One participant (2:69) commented that the wards are often too full.

The results for this particular survey questioned the worth of doing a survey with the referring doctors and seeing them as end-users or clients. Certain of the participants were members of the multi-disciplinary team, as they participated in the weekly combined clinic meetings. It is clear that follow-up reports are not an issue to them the same way it would be to a doctor referring a patient to the Nuclear Medicine Department or Radiology (Eiselen, 2005).

Section 5.2.3 will discuss the levels of patient satisfaction in detail. Parameters for the satisfaction benchmark will remain the same as the previous parameters (50%).

5.2.3 Patient satisfaction

The patients in this department are the clients since they are seen as the end-users of the services and treatments offered (ISO, 2005; ISO, 2008). This section will discuss the survey results of the structured interview questionnaires for this sample group.

The questionnaire consisted of a section which gathered relevant demographic data, followed by a structured section that explored specific quality parameters and a section that was specifically meant for ward patients.

From the demographic data that was gathered, it was evident that the department caters for a very diverse group of patients. The ages of the participants varied from 13 years to 93 years. The amount of visits to the department varied according to the type of treatment and number of treatment fractions planned for individual patients.

Figure 4.16 illustrates the education levels of the patients. The majority of the participants (75.7%) have a high school education from Grade 8 to Grade 12 and only 4% of the patients have a higher education qualification.

The cost of travel for the patients' is a very important factor, since many of the patients are dependent on government grants or social welfare to be able to physically come in for their treatment. At the time of the survey, it was relevant to ask patients whether they paid R7 or less to get to the department, since that was what a taxi-fair in a 20 km radius would have more or less cost the patient. At that stage patients indicated the following: 50.4% of patients paid R7 or less to get to the department, 22.2% paid more than R7, 16.1% paid more than R15 and 11.3% paid more than R20. The time it took patients to get to the department more or less correlates with the amount of money they spend to get there. About 48.7% indicated that it took them less than half an hour to get there, 31.7% took more than 30 minutes but less than an hour and 19.3% took more than an hour to get to the department. Transport used varied from public transport (67.5%) to a lift from friends (12.2%) to using their own transport (20.4%).

The patients were asked: "Do you know why you are here?" in an open section of the structured interview questionnaire. They were asked to explain briefly. All the participants, except for one, explained that they were in the department for radiation of cancer. One patient had no idea why he was there and this was possibly because he had brain metastases and was somewhat confused. He participated willingly and gave informed consent that his responses may be used in the discussion of this study. Some of the participants indicated that they realized they are there for radiation of cancer, but did not clearly understand the disease or the process of the treatment. In the cases where the patients did not understand their disease, the researcher referred them to the doctor that is treating their disease. In the cases where they were unclear about the process of the treatment, the researcher explained the procedures to them in detail in order to clarify to them what to expect from the rest of their treatment and the expected processes. The questionnaire investigated five quality parameters in the form of Likert-scale type statements similar to the ones in the Staff Satisfaction survey. Participants could choose from Strongly Agree, Agree, Disagree, Strongly Disagree or Unsure. The five quality parameters were:

- Administration;
- Atmosphere and Comfort;
- Cleanliness of the Department;
- Professionalism of the Staff and
- Information Sharing.

Of the 230 patients interviewed, 50% (n=115) were ward patients at some point during their treatment. This division of patient numbers was coincidental and not planned. With these ward patients the last section of the questionnaire was completed as well.

The two quality parameters investigated for the ward patients are:

- Cleanliness and safety and
- Patients' general comfort.

The discussion that follows can be summarized in Figure 5.3.

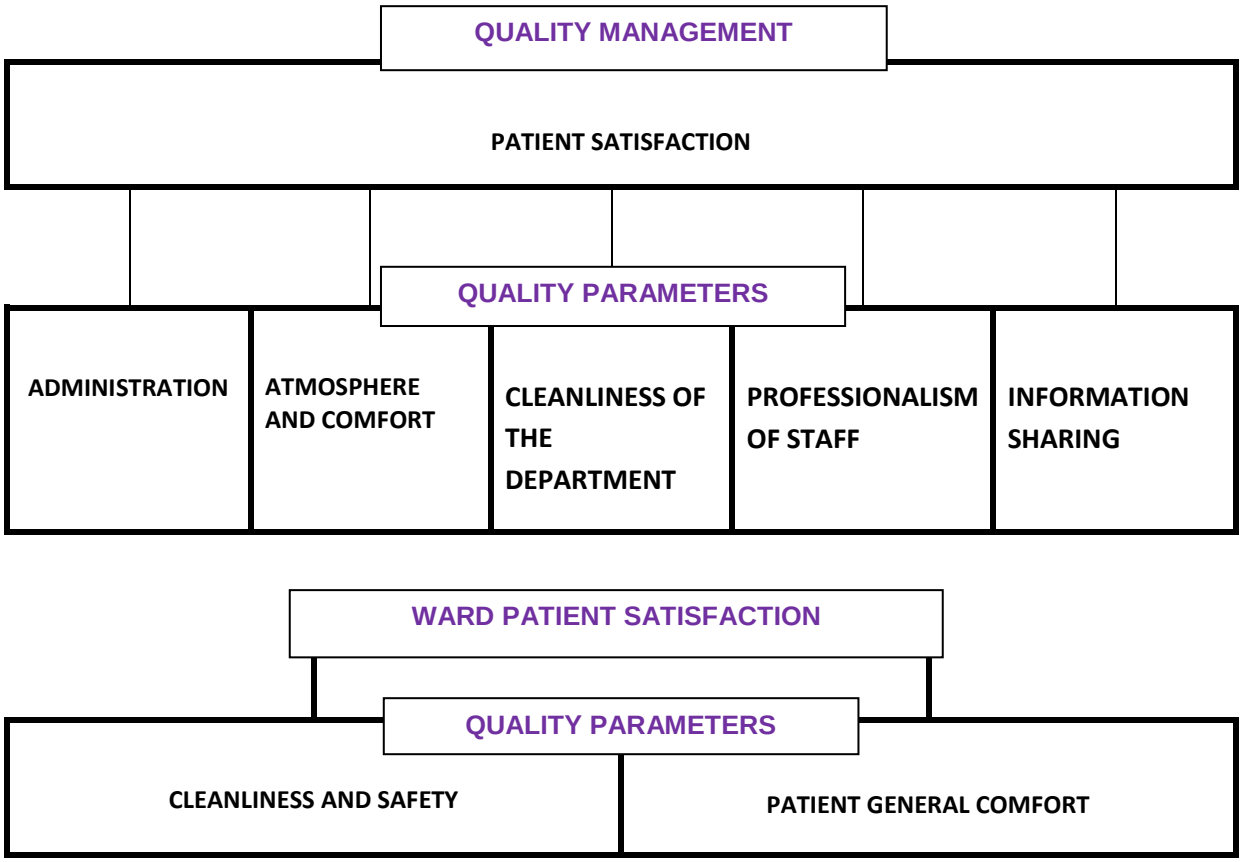

Figure 5.3: Patient satisfaction: quality parameters and identified themes

5.2.3.1 Administration

There were six statements investigating the administrative issues relating to the patients. Results are shown in Figure 4.17. All six of these statements were deemed satisfactory in the sense that they scored above the 50% satisfaction benchmark level.

The majority of patients were satisfied (87%) with the *opening hours* of the department and the *ease of finding the department (90.8% agreement)*. Patients were also satisfied (67.8%) that the

department was well sign-posted. It is important for sick patients not to struggle to get to where they should be for their treatment, the insecurity of getting lost in a big department is unnecessary. The ease of finding the departments of interest is also investigated in similar surveys (Tygerberg Hospital, 2012).

Eighty one percent of patients felt that they did not *wait long for their folders*. *Waiting for their medicine* also did not seem to be a problem for 77.4% of the participants.

Thirteen (n=13/115) patients especially commented on the lateness of *appointment-keeping* at the treatment units and in the clinics. Typically, the comments are that "…they are always late" (3:103).

One patient commented as follows:

"Machine is always broken, you sometimes wait very long." (3:50)

Another said:

"Had to wait a really long time in planning and then again at the machine, wanted to know if it will always be like that." (3:80)

On a more positive note:

"It is better here than at the main hospital, there you wait a whole day for your medicine." (3:73)

None of the other administrative issues were commented on in the general section.

In a paper-based department, like the department, there could be possible confusion at stages with files being used in different departments of the same hospital and then perhaps not returned on time for the patient's next visit. It could happen particularly if a patient has appointments at more than one of the clinics in the hospital. This did not emerge as a problem according to the patients that took part in this survey. The ease of the administrative process was commended.

The problem with the waiting times on the treatment units needs investigation. It is unacceptable that the ward patients are fetched for their treatment and then kept waiting.

"They are always late. They let me come from the ward and then I wait at the machine." (3:12)

5.2.3.2 Atmosphere and Comfort

Five statements were given to illustrate the general atmosphere and comfort in the department. Results are shown in Figure 4.18. All five statements satisfied the 50% benchmark for satisfaction.

Appointment keeping and time waiting for medication have been repeated, since it fits into both categories.

Ninety three percent of patients felt that the *department has a pleasant atmosphere*, and 96.1% said that there was a *comfortable area and seat to wait in*. For 93.4% of the patients it would not be a problem to return here should they need to do so.

All the above results fall within the excellent category (above 90%) for patient satisfaction.

In the general comment section, there were five comments that addressed the patient comfort in the waiting areas. Three of those noted that it was “nice, clean and attractive”. One patient expressed the wish to have “some entertainment in the waiting areas … especially when the machine breaks down”.

There were numerous positive comments on the friendliness of the waiting room and the staff as well.

It is clear that the patients value the pleasant and friendly atmosphere that they are encountering at the treatment units and in the department. Patient satisfaction is a quality parameter that is determined by the way in which the patients are treated (FACCT, 2000).

5.2.3.3 Cleanliness of the Department

Three statements were made to illustrate the cleanliness of the department. Results of participants’ responses are shown in Figure 4.19. All three statements scored within the 50% - 90% benchmark for satisfaction.

Patients (83.9%) felt that the *hospital was clean*. Eighty six percent thought the *toilets were in good repair* and 91.9% of them felt that there are *soap and water available in the bathrooms*.

In the general comment section, there were five (n=5/115) statements regarding the general cleanliness of the environment and toilet hygiene. Two of these comments were negative in terms of a lack of toilet paper and dirty toilets.

The physical cleanliness of a department is one of the first impressions that patients form when they walk into the department. It is important to foster a culture of positive first impressions and it is important to strive for a clean, safe environment (IAEA, 2007).

5.2.3.4 Professionalism of the Staff

All seven statements in this section were within the 50% satisfaction benchmark, with five results that were excellent, thus scoring over 90%. The results are illustrated in Figure 4.20. Statements investigated the professional levels of different staff groups, including doctors, nurses, radiation therapists and administrative staff.

The different sections of the department were investigated, starting with the front desk where patients fetch their folders all the way through to the doctors and the treatment units. The results were as follows: 99.6% of patients agreed that *the administrative officers who issued their folder was helpful*; 97.8% of patients felt that *the doctor that saw them was polite*; 94.4% of these patients felt their *doctor listened to their problems* and 97.4% of patients were pleased with *the way they were treated* at the department.

A further 88.7% of patients felt that the *nurses were good listeners*, 87.8% felt that the *personnel that treated them were good listeners* and 93.5% believed that their *privacy was respected* by all the staff.

The positive results displayed in this section could indicate the commitment of the department to deliver service of an excellent quality. The patient satisfaction in this case can be linked to the patients' perceived level of professionalism of the staff. The seven statements investigating the level of professionalism of staff on the patient survey questionnaire were all above 80% satisfaction levels. This indicates that this particular parameter measures up with the results and is indicative of a positive trend towards meeting the overall quality objectives (Cheah, 1998; Snipes, *et al*., 2004).

There were 22 comments in total regarding professional attitude. These comments collectively described the staff as friendly, always helpful, respectful and professional. There was one patient that noted that *"everybody is very friendly and always treats me with respect" (3:29).* Another patient felt that *"the personnel in the ward are not very friendly … sometimes feel that they can go through a little more trouble to be friendly" (3:109).*

5.2.3.5 Information Sharing

There were six statements that investigated the sharing of information in this department. The results of participants are illustrated in Figure 4.21. All six statements were within the benchmark of 50% for satisfaction.

This indicates a perception that information is shared satisfactorily according to the patients. Being informed by the doctors (94.3% agreement) and the health care workers help the patient to understand his/her disease and to make informed decisions about the choice of treatment.

This sharing of information began when the doctor had to explain to the patient *what was wrong with him/her*, 94.3% of patients were satisfied with this explanation. A further 88.3% felt that *the staff made sure they understood* everything while 87% were happy to get that explanation *in their own language.*

A total of 88.3% did not feel that they needed any *more information* about their treatment and 90% of patients said that the radiation therapists *explained the treatment to their satisfaction*. Patients were satisfied that they had sufficient information as to *how to take their medication*, and there was a satisfaction level of 77.4%.

There were 23 comments in the general discussion section that related directly to the sharing of information and 5 of these specifically referred to practical requests for knowledge about follow up appointments with the doctors and expressing their worries about "what is going to happen next?".

Fourteen comments were direct or indirect requests for information about treatment, side-effects experienced and various related issues expressed by the patients, for example, "is it normal to be 'burning' when he urinates" (3:89), "… very worried about her daughters and wants to know if they will also get breast cancer is she has it …" (3:81), "… the treatment is so fast: do they give him enough to kill the cancer?" (3:184) and "… worried about the cancer, does not understand where it comes from" (3:203).

There were three general comments that showed a lack of proper communication in that the patient did not understand what was happening but did not have the opportunity or the confidence to ask.

