

**Does a systematic approach to quality improvement in Hospitals
Accident and Emergency increase patient satisfaction more than management
exhortation: A case-study from Saudi Arabia**

**Thesis submitted in accordance with the requirements of the University of
Liverpool for the degree of Doctor in Philosophy**

By

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August 2005

Liverpool School of Tropical Medicine

DEDICATION

This work is dedicated to:

My country which give me the opportunity to proceed with this degree.

My father, Saad Mahrous and mother, Fatimah Mahrous who have prayed for me throughout all the time, giving me the power to continue the process of this degree, and who spent many sleepless nights waiting for my return home.

My loving wife, Faten Abdulgader AL-Serri; my beloved children- daughters, Sarah, Mernan, Joman and son, Abdulelah, who have served as the inspiration to fulfil my study and have given infinite patience and support throughout the period of my study.

ACKNOWLEDGEMENT

The success of this thesis could not have been without the contribution and assistance of many people.

I would like to express my gratitude and thanks to the Saudi Arabian Ministry of Health which has facilitated the means for me to proceed with my PhD.

My sincere gratitude goes to my supervisor; Dr. Dave Haran for his kind understanding, encouragement and advice that have proved invaluable. His guidance and unfailing support enabled me to overcome many difficulties throughout my study. The gratitude extends to various people in the Liverpool school of Tropical Medicine especially to Miss Chris Ellis, Miss Adele Garvey and Miss Teresa Jackson for their invaluable help throughout the various stages of the study.

My sincere thanks to Dr. Abdulgader AL-Tayb, Director General of Health Affairs in AL-Madinah Region for kindly allowing me to carry out the study and for providing me with the assistance and facilities necessary to complete the field study in the target hospital in Madinah.

I am grateful to all those people working in Madinah General Directorate of Health who actively contributed in collecting the required data, my special thanks to Mr Bader AL-Motaire and Mr Khaled AL-Jazole quality assurance department staff in Madinah General Directorate of Health who actively participated and supported me through the stages of data collection.

My thanks go to all the patients and guardians who participated in this study.

Finally, my thanks are extended to all those who are constantly striving to improve health care quality all over the world.

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Glossary of abbreviations and explanation of terms

A&E	Accident and Emergency
QA	Quality Assurance
KFH	King Fahad Hospital
OH	Ohud Hospital
MOH	Ministry OF Health
Intervention Hospital	King Fahad Hospital
Reference Hospital	Ohud Hospital
JCAHO	Joint Commission on Accreditation of Healthcare Organization
WHO	World Health Organization
ACHS	Australian Council in Healthcare Standards
MODA	Ministry of Defence and Aviation
TQM	Total Quality Management
CQI	Continuous Quality Improvement
EFQM	European Foundation for Quality Management
ISO	International Organisation for Standardisation
NHS	National Health Service
ACS	American College of Surgeons
ACEP	American College of Emergency Physician
MOI	Ministry of Interior
GOSI	General Organisation for Social Insurance
RCS	Red Crescent Society
A.H.	Muslim calendar that relates to the migration (Higrah) of Prophet Mohammad from Makkah to Madinah
ARAMCO	Arabian American Oil Company
PHCC	Primary health care centres
QAD	Quality Assurance Department
Emarah	The place where the governor, or the prince (Amir) of each region used to work in

Abstract

Does a systematic approach to quality improvement in Hospitals Accident and Emergency increase patient satisfaction more than management exhortation: A case-study from Saudi Arabia

By Mohamed Mahrous

Quality is a global concern to both provider and users of the services. Implementing quality is a systematic procedure that involves the participation of the whole staff in the organisation to effectively facilitate a transformation to a culture of quality. The concept of quality and quality assurance are new innovations in Saudi Arabia. Quality assurance started fifteen years ago as individual non official initiatives guided by active personnel without any local or national plans (Quality Assurance in Saudi MOH. 2004). In the year 2000, the Saudi Arabian Ministry of Health, as part of its commitment to introduce the concept of quality in health care, established a General Directorate of Quality Assurance which linked directly to the Saudi Minister of Health, the QA Council of the Ministry of Health under the presidency of the Saudi Health Minister consisting of all the key members in the MOH who gave their commitment and support to the new national QA activities within MOH hospitals. To implement quality, and to continue improving the health service organisation, there must be a quality framework and a strategy for implementing quality and for ensuring that the methods are used properly across the services.

The study aims to discuss how effective the conceptual quality framework developed and implemented as structured intervention for quality improvement in King Fahad Hospital A&E department compares to the improvement obtained from simple staff encouragement to do better in Ohud Hospital A&E in Madinah General Directorate of Health in Saudi Arabia, in other words to evaluate whether a systematic approach to quality improvement results in greater quality improvement than management exhortation of staff to "do better".

Methods:

A conceptual framework for QA has been developed, specific to hospital A&E departments and a systematic approach to QA has been designed based on this framework. This study is a case-study explaining whether the systematic quality improvement method implemented in KFH produces greater quality improvement than simple management encouragement of staff to do better, where no structured approach to quality improvement had been implemented in OH. The