"I did not understand everything they explained, but they were very busy and I did not want to bother them." (3:26)

"I felt as if the doctors were too rushed to really listen and just wanted to explain what they were going to do without really listening to me." (3:34)

"Does not really know what is wrong, feels uninformed, doctors very busy, do not want to bother them." (3:66)

A further 38 general comments dealt with the physical side-effects and psychological issues that arise while having radiation treatment.

Seven of the patients requested to see a social worker during the interviews to resolve their worries about family issues and travel costs.

A very positive comment/compliment towards the staff was made by one of the patients:

"Staff displays a unique combination of competency and humanity. I am forever grateful to have benefited from their shared wisdom and clinical expertise." (3:21)

5.2.3.6 Ward Patient Satisfaction

The ward patients completed a section at the end of the survey questionnaire that explored the patients' perceptions about cleanliness and safety as well as the general comfort they experienced during their stay in the ward.

a) Cleanliness and safety

Five statements in the questionnaire addressed the issue of cleanliness and safety. Four of the five statements were above the 50% benchmark for satisfaction.

The results for the statement whether the *ward was clean* and the *bedding was clean*, were 89.5% and 96.5% respectively. There were six comments in the general section that commented on the lack of pillows, days without clean bedding, waiting for clean towels and the shortage of toilet paper.

In terms of safety, 92.2% of patients felt safe at night in the hospital; even though 55.6% did not feel that there was any nursing staff available to help them at night. This is an issue that would have to be discussed with the relevant nursing staff to establish the reasons for patients' feeling this way.

Staff did, according to 76.6% of patients, check the patients' transport arrangements at discharge.

Pillay (2009) notes that even though nursing staff in the public sector do experience a serious lack of resources, their satisfaction indicators show that they are committed to their patients and they express their satisfaction with the gratification that they get from their work with their patients (Pillay, 2009). This is clearly reflected at the department where staff indicated a high level of interest in their work (95.5% satisfaction level) and wanting to provide a high quality service that is regarded as a responsibility (100% satisfaction levels).

b) General comfort

Six statements addressed the general comfort of patients in terms of information, visiting hours, food and activity while staying in the ward.

The majority of patients (83.4%) indicated that the food was tasty. A number of specific comments addressed the issue of food lacking salt, being cold and "was not the best" *(3.33)*.

Patients were satisfied with visiting hours being long enough, but indicated that they were bored during their stay in the ward (36.5%). Specific comments in this regards were the comment of one patient where the patient said the following (in context of the full comment):

"Medication late. Sisters laugh and make noise late at night. Lamps not working. Three days without clean bedding/sheets. Bored and disgusted/upset and nervous." (3:14)

This patient raises a few valid issues that need to be addressed. The patient is clearly agitated and is feeling out of control.

A total of 78.3% of the ward patients felt that their questions were answered in the ward. The following comments illustrate the problem of those who disagreed:

"Patient needs more explanation." (3:17)

"The doctor is too busy, he does not have time for the patients – the patient feels everybody is complaining about that." (3:138)

Only 8.7% of the patients staying in the ward thought that the department their local health clinic about their future medical needs. The rest disagreed or were unsure whether this would happen.

In the general comment section, there were six comments about the staff's attitude and professionalism. Four of the comments were positive and mentioned the happy, pleasant staff with a professional attitude. Some comments went as far as to claim that "the doctors in this department are all angels" (3:197) and "everyone working here deserves medals" (3:211).

One patient felt that the nursing staff "… only do what they are supposed to be doing" (3:139) and nothing else.

Patients (7/40 comments) made clear that the noise and lack of privacy in the ward was a contentious issue and commented as follows:

"Sisters laugh and make noise late at night." (3.14)

"The ward is very noisy at night." (3:79)

"The patient does not like to complain, but she feels that the ward is not very private." (3:82)

There were 5 general comments made by patients that felt welcome and that everybody was very nice in the ward and one patient made the following comment:

"It is nice to have a bed and meals three times a day. They are looking after him well because he is sick." (3:39)

It will serve well to remember that some of these patients come from very poor socio-economic backgrounds which cause them to be extremely thankful for any effort put into their treatment and care, whether it is a good effort or not. It is up to the health care professional to set the standard to assure that at all times the best possible care is given to all patients.

5.2.4 Patient satisfaction: Comparison to an institutional survey

The Department of Health and the academic hospital conducted a client satisfaction survey (CSS) in the entire hospital independently from any other departmental surveys, as part of their planned annual QA activities. This survey used questionnaires set by the Department of Health and they were based on the SERVQUAL scale. There were two questionnaires, one for in-patients and one for out-patients. Fieldworkers were trained to distribute, complete and collect the questionnaires. The QA manager of the academic hospital oversaw the processes during the week that the survey was conducted. A total of 900 questionnaires was captured in the information management system that they used (SINJANI), 835 for out-patients and 65 for in-patients (Department of Health, 2012).

Seven broad areas (domains) were investigated in this survey:

I. Tangibles (physical surroundings, equipment);

II. Reliability (the ability to perform services offered accurately);

III. Responsiveness (the willingness to assist the clients);

IV. Assurance (the ability to aspire trust and confidence with knowledge displayed);

V. Empathy (the ability to display compassion toward and care for patients);

VI. Access (overall access to the health care facility) and

VII. General satisfaction with the health care facility (Department of Health, 2012).

Specific questions (n=27) were linked to each domain and the results were indicated with scores linked to the level of satisfaction: 100% satisfaction scored 2, 50% satisfaction scored 1 and neither satisfied nor dissatisfied scored 0. Any score below 1 indicated domains that needed remedial action (Department of Health, 2012).

This survey was done with the general population of patients that visits this academic hospital on a daily basis. The sample group was large (n=900) and it included patients visiting all the different

departments in the hospital. Specific data for the Oncology department was not isolated, but some comments regarding the Oncology department were made in the general comments section.

Some of these comments included the following (for the purposes of reporting in this thesis, the comments were translated from Afrikaans to English by the researcher):

"The Oncology department is the best clinic I have ever been at."

"I'm very happy with the service at the Oncology department."

"I am a prisoner and I like coming to the Oncology department. Very nice."

"The Oncology department is the best. It feels as if I am in a hotel."

"Great service at the Oncology department."

"The Oncology department is the neatest place at this hospital."

These comments can be seen as very positive towards the Oncology department.

When looking at the results for this survey and the results of the research survey, one can compare these results according to the quality parameters that were investigated in both the surveys. This can be summarized in Table 5.1 (also refer to Figure 5.6).

Table 5.1: Comparison of results from CSS 2011/12 and the research survey results

INSTITUTIONAL SURVEY		ORGANISATIONAL SURVEY	
DOMAIN INVESTIGATED	2011/2012 SURVEY RESULT	COMPARABLE QUALITY PARAMETERS INVESTIGATED	RESEARCH SURVEY RESULTS (SATISFACTION LEVELS)
Tangibles	1.12	• Cleanliness of the department • Cleanliness and safety in the ward	• 100% • 80%
Reliability	0.9	• Professionalism	• 100%
Responsiveness	1.2	• Professionalism	• 100%
Assurance	1.1	• Information sharing	• 100%
Empathy	1.53	• Professionalism	• 100%
Access	0.65	• Administration	• 100%
General satisfaction	1.1	• Atmosphere and comfort in the department • Patient general comfort in the ward	• 100% • 80%

It is evident that the two domains identified as areas of improvement for the general patient population, reliability and access, are parameters that met the satisfaction criteria in the research survey (professionalism and administration). The fact that the research survey was aimed at only the

oncology patient population plays a role in the response rates. Comparing these results shows that there is a higher level of patient satisfaction amongst the specific, smaller oncology group of patients that visit the Oncology department on a regular basis compared to the general population that visit the academic hospital on a daily basis.

It would be interesting to compare the results of the research survey with the results of a follow-up audit using the same quality parameters as measurement.

The gap filled by this research in this specific scientific community lies in the fact that a step was taken towards implementing a system in the department, incorporating current quality assurance practices and international standards.

Section 5.2 described the current QM practices regarding the three quality management objectives by means of the results of the client satisfaction survey.

The next section will be investigating the third research sub-question, namely: *"Does the department of Radiation Oncology at a tertiary academic hospital meet the objectives regarding these QM aspects according to ISO standards?"*

5.3 SUMMARY OF RESEARCH RESULTS

In order to answer the third research sub-question, the results are summarized in their categories as they were investigated for each of the QM objectives.

The first QM objective that was investigated was the staff satisfaction and morale. A summary of the results are illustrated in Figure 5.4.

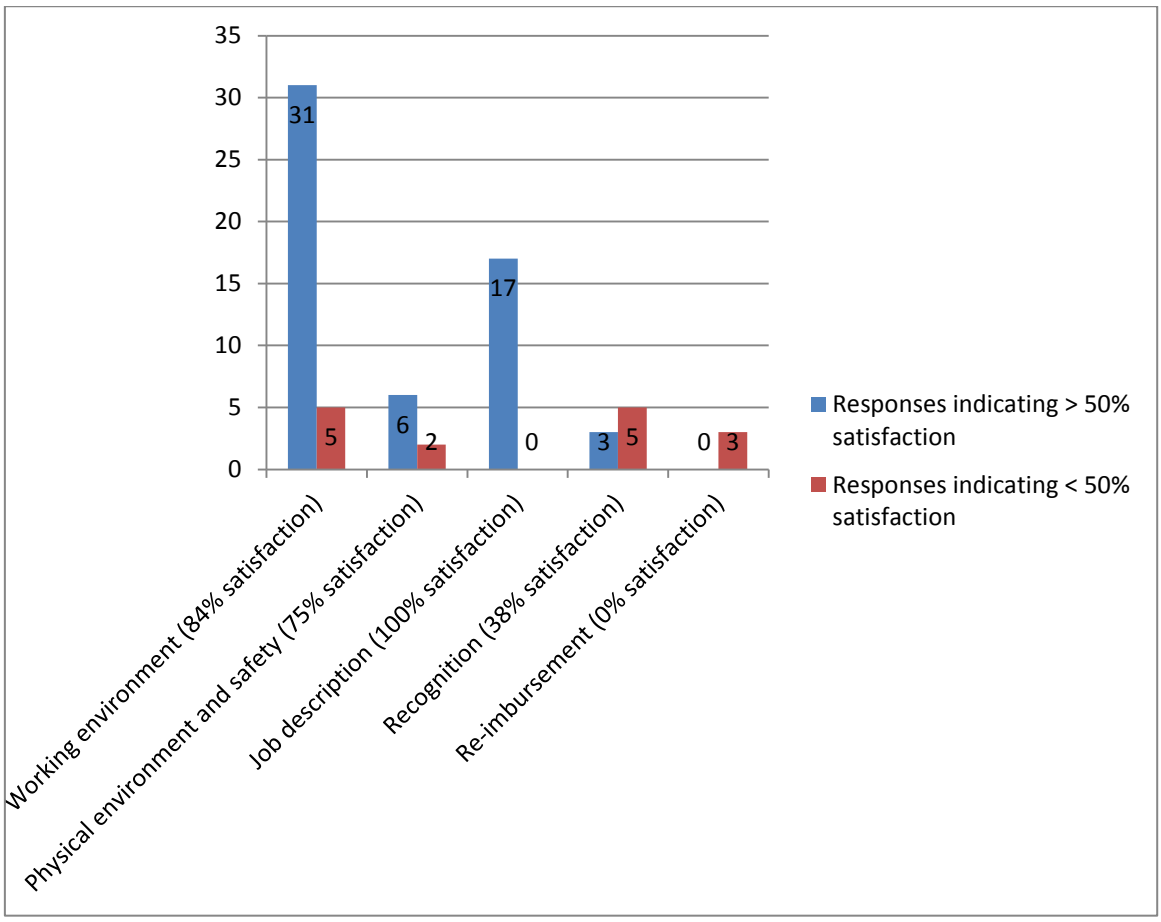

Figure 5.4: A summary of statements related to staff satisfaction and morale

From this it is evident that there was a satisfaction level above 50% for 3 out of the 5 quality indicators (60%) that was investigated. Following the benchmark set for 50% satisfaction, this is a further indication that the department is meeting the standards set for this QM objective.

The second QM objective investigated was referring doctor satisfaction levels. This is summarized in Figure 5.5.

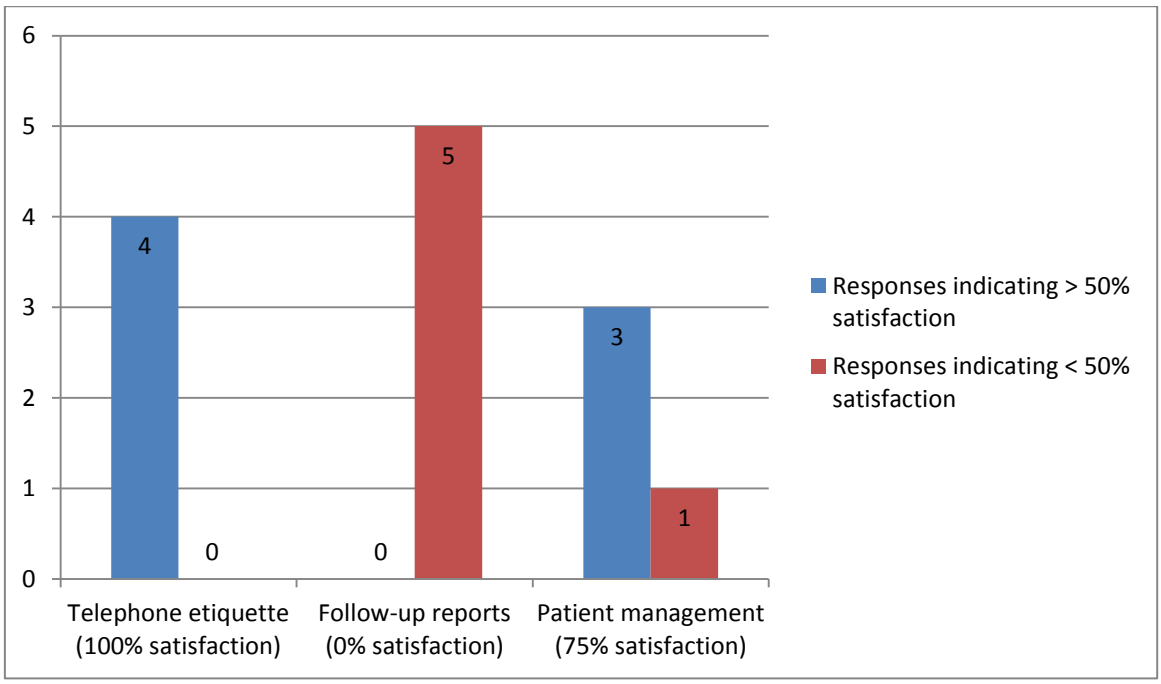

Figure 5.5: A summary of statements related to referring doctor satisfaction

These results indicate that 2 out of 3 (66%) of the indicators displayed a satisfaction level above the 50% benchmark. The quality indicators for this specific QM objective is therefore also meeting the standard set for this specific QM aspect.

The third QM objective investigated was that of patient satisfaction. Figure 5.6 summarizes the results for this aspect.

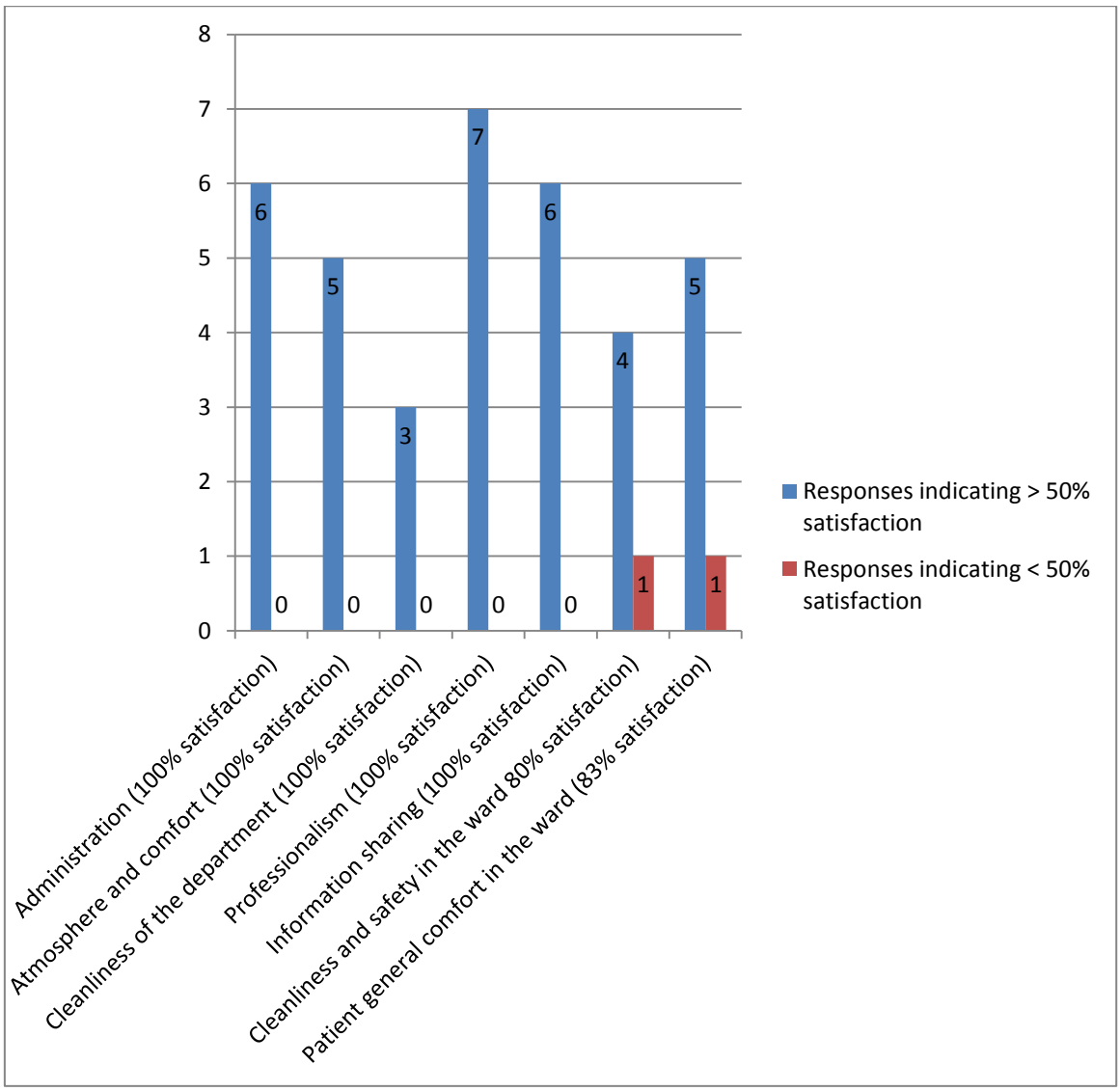

Figure 5.6: A summary of statements related to patient satisfaction

The results for the last QM objective, patient satisfaction, shows that the 7 indicators investigated have all met the 50% benchmark set for satisfaction.

All three the QM objectives have met the 50% benchmark set for the overall satisfaction level when one looks at the individual quality parameters that were investigated.

This answers the third research sub-question: The department of Radiation Oncology at a tertiary academic hospital does meet the objectives regarding the QM aspects investigated according to the standards as set out by ISO.

The next section will investigate a similar survey done in parallel (but independent to) the survey done at the department.

5.4 RECOMMENDATIONS

As part of the discussions of the results of the research survey, the researcher suggested possible improvement measures based on the specific results for the section discussed.

These suggestions for improvement could be divided into three broader categories as discussed below.

5.4.1 Specific recommendations

The specific recommendations were further divided into seven different themes. The themes and their specific recommendations follow.

a) Professional relationships and team-building

- Regular, compulsory, open staff meetings to strengthen the professional relationships between middle management and the staff (Corporative Executive Board, 2003; Oakland, 2003).
- Compulsory attendance of team-building workshops or initiatives for staff members to improve collegiality and morale.
- Team projects in the department, for example groups to organize academic talks, organize year-end functions or become involved in patient-related projects.
- Recognition sessions during staff meetings to staff members deserving of it.

b) Communication

- Regular, compulsory, open staff meetings to increase communication skills and encourage open communication.
- There should be an increased effort in communicating constructive feedback timeously on work done.
- Specific communication practices should be decided upon when communicating through the internet in order for staff members to know what to expect via internet and what to expect from open staff meetings.
- Communication towards patients during down-time in order for patients to understand why they are waiting.
- There should be better communication regarding follow-up from the start of the treatment, possibly a little leaflet explaining the follow-up procedures in detail.

c) Management flow

- Management training to address change management and communication skills.
- Continued Performance Development Reviews, as is done currently, but with some focus on identifying specific problem areas that could be addressed by management through training or counselling.
- Clearly documented job descriptions should be part of the QMS. This will help to clarify the expected work that needs to be done and the person responsible for that work.
- Individualized skills development plans as part of the performance and development reviews.
- Re-evaluate the rosters and task-distributions constantly to assure fair workload and the even distribution of administrative work.
- The compliments/complaints system should be handled by a trained member of management with good communication and negotiation skills.

d) Training, education and awareness campaigns

- Continued professional education should continue as is. The programme could possibly incorporate some input from the staff to personalize topics for education and this could be done by means of a needs analysis prior to planning the programme for the year.
- Identifying individual training needs for personal career development programmes.
- Encouraging participation in the planning and presentation of academic programmes.

e) Security and safety

- A radiation safety workshop for the non-radiation workers could increase their understanding about the dangers of exposure as well as their awareness about the safety of the general public moving in and out of the department.
- A safety awareness campaign throughout the department could increase the awareness and the positive perceptions regarding overall safety in the department.
- Strict access control could increase the feeling of safety for the employees in the department and can tighten security with regards to personal belongings.
- It should be advised in any work-situation to adopt a zero-tolerance policy about verbal abuse amongst employees. Conflict management workshops will help personnel to deal with conflict before the situation becomes abusive. It will also help them to deal with aggressive and abusive patients.

f) Working environment

- The use of the compliments/complaints system should be encouraged in order to give members of staff a chance to anonymously lodge complaints that should be dealt with in a sensitive manner.
- The physical working environment in terms of the building and facilities need to be improved.
- Constant communication regarding expectations and needs in the working environment is recommended.
- Improved maintenance support is needed to decrease down-time of the treatment units.

g) Patient comfort

- Patient waiting times and unscheduled breaks in treatment should be limited with rigorous QA activities on the treatment units.
- Patient specific entertainment could be incorporated in the waiting areas, like an internet station with suggested websites for browsing.
- An awareness campaign about the support structures available for patients to use, especially the support around social-economic issues the patient might be experiencing.
- The nursing staff on the night shift could possibly institute a time round during which they can do extra checks on the patient welfare and to check if they are sleeping and/or comfortable.

5.4.2 Practical recommendations for future audits

- Shortened research survey questionnaires (see Appendices L, M and N).
- Appointing and training an audit team that is familiar with administering questionnaires and knowledge of the health care system.
- Objectivity should be maintained by using external auditors and not members of staff.
- Audits should be done on specific problem areas, i.e. communication.
- The questionnaire should incorporate more questions about the appearance of the buildings and maintenance in general.

5.4.3 Recommendations regarding the QMS

- A quality manual should be compiled using the data collected in this research survey and the ISO standard's guideline to formulate specific documentation.

- The quality committee should revise the referring doctor list and investigate only relevant referring doctors and not the doctors that are part of the multi-disciplinary teams. This particular group could possibly be investigated every second year instead of annually, since the information gathered from them is very limited.

5.5 CHALLENGES AND LIMITATIONS OF THE STUDY

5.5.1 Practical Challenges

There were challenges within the different sample groups that were unique to that group or unique to the methodology followed in the collection of the data for that group. Each group will be discussed separately with the practical challenges that were experienced.

5.5.1.1 Staff

The participation of the staff was an initial challenge, since they did not perceive this survey as part of an organisational effort towards improving quality measures, but as a research study towards a student's studies. The researcher had a group session with the personnel and explained the rationale for doing the survey. The importance of participating was highlighted, with emphasis on the fact that it was voluntary and confidential.

Further hesitance to participate could have been attributed to various factors, such as:

- Fear of recognition;
- Disinterest in the process of quality management;
- A disbelief in the fact that the process can change the system;
- Fear of voicing an opinion;
- The atmosphere in the department due to conflict on various management levels at that stage.

The response rate for the combined staff group was 61%. This could be improved in future in order to assure a more comprehensive view on the overall staff satisfaction. Including all the staff (not just the professional groups) in the survey would increase the understanding of the satisfaction of the staff in the department.

Another challenge was the length of the questionnaire. A shorter, more comprehensive questionnaire would increase voluntary participation. Staff should not feel that the survey is adding to their workload, therefore the survey tool should be concise and to the point. A shortened

questionnaire based on the same quality indicators (to assure comparative analysis of the results) is proposed for future use in the department, and can be seen in Appendix L.

There should be clearer distinction between the terms “Supervisor” and “Head of Department” in the survey questionnaire. There was some confusion about the terminology whilst completing the survey questionnaire.

5.5.1.2 Referring Doctors

The response rate of the referring doctor satisfaction was low (53%) due to the following factors:

- An insufficient distribution and return system;
- Out-dated information on referring doctors;
- Participation of referring doctors in the combined clinics made them feel that they are part of the patient’s management team rather than a referring doctor (client).

The survey questionnaire was limited in that it investigated follow-up reports which were not important to a majority of the participants.

The survey tool will have to be adapted to incorporate more relevant issues the referring doctors might be experiencing and can be seen in Appendix M.

5.5.1.3 Patients

There were some practical limitations that influenced the data collection in the third sample group. The chosen methodology (administered questionnaire in an interview setting) was time-consuming with the sample size (n=230). The researcher did all the interviews (see recommendations for further discussion).

This was further complicated by the length of the survey questionnaire. A shortened survey questionnaire is proposed and can be seen in Appendix N.

The capturing of the data from the questionnaire onto SPSS added to the time-constraint.

5.6 RELEVANCE OF THIS RESEARCH TO THE DEPARTMENT

This research would be relevant to the department firstly as a research guideline regarding quality management systems and ISO standards. Secondly, the results of the research survey will serve as a baseline indicator for the next internal audit of those specific quality parameters. The baseline audit results can be used to measure improvements that could be done as a result of the recommendations following the baseline audit.

The awareness created whilst conducting the research could aid the department in the process of implementing the quality management system en route to possible future external audits and certification.

The development of the survey questionnaires was a key component of the survey, and the use of the questionnaires led to improved, shortened and specific questionnaires that could be used in future audits (see Appendices L, M and N). These are available for use in future audits and are seen as an important research outcome.

5.7 FINAL CONCLUSION

Quality improvement should be seen as a continuous, structured process using a system that can create participation throughout the organisation to plan and implement processes that would meet and exceed the expectations and demands of the customers utilizing the services of the particular organisation. For this to be achieved, quality management should be implemented through a comprehensive system that could refer to both the technical quality assurance processes and the management processes needed to assure the successful usage of such a comprehensive system (Van Dyk, 1999).

In his trilogy for quality, Juran (1999) breaks the process for total quality management (TQM) down into three main processes. They are:

1) Quality Planning
2) Quality Control
3) Quality Improvement.

The Juran Trilogy is summarized by Schroeder (1994) in her comparison of the three most cited quality management gurus in the United States. Her summary (adapted to apply to Radiation Oncology) include the following:

Table 5.2: A summary by Patricia Schroeder of the Juran TQM trilogy adapted for Radiation Therapy (Schroeder, 1994)

1) QUALITY PLANNING	2) QUALITY CONTROL	3) QUALITY IMPROVEMENT
• Determine who the customers are • Determine what their needs are • Develop the processes needed to fulfil their needs • Set specific standards/goals to adhere to in following the set processes	• Evaluate the performance of the organisation in meeting those needs (baseline) • Compare the performance to the standards set or previous performances • Correct the non-conformities	• Establish the infrastructure of the organisation • Identify needs for improvement and projects to improve the non-conformities • Appoint teams to lead the projects for improvement • Provide those teams with resources, motivation and training

This process, together with the structure provided by the ISO 9000 set of standards, is a valuable guideline for the development of a comprehensive QMS. The objectives set by the department should be compared to a properly planned and implemented internal quality audit and the continuous improvement of the QMS should be based on the findings of such an audit. This project aimed to provide the baseline results that can be used to compare these standards to.

The successful audit of three of the departmental objectives, namely staff satisfaction and morale, referring doctor satisfaction and patient satisfaction, answered the sub-questions that resulted from investigating the main research question, which was:

"Do the QM systems and practices at the division of Radiation Oncology at a tertiary academic hospital comply with ISO standards?"

To answer the main research question: the department has QA procedures in place, but does not meet all the ISO criteria for external accreditation. Further investigation and development of the entire QMS is necessary in order to assure full compliance with ISO standards. A full internal organisational audit is needed to establish whether the division of Radiation Oncology complies with ISO standards.

The sub-questions have confirmed that:

1) The ISO standards have been identified and implemented as quality indicators in the survey questionnaires, in order to investigate relevant areas to improve satisfaction levels to staff and clients;
2) The existing QM practices were investigated through the survey questionnaires and discussed in detail;
3) The division of Radiation Oncology does meet the objectives regarding the three investigated QM aspects (staff satisfaction and morale, referring doctor satisfaction and patient satisfaction) according to the ISO standards.

The future development of a QMS for the division of Radiation Oncology can be summarised in the suggestions made by a French group that investigated the obstacles and problems encountered in the implementation of a QMS in clinical departments in a teaching hospital:

- Focus on improving the departmental processes and procedures;
- Identify areas of improvement without blaming any individuals in the system;
- Adopt a structured problem-solving strategy;
- Work holistically and use multidisciplinary approaches;
- Give staff members specific responsibilities (Francois et al., 2003).

This thesis was an initial step towards a scientifically documented, implemented and regulated QMS that could guide the department in working towards achieving their set objectives and eventually towards attaining Radiation Therapy specific accreditation.

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APPENDICES

APPENDIX A: Terms of Reference: Academic Hospital A

RADIATION ONCOLOGY –ACADEMIC HOSPITAL A

QUALITY ASSURANCE COMMITTEE

TERMS OF REFERENCE

CONSTITUTION

The Quality Assurance Committee (QAC) of Radiation Oncology was established under the authority of the Quality Assurance Committee of Academic Hospital A and the Department of Medical Imaging and Clinical Oncology (MICO).

AIM

To report to Management of MICO and Academic Hospital A on the development, implementation and monitoring of quality of care by providing assurance on:

Consumer quality – the policies and procedures to improve patient knowledge and facilitate greater consumer participation in health service

Technical quality – the policies and procedures to audit, monitor, review and evaluate clinical practice performance and standards, clinical risk an incident monitoring

Caring for the carers – the policies and procedures to audit, monitor, review and evaluate professional development and performance management, to measure carer satisfaction and provide a safe work environment

DUTIES AND RESPONSIBILITIES

Quality manager

- To ensure that the service of Radiation Oncology is fit for purpose and meets national and international regulatory requirements and standards
- To collaborate with the QAC on developing maintaining a comprehensive QA Policies and Procedures Manual
- To coordinate all activities required to meet quality and radiation safety standards
- To liaise with other managers and staff throughout the department to ensure that the QA programme is functioning properly
- To monitor and advise on the performance of the QA programme and to produce reports on performance
- To advise on changes and provide training, tools and techniques to achieve quality and safety
- To manage the control of QA documents

Quality Assurance Committee

- To establish and support the QA team to apply QA recommendations and maintain radiation safety standards
- To approve QA policies, procedures and standards
- To approve the assignment of QA responsibilities
- To monitor and audit the QA programme
- To regularly review the operation and progress of the QA programme and to give feedback to the system
- To maintain records of meetings, decisions and recommendations

- To investigate and review all radiation incidents, non-conformances and corrective actions
- To review and recommend improvements in QA procedures, documentation and standards

Group representatives

- To establish a QA committee to oversee QA activities in group (if applicable)
- To manage the development and update of QA protocols
- To give feedback to QAC on radiation incidents and non-conformances in QA programme of group

SCOPE

The Quality Assurance Committee (QAC) of Radiation Oncology is authorised to investigate any activity within its terms of reference. It is authorised to seek information from any employee and all employees are directed to cooperate with any request made by the Quality Committee.

MEMBERSHIP

The QAC consist of representatives from the following professional groups involved in Radiation Oncology:

- Radiation Oncologists
- Radiation Therapists
- Medical Physicists
- Nursing staff
- Household staff
- Porters
- Pharmacists
- Social Workers
- Patient administrators
- Radiation Safety Officer

A quorum will be formed when 70% of the group representatives are present.

The Quality Manager will serve as chairperson.

Additional members may be co-opted to the QAC as necessary.

Appointments to the committee shall be for a period of one year and shall be reviewed at the first meeting of the year

ATTENDANCE OF MEETINGS

Group representatives or acting representatives shall attend all committee meetings

The following representatives from Academic Hospital A management might be requested to attend meetings.

- Quality Manager: Academic Hospital A
- Superintendent: MICO

ACCOUNTABILITY

The QAC will function as a sub-committee of the Quality Assurance Committee of Academic Hospital A.

The committee will submit its minutes to MICO and the Quality Assurance Committee of Academic Hospital A.

REPORTING PROCEDURE

Group representatives shall give feedback to QAC of group activities

The Radiation Safety Officer shall be the contact person for the Radiation Safety Committee and the QAC

The QAC shall report to MICO management and the QAC of Academic Hospital A annually

The QAC shall report to the Radiation Safety Committee of Academic Hospital A annually

FREQUENCY OF MEETINGS

Meetings shall be called by the chairperson

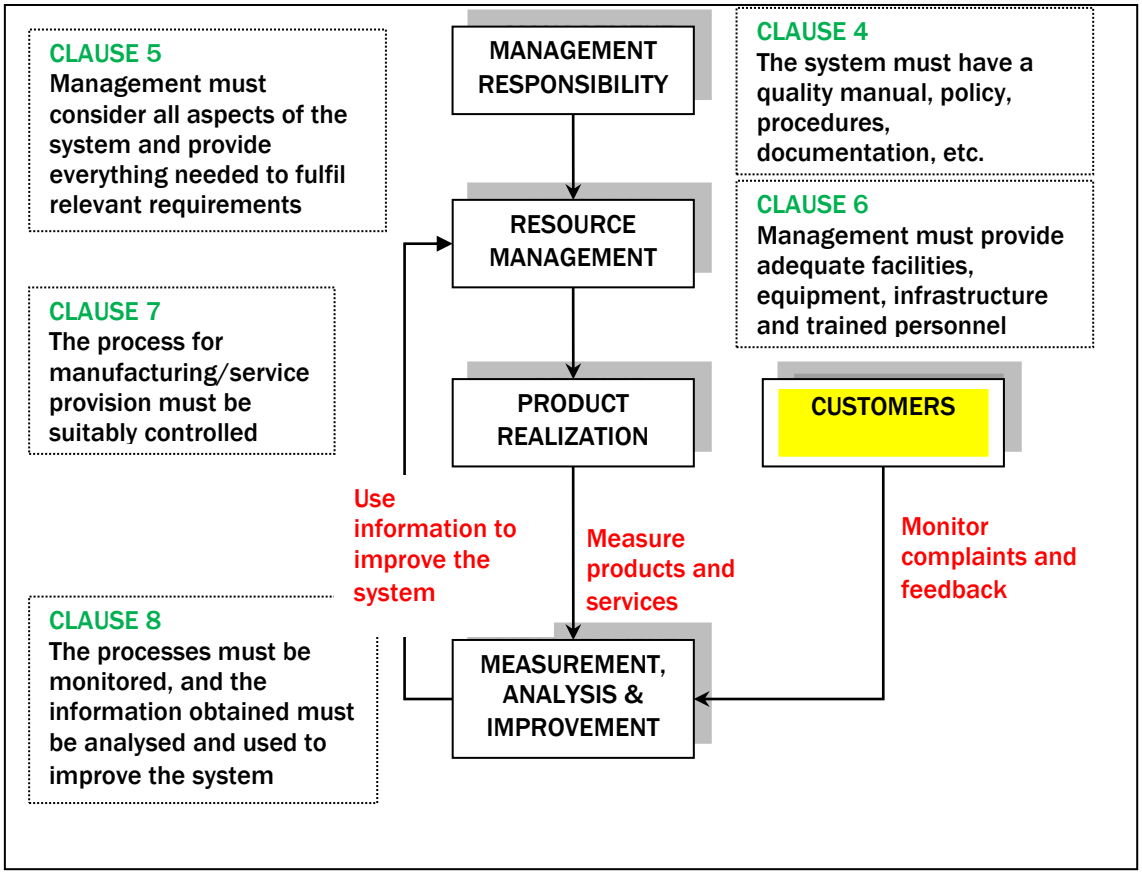
Meetings shall be held two-monthly

The chairperson may call meetings at any time to discuss serious radiation incidents or non-conformities

REVIEW

These terms of reference will be reviewed after six months and on an annual basis thereafter.

APPENDIX B: The main clauses in the ISO 9001:2000 document



(ISO, 2008).

APPENDIX C: Detailed list of clauses

4	**Quality management system: This page has a summary statement of the content of each clause.**	
4.1	General requirements	Identify processes, their sequence and interaction, resources needed, how processes are controlled, and monitor, measure, analyse and improve processes
4.2	Documentation requirements	
4.2.1	General	Defines what should be included in quality management system documentation
4.2.2	Quality manual	Defines requirements for the Quality Manual and what should be included
4.2.3 *	Control of documents	Requirements for documents, documents must be kept current, and how to request a document change
4.2.4 *	Control of records	Requirements for identification, storage, protection, retrieval, retention time and disposal of records
5	**Management responsibility**	
5.1	Management commitment	Evidence of management-commitment to quality system, customer / legal requirements, and continual improvement
5.2	Customer focus	Top management must ensure that customer requirements are determined and are met
5.3 *	Quality policy	Requirements for the quality policy, must commit to meet requirements and continually improve QMS
5.4	Planning (title only)	
5.4.1 *	Quality objectives	Top management must ensure measurable quality objectives are established at relevant levels in the organisation
5.4.2	Quality management	System planning use 4.1 requirements to plan processes & quality objectives, plan system changes
5.5	Responsibility, authority and communication	
5.5.1	Responsibility and authority	Who is responsible for activities and who has authority to take what action must be known
5.5.2	Management representative	A member of mgt. is Mgt. Rep responsible for QMS; reports to Top Mgt. on performance &

		needs of QMS
5.5.3	Internal communication	Top Mgt. ensures communication processes of the QMS are established and effective
5.6	Management review	
5.6.1	General	Top mgt. must review quality system to determine if changes are needed to improve system effectiveness
5.6.2	Review input	Review must include audit results, customer feedback, conformance of product and processes, status of actions, etc.
5.6.3	Review output	Determine actions needed to achieve objectives, improve product and processes; allocate resources for actions
6	**Resource management**	
6.1	Provision of resources	Processes must have the resources required to perform the work
6.2	Human resources	
6.2.1	General	People must be competent to do work based on education, training, skills and experience
6.2.2	Competence, training and awareness	Determining competency requirements, providing and evaluating training, people must know the importance of their work and how they contribute to meeting quality objectives
6.3	Infrastructure	Identify, supply and maintain buildings, work areas, and services needed to meet conformity to requirements
6.4	Work environment	Manage work environment so conditions allow workers to meet product requirements
7	**Product realization** Note: many of the sub-clauses of section 7 do not require that you have procedures, unlike their equivalents in previous versions of the standard. Some of them require that you conduct certain activities or else keep records of certain activities, but only a few of them require that you follow defined procedures.	
7.1	Planning of product realization	What must be included when planning for a specific project, contract or order
7.2	Customer-related processes	
7.2.1	Determination of requirements related to the product	Determine all customer requirements related to the order or contract

7.2.2	Review of requirements related to the product	Review requirements, clarify differences, confirm requirements when no document
7.2.3	Customer communication	Establish effective communication with customers about product, amendments, feedback, and complaints
7.3	Design and development	
7.3.1	Design and development planning	Plan stages, reviews, verification, validation, responsibilities, authorities, info. flows, updates
7.3.2	Design and development inputs	What should be considered when defining design requirements for a product or service
7.3.3	Design and development outputs	Must meet input req., provide info. for purchasing, prod. and servicing, acceptance criteria, etc.
7.3.4	Design and development review	Hold design reviews to ensure requirements met and to ID problems (incl. reps. from all functions)
7.3.5	Design and development verification	Verify outputs meet input requirements, keep records of verification results and necessary actions
7.3.6	Design and development validation	Validate product meets use requirements before product delivered; keep validation records
7.3.7	Control of design and development changes	Review of design changes must include effect on other parts and delivered product
7.4	Purchasing	
7.4.1	Purchasing process	Purchased items must meet requirements, requirements for selection, evaluation and re-evaluation of suppliers
7.4.2	Purchasing information	Requirements for submitting a request for purchased products or services
7.4.3	Verification of purchased product	Ensure purchased product meets specified purchase requirements
7.5	Production and service provision	
7.5.1	Control of production and service provision	Work performed under controlled conditions – work instructions avail. where needed

7.5.2	Validation of processes for production and service provision	Establish your requirements for validating special processes
7.5.3	Identification and traceability	Product must be identifiable throughout product realization, and inspection and test status known
7.5.4	Customer property	Identify, verify, protect and safeguard customer property; report any unsuitable lost or damaged property
7.5.5	Preservation of product	Preserve product – considerations for identification, handling, packaging, storage, and protection
7.6	Control of monitoring and measuring	Equipment determine measurements required; calibrate and verify measuring equipment
8	**Measurement, analysis and improvement**	
8.1	General	Identify monitoring, meas., analysis and improvement processes needed to meet requirements, & control & improve the QMS
8.2	Monitoring and measurement	
8.2.1	Customer satisfaction	Monitor information related to customer satisfaction
8.2.2 *	Internal audit	Audit product/service plans and the organisation's documentation; take corrective action on nonconformities
8.2.3	Monitoring and measurement of processes	Monitor, and where appropriate, measure processes – take action and corrective action when planned results are not achieved
8.2.4	Monitoring and measurement of product	Monitor and measure product at appropriate stages to verify requirements are met
8.3 *	Control of nonconforming product	Identify, segregate and determine what will be done with nonconforming product
8.4	Analysis of data	Collect and analyse data and information to demonstrate system effectiveness and where to improve system
8.5	Improvement	
8.5.1	Continual improvement	Identify where improvements can be made to the quality management system
8.5.2	Corrective action	Review/evaluate nonconformities, determine if

*		action needed, plan action, implement, record results on CPAR form
8.5.3 *	Preventive action	Determine action to eliminate potential nonconformities; actions must be appropriate to effects of potential problems

* Clauses that require written documentation

(ISO, 2008).

APPENDIX D: Informed consent form for patient participants

CAPE PENINSULA UNIVERSITY OF TECHNOLOGY

FACULTY OF HEALTH AND WELLNESS

DEPARTMENT OF NURSING AND RADIOGRAPHY

Informed consent for patient participants in MTech(Rad) research project

Participants: Radiation therapy patients
Title of Research: A quality management system for a radiation therapy department at an academic hospital in the Western Cape, South Africa.

Overall aim: The researcher aims to establish the level of patient (client) satisfaction in the department as a baseline for future patient (client) satisfaction surveys to comply with standards that could be set in the proposed quality management system.

Researcher: Helena Higgins Cell: 082 821 9839

Supervisors: Ms Bridget Wyrley-Birch (CPUT)(contact nr: 021 404 6333), Prof. Penelope Engel-Hills (CPUT), Mrs Anne-Mari Rossouw (TBH).

Research method: Interview with the researcher.

I, Mr/Mrs/Ms/Dr/Prof …… (the participant) hereby consent to partake in the research interview described to me.

	I have been informed that participation is voluntary and that confidentiality will be maintained throughout the research process and in the research report. I therefore realise that I can at no stage be named in any of the findings.
	I feel free to contact the researcher at any time should I wish to withdraw my questionnaire.
	I will answer the questions to the best of my abilities.
	The interview will be audio-taped for record keeping purposes only, and cannot be used to identify me.
	I have been informed that the researcher has ethical and departmental permission to conduct this research.
	I understand that the completed questionnaires would be stored safely and that only the researcher and the supervisors would have access to them.
	I hereby give permission that my responses and opinions may be used in the findings of this research in the report and future publications and presentations.

Patient: ……

Signature: ……..

Date: ……

Researcher signature: ……..

Survey nr: ……..

APPENDIX E: Informed consent for staff and referring doctor participants

CAPE PENINSULA UNIVERSITY OF TECHNOLOGY

FACULTY OF HEALTH AND WELLNESS

DEPARTMENT OF NURSING AND RADIOGRAPHY

Informed consent for staff participants in MTech(Rad) research project

Participants: Radiation Therapists, Medical Physicists, Oncologists, Registrars, Nursing Staff, Social Services.

Title of Research: A quality management system for a radiation therapy department in an academic hospital in the Western Cape, South Africa.

Overall aim: The researcher aims to establish the level of staff satisfaction and morale in the department as a baseline for future staff satisfaction surveys to comply with standards that could be set in the proposed quality management system.

Researcher: Helena Higgins Cell: 082 821 9839

Supervisors: Ms Bridget Wyrley-Birch (CPUT)(contact nr: 021 404 6333), Prof. Penelope Engel-Hills (CPUT), Mrs Anne-Mari Rossouw (TBH).

Research method: Self-administered survey questionnaire

Staff group (please tick):

Radiotherapist	
Medical Physicist	
Oncologist	
Registrar	
Nursing staff	
Referring Doctor	

I, ……(the participant) consent to take part in the above research project. I understand that:

- Participation is voluntary and I can withdraw at any given time.
- I am to complete and return the questionnaire without discussing it with my colleagues.
- I am to complete it honestly without skipping any questions.
- Confidentiality of participants and all data gathered will be maintained.
- Confidentiality will be maintained in the research report, and in future publications and presentations.
- Data will be stored safely and access would be restricted to the researcher and the supervisors.
- I can have a copy of this consent form.

Participant: …….. Position: ……..

Signature: …… Date: …….

Researcher signature: …… Survey nr: ……..

APPENDIX F: Work situation and motivation survey questionnaire

Survey nr: …….

WORK SITUATION AND MOTIVATION QUESTIONNAIRE

CONFIDENTIAL

PLEASE INDICATE YOUR JOB-DESCRIPTION (cross the relevant option):

Radiotherapist	Medical Physicist	Oncologist	Registrar	Nursing staff

DEMOGRAPHIC DETAILS OF PARTICIPANT:

A. GENDER

Male	Female

B. AGE

20-29	30-39	40-49	50-59	60+

C. LATEST QUALIFICATIONS

……
……

D. PRESENT STUDIES

……
……

E. POSITION IN DEPARTMENT

……

F. YEARS QUALIFIED

<5	6-10	>10	>15

QUESTIONNAIRE

You have a choice of five answers for each statement. They are:

- Strongly Agree/Agree/Disagree/Strongly Disagree/Unsure.

Tick the most appropriate one.

G. WORKING ENVIRONMENT

	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure
1. My working hours are reasonable.					
2. I am overworked.					
3. I get the opportunity to mix with my colleagues to communicate on work related issues.					
4. The department's staff members are willing to help each other.					
5. There is a good team spirit among the staff in the department.					
6. The department's staff members tend to get along with each other					
7. The department's personnel take a personal interest in one another.					
8. I share common interests with my colleagues.					
9. I rely on my supervisor to keep our discussions confidential.					
10. I rely on my head of department to keep our discussions confidential.					
11. My supervisor has personal integrity.					
12. My head of department has personal integrity.					
13. I can relate to my supervisor.					
14. I can relate to my head of department.					
15. There is a relaxed working environment in the department.					
16. It is easy to talk to my supervisor about work related problems.					
17. It is easy to talk to my head of department about work related problems.					
18. My supervisor does not favour staff members over each other.					
19. My head of department does not favour staff members over each other.					
20. My supervisor encourages me to develop my own ideas.					

	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure
21. My head of department encourages me to develop my own ideas.					
22. When I have a break during work time, I find the tearoom to be an employee friendly environment.					
23. I find my work scheduling is fair.					
24. When I have a personal problem, my colleagues understand and are accommodating.					
25. Interdepartmental communication regarding protocols and changes thereof is acceptable.					
26. Communication on all levels of the department is satisfactory.					
27. Opportunities for development and training are available to everybody.					
28. My job provides me with the opportunity to grow and develop.					
29. My supervisor is at hand to assist me when required.					
30. There is a good working relationship between the different occupational classes.					

H. PHYSICAL ENVIRONMENT AND SAFETY

	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure
31. I feel safe at work during the day.					
32. My personal belongings (eg. car, handbag) are safe at work.					
33. The hospital maintains a healthy and safe environment according to the Occupational Health and Safety Act.					
34. I have not experienced verbal abuse from members of staff in the last year.					
35. I have not experienced verbal and/or physical abuse from patients in the last year.					
36. I have not been exposed to racial harassment at work in the last year.					
37. The hospital takes adequate precautions to ensure that I am not exposed to violence and aggression at work.					
38. The hospital provides support to staff that experienced stressful situations.					

I. JOB DESCRIPTION

	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure
39. The tertiary education I received is adequate to help me perform my duties.					
40. I am interested in my work.					
41. My work consists of a variety of tasks.					
42. I approach my work as an expert.					
43. I want to provide a high-quality service.					
44. I want to exercise my skills and competence at all times.					
45. I receive training on a regular basis.					
46. My work is challenging.					
47. The workload is achievable.					
48. I have the equipment and supplies required to do my work.					
49. I want to further my own development in my career.					
50. I am encouraged to work independently.					
51. I come to work with a positive approach.					
52. I struggle to stay positive throughout the day.					
53. I regard my job as a responsibility.					
54. I know exactly what my tasks are.					
55. I am allowed to decide my own working methods.					
56. I am proud of my chosen career.					
57. I am given the opportunity to take part in decision-making.					
58. I feel that my work is of value to the department.					
59. I set my own performance standards for my work.					
60. I have a certain degree of authority in my work.					
61. I have a skills development plan, which meets my specific needs and job requirements.					
62. I have equal and fair access to education and training.					

J. RECOGNITION

	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure
63. I am praised regularly for my work.					
64. I have had at least 2 performance appraisals in the last year.					
65. I feel at ease during appraisals.					
66. I receive constructive criticism about my work.					
67. The only time I hear about my performance, is when I do something wrong.					
68. I get credit for what I do.					
69. I am told that I am making progress.					
70. I am seen as part of the team.					
71. I feel that I have equal opportunity for promotion.					

K. REIMBURSEMENT

	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure
72. My salary is acceptable in relation to what I do.					
73. I earn the same as, or more than other people in a comparable job.					
74. The basis of payment, for example overtime/bonuses, is reasonable.					

What, according to you, could be changed to make your department a better place to work in?

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Do you have any other comments?

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Thank you kindly for your time and your valuable input.

APPENDIX G: Referring doctor satisfaction survey questionnaire

Survey nr: …….

REFERRING DOCTOR SATISFACTION QUESTIONNAIRE

CONFIDENTIAL

Please answer all questions as thorough as possible. This questionnaire should not take more than ten minutes of your time.

Tick the appropriate answer:

1. WHERE ARE YOU STATIONED?

Tygerberg Hospital	
Secondary Hospital	
Day Hospital or Clinic	
2 Military Hospital	
Private Practice	

2. WHAT IS YOUR RANK?

Consultant	
Clinical Registrar	
Medical Officer	
General Practitioner	
Other	

3. FROM WHICH DEPARTMENT ARE YOU?

……

4. HOW OFTEN DO YOU REFER PATIENTS TO THE DEPARTMENT?

Daily	
More than once a week	
Once a week	
Every second week	
Once a month	
A few times a year	
Once a year	

5. WHO USUALLY MAKES THE APPOINTMENT?

Myself	
Receptionist	
Sister in the ward	
The patient	

6. Please answer the following questions:

QUESTION	YES	NO
a) When you phone to make an appointment, is the telephone answered promptly?		
b) When you phone to make an appointment, is the telephone answered professionally?		
c) Are your clinical questions answered to your satisfaction?		
d) If you ask to speak to a doctor, is there one available to talk to you?		
e) Is there a long waiting list for your patients at the clinics?		
f) Do you receive follow-up reports about your patients?		
g) Do you receive follow-up reports by fax?		
h) Do you receive follow-up reports by mail?		
i) Do you receive follow-up reports electronically?		
j) Are the reports clear?		
k) Would patient leaflets be of value to your patients?		
l) Are you of the opinion that your patients receive excellent quality treatment at this department?		
m) Do you have a problem admitting patients to the Oncology ward?		

7. Is there anything specific you would like to bring to our attention?

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Thank you very much for your participation.

APPENDIX H: Patient satisfaction survey questionnaire

Survey nr: …….

PATIENT SATISFACTION QUESTIONNAIRE
INTERVIEW QUESTIONS
CONFIDENTIAL

Please answer the following by ticking the appropriate block or filling in the answer on the dotted line.

1. SEX

Male	Female

2. AGE

……

3. HIGHEST QUALIFICATION?

Standard 5 / Grade 7 or lower	
Standard 6 or 7 / Grade 8 or 9	
Standard 8 or 9 / Grade 10 or 11	
Standard 10 / Grade 12	
Standard 10 / Grade 12 plus Diploma or Degree	

4. HOW MANY TIMES HAVE YOU VISITED:

Department	**Times Visited**			
Oncology unit at Tygerberg Hospital?	<5	>5	>10	>20
Other Oncology units?	<5	>5	>10	>20

5. HOW DO YOU GET TO THE DEPARTMENT?

Taxi	
Bus	
Train	
Own Transport	
Lift from relative/friend	

6. HOW LONG DOES IT TAKE YOU TO GET TO THE DEPARTMENT?

Less than 30 minutes	
More than 30 minutes	
More than 1 hour	
Longer	

7. HOW MUCH MONEY DO YOU PAY TO GET TO THE DEPARTMENT?

R7 or less	
More than R7	
More than R15	
More than R20	

8. ARE YOU CURRENTLY A WARD PATIENT AT TYGERBERG?

Yes	No

9. WHO MADE YOUR APPOINTMENT?

Yourself	
Referring Doctor	
Referring Doctor's receptionist	
Sister in the ward	
Other ……..	

10. DO YOU KNOW WHY YOU ARE HERE? EXPLAIN BRIEFLY.

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11. PLEASE GIVE YOUR OPINION BY TICKING THE MOST APPROPRIATE RESPONSE TO THE STATEMENT:

	Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**	**Unsure**
a) The department has convenient hours of opening					
b) It was easy to find this department					
c) The departments within the Oncology unit are well sign posted					
d) The unit has a pleasant atmosphere					
e) The hospital is clean					
f) The toilets are in good repair					
g) The toilets are clean with soap and paper provided					
h) I had to wait a long time to get my folder					
i) There was a comfortable area and seat for me to sit while I waited					
j) The person who issued me my folder was helpful					
k) The doctor/s who saw me were polite					
l) The doctor/s who treated me listened to my problems					
m) The nurse who looked after me in the clinic listened to my problems					
n) I was pleased with the way I was treated in this department at the hospital					
o) The doctor/s explained to me what was wrong with me					
p) The staff who treated me listened to my problems					
q) The staff made sure I understood everything					
r) The staff made sure they explained in my own language					
s) I would like more information about my treatment					
t) The radiographers who treated me explained my					

treatment to me					
	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure
u) My appointments given on my appointment card were kept					
v) My privacy was respected by all the staff					
w) I did not have to wait long for my medicine/pills					
x) They explained how I must take my medicine/pills					
y) I do not mind returning here to this unit if it is necessary to do so					

Any further comments about your experience in this hospital:

……

……

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……....

12. If you have stayed over in the ward, please complete the following:

	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure
a) The ward was clean					
b) The bedding was clean					
c) The food was tasty					
d) Visiting hours were not long enough					
e) The staff in the hospital ward answered all my questions about my illness					
f) I was very bored during my stay in the ward					
g) When I needed help at night, there was always a nurse to help me					

	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure
h) I felt safe at night in the hospital					
i) The staff have checked that I have transport to get me home					
j) The hospital will inform my local health clinic about my future needs					
k) If my friends are sick I will tell them to come to this hospital					

13. Is there anything else you would like the department to be aware of?

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Thank you very much for your participation.

APPENDIX I: **Survey Questionnaire coded results – Group 1**

Survey nr: …….

WORK SITUATION AND MOTIVATION QUESTIONNAIRE
(GROUP 1: n=44)
CONFIDENTIAL
PLEASE INDICATE YOUR JOB-DESCRIPTION (cross the relevant option):

Radiotherapist	Medical Physicist	Oncologist	Registrar	Nursing staff	Medical Officer	Social Worker
18	4	1	3	15	2	1

DEMOGRAPHIC DETAILS OF PARTICIPANT:

A. GENDER

Male	Female	Missing
3	40	1

B. AGE

20-29	30-39	40-49	50-59	60+	Missing
7	12	11	12	1	1

C. LATEST QUALIFICATIONS

Radiation Therapists	Nursing
Oncology	Social Work
Physics	Medical Technology

QUALIFICATION	FREQUENCY
B-TECH	3
BA HON Social Work	1
BSc HONS (PHY)	1
Dip in Nursing, Oncology Dip	1
Dip Nursing (Gen, Obstetrics, Community and Psy)	1
Dip Nursing (Gen, Psch) as Midwife Dip	1
Dip Oncology Nursing	1

Dip Oncology Nursing Science	1
Dosimetry& Specialized Planning	2
FeredOnc (SA) MMED Oncology (std) MBChB	1
Gr 9	1
Gr 12	1
M-Tech Biomedical Technology	1
Matric/4 yr course in Nursing	1
MBChB	4
MBChB/Dip OCC Med/Dip Pall Med	1
MCUR Nursing (Oncology)	1
NDRAD	5
NDRAD Certificate in Specialized Planning	1
NDRAD; NDRAD (D); Dosimetry; Spec Planning Course	1
NDRAD (T)	3
NDRAD (T&D)	1
Oncology trained Prof Nurse	1
Ph1D1 (Medical Sciences)	1
Radiation therapy (1983)	1
None/Non specified	7

D. PRESENT STUDIES

COURSE	FREQUENCY
B-Tech	2
Dosimetry	1
Oncology Registrar	1
Radiation Oncology MMed	2

None	38

E. POSITION IN DEPARTMENT

POSITION	FREQUENCY
Assistant Manager	1
Chief Medical Technologist	1
Chief Radiation Therapist	10
Senior Radiation Therapist	6
Community Service Radiation Therapist	1
Head of Medical Physics Division	1
Social Worker	1
Consultant	1
Medical Officer	2
Registrar	3
Incharge Nursing Sister	1
Level 6 Com Service (Jnr)	1
Professional Nurse	8
Staff Nurse	1
Unit Manager	1
None	5

F. YEARS QUALIFIED

<5	6-10	11-14	>15	Missing
6	6	5	24	3

QUESTIONNAIRE

You have a choice of five answers for each statement. They are:

- Strongly Agree/Agree/Disagree/Strongly Disagree/Unsure.

Tick the most appropriate one.

G. WORKING ENVIRONMENT

	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure/ Missing
1. My working hours are reasonable.	25	18	0	0	1
2. I am overworked.	4	8	24	3	5
3. I get the opportunity to mix with my colleagues to communicate on work related issues.	10	27	5	1	1
4. The department's staff members are willing to help each other.	7	21	11	2	2
5. There is a good team spirit among the staff in the department.	3	18	18	4	1
6. The department's staff members tend to get along with each other	3	23	14	2	2
7. The department's personnel take a personal interest in one another.	2	23	13	0	6
8. I share common interests with my colleagues.	5	33	5	0	1
9. I rely on my supervisor to keep our discussions confidential.	13	18	8	2	3
10. I rely on my head of department to keep our discussions confidential.	12	19	9	2	2
11. My supervisor has personal integrity.	12	22	6	1	2
12. My head of department has personal integrity.	10	19	8	2	5
13. I can relate to my supervisor.	7	25	9	1	2
14. I can relate to my head of department.	5	16	13	3	7
15. There is a relaxed working environment in the department.	2	20	16	4	2
16. It is easy to talk to my supervisor about work related problems.	8	26	6	3	1
17. It is easy to talk to my head of department about work related problems.	5	17	14	4	4
18. My supervisor does not favour staff members over each other.	3	20	11	6	4
19. My head of department does not favour staff members over each other.	1	16	9	7	11
20. My supervisor encourages me to develop my own ideas.	3	24	12	3	2
21. My head of department encourages me to develop my own ideas.	3	16	14	3	8
22. When I have a break during work time, I find the tearoom to be an employee friendly environment.	3	21	11	4	5
23. I find my work scheduling is fair.	5	32	4	0	3

24. When I have a personal problem, my colleagues understand and are accommodating.	10	24	7	2	1
25. Interdepartmental communication regarding protocols and changes thereof is acceptable.	1	25	9	5	4
26. Communication on all levels of the department is satisfactory.	0	13	22	5	4
27. Opportunities for development and training are available to everybody.	4	18	16	5	1
28. My job provides me with the opportunity to grow and develop.	4	24	11	1	4
29. My supervisor is at hand to assist me when required.	6	27	7	1	3
30. There is a good working relationship between the different occupational classes.	1	25	12	2	4

H. PHYSICAL ENVIRONMENT AND SAFETY

	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure
31. I feel safe at work during the day.	1	25	12	2	4
32. My personal belongings (eg. car, handbag) are safe at work.	7	33	4	0	0
33. The hospital maintains a healthy and safe environment according to the Occupational Health and Safety Act.	1	18	18	4	3
34. I have not experienced verbal abuse from members of staff in the last year.	4	23	12	4	1
35. I have not experienced verbal and/or physical abuse from patients in the last year.	6	23	13	1	1
36. I have not been exposed to racial harassment at work in the last year.	7	27	8	0	2
37. The hospital takes adequate precautions to ensure that I am not exposed to violence and aggression at work.	2	21	15	1	5
38. The hospital provides support to staff that experienced stressful situations.	2	20	7	5	10

I. JOB DESCRIPTION

	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure
39. The tertiary education I received is adequate to help me perform my duties.	8	32	1	0	3
40. I am interested in my work.	24	18	0	0	2
41. My work consists of a variety of tasks.	19	25	0	0	0
42. I approach my work as an expert.	22	18	2	0	2
43. I want to provide a high-quality service.	31	13	0	0	0
44. I want to exercise my skills and competence at all times.	30	14	0	0	0
45. I receive training on a regular basis.	6	20	16	2	0
46. My work is challenging.	17	23	3	0	1
47. The workload is achievable.	9	30	4	0	1
48. I have the equipment and supplies required to do my work.	10	21	13	0	0
49. I want to further my own development in my career.	18	20	1	0	5
50. I am encouraged to work independently.	13	25	3	2	1
51. I come to work with a positive approach.	20	19	4	0	1
52. I struggle to stay positive throughout the day.	7	12	20	3	2
53. I regard my job as a responsibility.	31	13	0	0	0
54. I know exactly what my tasks are.	21	22	1	0	0
55. I am allowed to decide my own working methods.	10	14	12	5	3
56. I am proud of my chosen career.	27	16	0	0	1
57. I am given the opportunity to take part in decision-making.	8	19	10	3	4
58. I feel that my work is of value to the department.	18	20	3	1	2
59. I set my own performance standards for my work.	18	20	3	0	3
60. I have a certain degree of authority in my work.	8	23	7	1	5
61. I have a skills development plan, which meets my specific needs and job requirements.	9	15	14	1	5
62. I have equal and fair access to education and training.	5	24	10	1	4

J. RECOGNITION

	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure
63. I am praised regularly for my work.	11	24	7	0	2
64. I have had at least 2 performance appraisals in the last year.	4	14	18	5	3
65. I feel at ease during appraisals.	4	18	14	4	4

66. I receive constructive criticism about my work.	2	16	18	1	7
67. The only time I hear about my performance, is when I do something wrong.	3	15	18	2	6
68. I get credit for what I do.	2	17	14	5	6
69. I am told that I am making progress.	18	14	5	0	7
70. I am seen as part of the team.	6	32	2	2	2
71. I feel that I have equal opportunity for promotion.	2	21	11	4	6

K. REIMBURSEMENT

	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure
72. My salary is acceptable in relation to what I do.	4	14	14	9	3
73. I earn the same as, or more than other people in a comparable job.	4	13	12	9	6
74. The basis of payment, for example overtime/bonuses, is reasonable.	4	17	14	6	3

What, according to you, could be changed to make your department a better place to work in?

CODE	SUGGESTIONS FOR CHANGE (Comments in Afrikaans were translated by the researcher)
1:5	*Upgrade of equipment and technology is essential. More team-building initiatives are required.*
1:8	*Equal job/duty distribution – I feel all staff should work hard (Have colleagues that don't pull their weight)*
1:10	*Communication is almost absent. Radiographers are not informed or given feedback on a regular basis, except through e-mails.*
1:11	*Better salaries and more recognition for work well done.*
1:12	*Management on all levels are non-existent and if there is management it is often done in a very unprofessional manner. There is definitive favouritism and any discussion is seen as criticism and therefore one does not even attempt it. Verbal abuse from management is also part of any discussion on a sensitive manner.*
1:13	*The last year was extremely challenging in the department with unacceptable (in my view) action from the university to remove our Head of Department. The interpersonal relationships at work were and are placed under tremendous strain.*
1:14	*Better teamwork and some members of staff MUST be addressed regarding their poor patient care.*
1:15	*All staff members should be treated equal, no favouritism! If two staff members make a habit of coming late they should be dealt with – not punishing the whole staff. Ask staff input on decisions that concerns them, don't just tell them what to do.*

1:16	*Some people in the department get away with doing nothing, while others have to do all the work. Management knows about this, but it would be nice if they can do something about it.*
1:17	*Regular team-building events across staff groups. A department newsletter for important communication and information to be circulated to all staff. Patient surveys forward and out-patients to evaluate our service.*
1:19	*Better communication between colleagues.*
1:20	*Have no idea!!*
1:26	*A general manager to co-ordinate maintenance of the building and surroundings. Better upkeep of the infra-structure such as floors, walls and garden.*
1:30	*I would appreciate an effort by the employer to create a friendlier environment for health workers. Small things e.g. clean environment and well-maintained buildings could make a difference.*
1:33	*Team-building. Tea room. English as the universal language. Interaction between different members of the team: nursing, radiographer, doctor. A motivated, positive HOD with adequate interpersonal and people skills.*
1:35	*The atmosphere between senior staff member and junior staff members need to be addressed. A tearoom where everybody can relax in lunch and tea time. And effort to address underlying conflict at work needs to be done.*
1:36	*Staff need to be equipped to deal with conflict better.*
1:43	*I work in Radiation therapy, but my HOD and supervisor (that know very little about what I do) are Social Workers in the Department of Social Work. They have little knowledge of what Oncology Social Workers should know or do. Like in Private Practice I think it is time that we form part of the department where we work.*
1:49	*The shortage of staff is sometimes a source of frustration.*
1:51	*Improve the team spirit, for example by holding a "theme day" once a month/term. Team building.*
1:53	*The in and out doors are too open for everybody. You don't know if the persons are really booked or if they come in to do their own things. It sometimes feels a little bit un-save.*
1:55	*Respect one another in their different functions and see them as valuable, no matter if you're a doctor or a cleaner.*
1:57	*Team building activities to build relations and trust. Regular open discussions to eliminate misunderstandings. Regular CPD activities in the department allowing organising of work duties to allow 100% attendance. Planning and treatment passages to operate as a unit and all new protocols made known and available to all staff. Also available to staff on leave when they return to work.*
1:60	*I am still very new in the department, so at the moment I am very happy with the way things are.*
1:61	*Better teamwork. More staff. Better co-operation from nurses and other categories for example: porters, staff in equipment stores, workshops, etc.*
1:102	*Friendly colleagues.*
1:103	*More support from the supervisors.*

1:104	*That we as staff must work in co-operation of each other.*
1:105	*Attitude of staff. Show more interest in each other. Give credit to people where it is needed. Teamwork will be appreciated.*
1:107	*Honesty between the personnel. Better communication.*

Do you have any other comments?

CODE	FINAL COMMENTS
1:12	*In all my 35 years of working in different departments I have never felt as insecure in my job as at this moment. It is very sad for me to end my career like this.*
1:13	*It will take much time before relationships improve in the department.*
1:17	*A staff of the month award – money, hamper, and voucher? Department staff meeting with nominated reps from all groups to attend.*
1:20	*Not sure who is referred to as supervisor and who is head of department. That could change the outcome of my answer-sheet COMPLETELY!!*
1:26	*The department stands out as one that delivers an excellent service. We get many compliments for the initiative of staff to beautify their working environment.*
1:35	*The situation is getting better.*
1:43	*Since we are only 3 social workers in the department, any results published on the internet will expose us and our opinion – in other words: I doubt the confidentiality of the study.*
1:58	*Interpersonal and interdepartmental relationships need to improve for better work-ethic. Department heads not very approachable or transparent. More open meetings and discussions about changes in department protocol before it happens.*
1:106	*I love my job, enjoy it feel that is value to my patients. Could do better if I have better support from my nursing head of department.*
1:107	*X-Block is a good place to work.*

Thank you kindly for your time and your valuable input.

APPENDIX J: Survey Questionnaire coded results – Group 2

Survey nr: ……

REFERRING DOCTOR SATISFACTION QUESTIONNAIRE
(GROUP 2: n=64)
CONFIDENTIAL

Please answer all questions as thorough as possible. This questionnaire should not take more than ten minutes of your time.

Tick the appropriate answer:

1. WHERE ARE YOU STATIONED?

Tygerberg Hospital	29
Secondary Hospital	16
Day Hospital or Clinic	8
2 Military Hospital	1
Private Practice	10

2. WHAT IS YOUR RANK?

Consultant	36
Clinical Registrar	16
Medical Officer	1
General Practitioner	11
Other	0

3. FROM WHICH DEPARTMENT ARE YOU?
(See Table 4.4 in Chapter 4)

4. HOW OFTEN DO YOU REFER PATIENTS TO THE DEPARTMENT?

Daily	0
More than once a week	2
Once a week	3
Every second week	10
Once a month	11
A few times a year	37
Once a year	1

5. WHO USUALLY MAKES THE APPOINTMENT?

Myself	8
Receptionist	54
Sister in the ward	2
The patient	0

6. Please answer the following questions:

QUESTION	YES	NO
a) When you phone to make an appointment, is the telephone answered promptly?	47	9
b) When you phone to make an appointment, is the telephone answered professionally?	55	1
c) Are your clinical questions answered to your satisfaction?	58	2
d) If you ask to speak to a doctor, is there one available to talk to you?	43	20
e) Is there a long waiting list for your patients at the clinics?	30	34
f) Do you receive follow-up reports about your patients?	6	56
g) Do you receive follow-up reports by fax?		1
h) Do you receive follow-up reports by mail?		1
i) Do you receive follow-up reports electronically?	6	1
j) Are the reports clear?	5	
k) Would patient leaflets be of value to your patients?	59	4
l) Are you of the opinion that your patients receive excellent quality treatment at this department?	64	
m) Do you have a problem admitting patients to the Oncology ward?	2	54

7. Is there anything specific you would like to bring to our attention?

CODE	COMMENTS
2:4	*Follow-up reports are not that important, pt stays @ Oncology after initial diagnosis*
2:13	*Reports not too important*
2:37	*Part of combined clinic with Oncology*
2:50	*Reports not a problem – part of a combined clinic meeting weekly*
2:56	*Refer patients to Grootte Schuur mainly*
2:63	*Do combined weekly clinics - Oncology*
2:64	*We mainly refer patients for financial reasons*
2:69	*Wards are often too full*
2:75	*We don't admit the patients, Oncology does*
2:78	*We have our own leaflets. I don't admit pt there they would be admitted through the clinic*
2:84	*I refer pt's for financial reasons*
2:94	*See patients at the combined clinic weekly*
2:118	*We don't really admit a lot of patients*
2:154	*Pt's are normally admitted through the clinics @ X-Block. After referring them to oncology, they would be "handled" by them*
2:192	*Staff @ X-Block always very helpful*

Thank you very much for your participation.

APPENDIX K: Survey Questionnaire coded results – Group 3

Survey nr: …….

PATIENT SATISFACTION QUESTIONNAIRE
INTERVIEW QUESTIONS
(GROUP 3: n=230)
CONFIDENTIAL

Please answer the following by ticking the appropriate block or filling in the answer on the dotted line.

1. SEX

Male	Female
115	115

2. AGE
Ranges from 13 – 93.

3. HIGHEST QUALIFICATION?

Standard 5 / Grade 7 or lower	47
Standard 6 or 7 / Grade 8 or 9	66
Standard 8 or 9 / Grade 10 or 11	54
Standard 10 / Grade 12	54
Standard 10 / Grade 12 plus Diploma or Degree	9

4. HOW MANY TIMES HAVE YOU VISITED?:

Department	**Times Visited**				
Oncology unit at Tygerberg Hospital?	<5	>5	>10	>20	
	52	56	70	52	
Other Oncology units?	<5	>5	>10	>20	Never
	32	16	0	0	182

5. HOW DO YOU GET TO THE DEPARTMENT?

Taxi	71
Bus	59
Train	25
Own Transport	47
Lift from relative/friend	28

6. HOW LONG DOES IT TAKE YOU TO GET TO THE DEPARTMENT?

Less than 30 minutes	112
More than 30 minutes	73
More than 1 hour	22
Longer	23

7. HOW MUCH MONEY DO YOU PAY TO GET TO THE DEPARTMENT?

R7 or less	116
More than R7	51
More than R15	37
More than R20	26

8. ARE YOU CURRENTLY A WARD PATIENT AT TYGERBERG?

Yes	No
115	115

9. WHO MADE YOUR APPOINTMENT?

Yourself	9
Referring Doctor	46
Referring Doctor's receptionist	161
Sister in the ward	3
Other ……..	11

10. DO YOU KNOW WHY YOU ARE HERE? EXPLAIN BRIEFLY.

Most patients understood that it was for treatment of cancer, whether they understood what type of cancer or not.

11. PLEASE GIVE YOUR OPINION BY TICKING THE MOST APPROPRIATE RESPONSE TO THE STATEMENT:

	Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**	**Unsure**
a) The department has convenient hours of opening	112	88	9	0	21
b) It was easy to find this department	110	99	9	0	12
c) The departments within the Oncology unit are well sign posted	79	77	42	2	30
d) The unit has a pleasant atmosphere	114	100	13	0	3
e) The hospital is clean	96	97	26	5	6
f) The toilets are in good repair	93	105	18	8	6
g) The toilets are clean with soap and paper provided	117	94	13	4	2
h) I had to wait a long time to get my folder	12	20	101	86	11
i) There was a comfortable area and seat for me to sit while I waited	100	121	0	0	9
j) The person who issued me	131	98	0	0	1

	my folder was helpful					
k)	The doctor/s who saw me were polite	115	110	4	1	0
l)	The doctor/s who treated me listened to my problems	114	103	11	1	1
m)	The nurse who looked after me in the clinic listened to my problems	99	105	15	2	9
n)	I was pleased with the way I was treated in this department at the hospital	130	94	3	0	3
o)	The doctor/s explained to me what was wrong with me	125	92	5	0	8
p)	The staff who treated me listened to my problems	121	81	15	9	4
q)	The staff made sure I understood everything	105	98	19	1	7
r)	The staff made sure they explained in my own language	106	94	16	10	4
s)	I would like more information about my treatment	3	17	108	95	7
t)	The radiographers who treated me explained my treatment to me	104	103	13	2	8
u)	My appointments given on my appointment card were kept	58	116	21	16	19
v)	My privacy was respected by all the staff	121	94	7	6	2
w)	I did not have to wait long for my medicine/pills	90	88	16	11	25
x)	They explained how I must take my medicine/pills	89	89	16	11	25
y)	I do not mind returning here to this unit if it is necessary to do so	125	90	4	0	11

Any further comments about your experience in this hospital:

CODE	COMMENTS (Comments in Afrikaans were translated by the researcher. Comments that indicated "no problems" or "very happy" were omitted due to the volume.)
3:2	*Everybody was very good for him.*
3:4	*Still does not feel confident about going home. Need to see Dr and the social worker. Need a wheelchair, body is very sore.*
3:7	*Did ask about the follow-up, he is from the Eastern Cape and wants to know if*

	he has to come to Cape Town for his follow-up visit. Referred to clinic.
3:8	*Coughing a lot at night – the ward does not have cough syrup, will ask the doctor.*
3:9	*Wants to know what will happen after the radiation – who will he see?*
3:10	*Treatment was always late.Staff was friendly. Wait @ clinics too long.*
3:11	*Uncertain about the follow-up*
3:12	*They are always late. They let me come from the ward and then I wait at the machine.*
3:14	*Impressed and department is like home. Nice, clean and attractive. Compatible to me.*
3:17	*Very happy and felt at home.*
3:18	*Brilliant. Staff and everything great and friendly.*
3:20	*Staff friendly and helpful.*
3:21	*Staff displays a unique combination of competency an humanity. I am forever grateful to have benefitted from their shared wisdom and clinical expertise.*
3:23	*They are always late.*
3:24	*Everybody is very friendly and the place is clean.*
3:25	*The girls on the machine are very friendly and always helped me.*
3:26	*I did not understand everything they explained, but they were very busy and I did not want to bother them.*
3:28	*They were late every day at the radiation, but I did not care to wait.*
3:29	*Everybody is very positive and always treat me with respect.*
3:31	*They are a little late sometimes. You always wait long at the clinics to see the doctor.*
3:32	*I got to the toilets a few times when there was no toilet paper available.*
3:34	*I felt as if the doctors were too rushed to really listen and just wanted to explain what they were going to do without really listening to me.*
3:36	*Some entertainment in the waiting areas would be nice, especially when the machine breaks down. Don't mind waiting, but it gets boring.*
3:37	*You sometimes wait long at the machines, but not every day. Dr du Toit is very friendly and always listens. Everybody is very friendly and professional.*
3:38	*The toilets are not always clean. The girls treating me are very friendly. It is not easy to be amongst all these sick people.*
3:39	*Worried about his family. Asked him if he would like to see the social worker – he said yes. Will organize.*
3:40	*Everybody is very friendly. The nurses are friendly and always help.*
3:44	*Struggling to eat. Lots of pain.*
3:45	*Feels very scared about the chemotherapy – not ready.*
3:47	*Everybody tries to help all the time – he does not move easily anymore.*
3:49	*Don't have problems, feels shy for the girls treating him.*
3:50	*Machine is always broken, you sometimes wait very long.*
3:51	*Always wait very long.*
3:52	*The waiting room is very friendly and you can always sit and chat there.*
3:54	*The girls are very friendly. You wait very long at the clinics.*
3:58	*The treatment is going to be for 5 weeks. She is missing her children and has to rely on family to look after them.*

3:59	*It is a lot of trouble to come in every day for such a short treatment, but he has to because they can cure him.*
3:61	*Feels a little confused, but still hopeful.*
3:64	*The ward (F-ground) is not nice. The women there are complaining and the food is terrible.*
3:65	*Worried about the radiation – wants to know if it will work.*
3:66	*Does not really know what is wrong, feels uninformed, doctors very busy, do not want to bother them.*
3:69	*Very glad he ended up here for radiation.*
3:71	*Very glad the girls can speak Afrikaans, he does not understand English very well.*
3:72	*The oncology unit is very clean.*
3:73	*It is better here than at the main hospital, there you wait a whole day for your medicine.*
3:76	*Crazy about Sr Kruger, she is always friendly and ready to help.*
3:77	*Very tired, but it is from the radiation.*
3:80	*Had to wait a really long time in planning an then again at the machine, wanted to know if it will always be like that – tried to re-assure the patient.*
3:81	*Very worried about her daughters and wants to know if they will also get breast cancer if she has it – tried to explain to her.*
3:87	*Feels sick, but is glad about the treatment.*
3:89	*No problems, just wanted to know if it is normal to be "burning" when he urinates – explained to patient.*
3:91	*Worried about family, don't want them to suffer.*
3:93	*Just tired.*
3:95	*Struggling to swallow, not hungry, throat really hurts.*
3:96	*Doesn't like the fact that you cannot wash properly, feels dirty.*
3:97	*Very tired, not eating properly – explain to patient.*
3:99	*The brachytherapy is not nice, she feel embarrassed.*
3:103	*The girls on the machine are very professional, but they are always late.*
3:104	*We don't always wait, but when we do it is long.*
3:105	*He is very patient, does not have problems.*
3:106	*No problems, just wishes the treatment was over yet, not nice to be sick.*
3:109	*The personnel in the ward is not very friendly, he sometimes feel that they can go through a little more trouble to be friendly.*
3:110	*It is expensive to come for treatment every day.*
3:114	*Very happy with the residence at Proteahof.*
3:115	*She wants to know if the radiation is working – explained to patient.*
3:120	*The chemotherapy was far worse than the radiation, but the radiation did not cause such nausea.*
3:122	*The food in the ward is always cold, but not too bad.*
3:127	*Wants to know if he can wash the rest of his body – explained.*
3:128	*Glad she is here, it is close to her house.*
3:130	*Struggling to eat, throat hurts and the skin is broken.*
3:131	*The ward (F-ground) is really bad, one struggles to sleep at night.*
3:134	*Happy with Proteahof (residence).*

3:135	*Lots of pains, tablets are not helping – referred to sister.*
3:137	*Struggling to urinate – explained.*
3:138	*Patient wants to see the doctor, explained the clinic days and sent him around to the clinic.*
3:140	*The girls help a lot and are very friendly.*
3:142	*The ladies in planning explained everything very well.*
3:146	*Patient wanted to know if she is going to wait this long every day – explained.*
3:147	*A problem with the food, his tongue is swollen and he cannot eat – referred to sister.*
3:148	*Patient is very confused, but is happy and doesn't want to complain.*
3:154	*Her skin hurts, but she has no complaints.*
3:155	*He is thankful for all the trouble and is glad to be here.*
3:160	*Patient is well, just started with radiation, the mask is terrible, but everybody is very friendly.*
3:162	*The nurses are friendly and always trying to help.*
3:163	*Worried about family at home. Still has a lot of pain and is worried about going home like that.*
3:164	*Not feeling happy, wants to go home.*
3:168	*The staff is very good; they explain everything very nicely and treats her with a lot of respect.*
3:171	*Patient is a little confused, but under the circumstances happy and no problems.*
3:172	*The ward is not nice, she is missing home, but she realises she has to get the radiation.*
3:175	*He comes from Paarl with the Patient Transport, and it is tiring, but he realises he has to do it to get better.*
3:176	*He has no appetite.*
3:179	*The "nurses" treating him is friendly and helpful.*
3:180	*No problems, just want to finish now, one week left.*
3:183	*The girls on the machine are very friendly, but they are always late.*
3:184	*The treatment is so fast: do they give him enough to kill the cancer? Explained.*
3:188	*Die ward is horrible, she misses her house and her children, the food is terrible.*
3:190	*She is very worried about her daughter.*
3:191	*He has a lot of pain, the syrup helps but it is worse at night.*
3:194	*He is so glad he has a bed every night and food to eat.*
3:196	*Patient is having trouble eating.*
3:197	*Everybody is very professional, especially the doctors, they treated him really well.*
3:198	*His pain is bad, but the morphine helps.*
3:203	*Worried about the cancer, does not understand where it comes from – sent a note to Doctor to explain.*
3:207	*Worried that he will be waiting as long as the first day for the rest of the treatment – explained.*
3:209	*She does not like the brachytherapy – it hurts her.*
3:211	*Patient very happy with the service and appreciative of all the help with her treatment.*
3:212	*Patient has his family with him, no problems and they are very happy.*

3:214	*Patient is struggling to swallow, feels as if there is a lump in his throat the whole time – explained.*
3:217	*Patient asks about the bathing – explained.*
3:218	*Worried about family, asked to see the social worker – checked.*
3:219	*Patient is struggling to talk properly, but seems happy generally.*
3:221	*Patient is feeling embarrassed, is getting electron treatment on the vaginal area and position is uncomfortable.*
3:224	*Patient is feeling weak and without energy, hopes it will get better.*
3:228	*No problem got all the information from doctor and is happy with the way he is treated.*
3:229	*Patient does not like the ward (F-ground), but at X-Block the people are friendly and it is nice to come here.*

12. If you have stayed over in the ward, please complete the following: (n=115)

	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure
l) The ward was clean	42	61	6	2	4
m) The bedding was clean	46	65	1	0	3
n) The food was tasty	35	61	12	7	0
o) Visiting hours were not long enough	4	9	56	34	12
p) The staff in the hospital ward answered all my questions about my illness	27	63	14	5	6
q) I was very bored during my stay in the ward	17	25	41	26	6
r) When I needed help at night, there was always a nurse to help me	18	29	39	25	4
s) I felt safe at night in the hospital	65	41	3	1	5
t) The staff have checked that I have transport to get me home	44	44	10	2	15
u) The hospital will inform my local health clinic about my future needs	1	9	13	13	79
v) If my friends are sick I will tell them to come to this hospital	66	39	2	1	7

13. Is there anything else you would like the department to be aware of?

CODE	COMMENTS (Comments in Afrikaans were translated by the researcher)
3:1	*Patient is relieved to go home.*
3:2	*The bed in the ward has too few pillows.*
3:6	*A very positive patient that is feeling very welcome in the ward.*

3:8	*Patient has social problems at home – advised him to see the social worker.*
3:9	*No problems, everybody is very nice.*
3:10	*The machine should book longer times per patient so they can sometimes be on time.*
3:11	*Patient is very happy, does not like complaining.*
3:12	*The food needs salt, but otherwise the ward was fine.*
3:14	*Medication late. Sisters laugh and make noise late at night. Lamps not working. Three days without clean bedding/sheets. Bored and disgusted/upset and nervous.*
3:16	*Sisters treated patient well. Toilets are dirty and there is never paper. Towels and pyjamas always get there too late, but when it does arrive, it is clean.*
3:17	*Patient feels well-informed and happy.*
3:18	*Patient sees the staff as joyful and pleasant and happy.*
3:21	*The patient feels the ward is filled with beautiful people.*
3:23	*Longer appointment times.*
3:26	*Patient needs more explanation*
3:32	*The bathrooms need attention.*
3:33	*The food was not the best.*
3:39	*It is nice to have a bed and meals three times a day. They are looking after him well because he is sick.*
3:40	*The nursing sisters are very friendly, but the food is not very good.*
3:45	*He feels sad about the disease, but is very appreciative about the treatment.*
3:54	*The patient feels that the clinics should be making appointments.*
3:64	*Patient does not like the ward.*
3:73	*The main hospital is horrible, since one arrives at 6 o'clock in the morning and end up waiting the whole day.*
3:79	*The ward is very noisy at night.*
3:82	*The patient does not like to complain, but she feels that the ward is not very private.*
3:87	*The place is nice and clean and everybody is friendly.*

3:92	*Half the time there is no toilet paper in the ward.*
3:103	*Appointment times should be kept.*
3:120	*The clinic passages are constantly full of people.*
3:122	*The food is always cold.*
3:138	*The doctor is too busy, he does not have time for the patients – the patient feels everybody is complaining.*
3:139	*The nursing sisters are very short and only do what they are supposed to be doing.*
3:150	*The staff is very professional.*
3:164	*This is a very negative and morbid place for the patient.*
3:170	*No problems.*
3:175	*The transfer takes long to bring them from the main hospital, but he doesn't worry.*
3:179	*No problems.*
3:188	*Not very happy in the ward, everybody is in a hurry and the nursing sisters are loud – no peacefulness.*
3:197	*The doctors at this department are all angels.*
3:211	*Everybody working here deserves medals.*

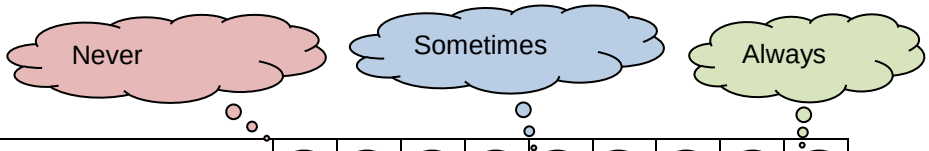
Thank you very much for your participation.

APPENDIX L: Work situation and motivation survey questionnaire (shortened)

WORK SITUATION AND MOTIVATION QUESTIONNAIRE

CONFIDENTIAL

Dear colleague,
People differ in their expectations and needs of their job and workplace. Please think about the job you do and consider what would make it better from your point of view. Your honest opinion would be valued and respected.
Survey nr: …….



WORK CONTENTS	1	2	3	4	5	6	7	8	9
I am interested in my work.									
My work consists of a variety of tasks which I know well.									
The tertiary education I received is adequate to help me perform my duties.									
I approach my job as an expert and strive to provide high-quality work.									
Opportunities for development and training are available to everybody.									
I approach my work as a means to a self-fulfilling life.									
I regard the contents of my work as responsible.									
I am proud of my chosen career.									
I feel that my work is of value to the department.									
I receive training on a regular basis.									
I have a skills development programme, which meets my specific needs and job requirements.									
There is fair work-distribution and no time for idleness.									

RECOGNITION AND RE-IMBURSEMENT	1	2	3	4	5	6	7	8	9
I am praised regularly for my work.									
I receive constructive criticism about my work.									
I have performance appraisals regularly.									
I get credit for what I do and achieve.									
I am told when I am making progress.									
I am seen as part of the team.									
I feel that I have equal opportunity for promotion.									
My salary is acceptable in relation to what I do.									
I receive the same as, or more than other people in a comparable job.									

WORKING ENVIRONMENT AND SAFETY	1	2	3	4	5	6	7	8	9
The department has a relaxed working environment.									
I find the tearoom to be an employee-friendly environment.									
There is a good working relationship between the different occupational groups.									
I feel safe at work during the day.									
My personal belongings are safe at work.									
I have not experienced abusive behaviour at work from either colleagues or patients.									
The hospital maintains a healthy and safe environment according to the Occupational Health and Safety Act.									
The hospital maintains the physical appearance of the hospital adequately.									
The hospital provides support to staff that experienced stressful situations.									

COMMUNICATION AND TEAMWORK	1	2	3	4	5	6	7	8	9
Communication on all levels of the department is up to standard.									
Interdepartmental communication regarding protocols and changes thereof is adequate.									
I find my direct supervisor approachable.									
My direct supervisor has integrity and treats our discussions as confidential.									
I do not experience favouritism from my direct supervisor.									
I find that management filters information down adequately and timeously.									
I trust that my supervisor and management will always have my best interest at hart.									
There is good communication from management regarding issues that influence my job.									
There is a good team-spirit among the department's staff members.									
I get the opportunity to mix with my colleagues and to communicate on work-related aspects.									
The team building sessions are fun and useful in building better team spirit.									
The department's staff members seem to get along with and take a personal interest in each other.									
When I have a personal problem my colleagues are understanding and accommodating.									
I am valued as a team member.									

SUGGESTIONS TOWARD FURTHER IMPROVEMENT:

……

……

……

APPENDIX M: Referring doctor satisfaction survey questionnaire (shortened)

REFERRING DOCTOR SATISFACTION SURVEY

CONFIDENTIAL

Dear colleague,
In the interest of improving our quality management system for improved service-delivery in the future, you are requested to answer the following questions regarding issues that are important to us. It would only take a few minutes of your time to answer and upon completion the survey questionnaire will be collected from you.
Contact person at the Oncology Department: …….
Contact telephone number:……..
Survey nr: …….

	1	2	3	4	5	6	7	8	9
Do you wish to receive follow-up reports regarding your patients?									
If you are receiving follow-up reports, are they clear?									
Is electronic communication acceptable to you?									
Is good telephone etiquette practiced in the department?									
Is a Radiation Oncology doctor always available to answer your clinical questions?									
Are your clinical questions answered to your satisfaction?									
Would clinical information booklets be of value to you?									
Do you get positive feedback from your patients on their return?									
Are you of the opinion that your patients receive excellent quality treatment at this department?									
Do you have a problem admitting patients to the Oncology ward?									

MALE	FEMALE	20-29 years		COMMENTS
		30-39 years		
		40-49 years		
		50-59 years		
		>59 years		

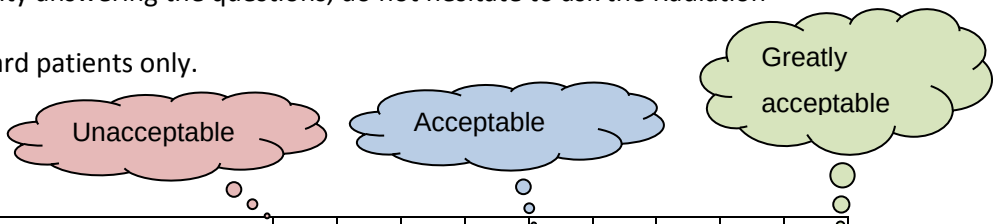
Thank you for your participation.

APPENDIX N: Patient satisfaction survey questionnaire (shortened)

PATIENT SATISFACTION SURVEY

CONFIDENTIAL

Dear patient,
In the interest of improving our quality management system for improved service-delivery in the future, you are requested to answer the following questions regarding issues that are important to us. It would only take a few minutes of your time to answer and upon completion you could hand it to one of the Radiation Therapists. You should answer by ticking the box underneath the number you choose. If you have any difficulty answering the questions, do not hesitate to ask the Radiation Therapist for an explanation.
The last 5 questions are for ward patients only.
Survey nr: …….



	1	2	3	4	5	6	7	8	9
How were the waiting times in the department?									
Were your questions answered?									
Was the information you received from the staff useful?									
Did you understand the procedure you underwent?									
Were the staff members friendly and helpful?									
Was the department clean and tidy?									
Were there comfortable areas to wait in?									
Did you experience the staff as competent and professional?									
Did you receive adequate support to deal with your diagnoses and treatment?									
Did you feel respected and valued?									
Have you received adequate attention during the time you spent in the ward?									
Did you experience the ward as clean and tidy?									
Was the food acceptable?									
Did you feel safe in the ward?									
Did the staff check that you have all your follow-up details prior to leaving the ward?									

MALE	FEMALE	<20 years		<u>What would you like to improve within the department? Feel free to make any suggestions.</u>
		20-29 years		
		30-39 years		
		40-49 years		
		50-59 years		
		>59 years		

Thank you for your participation.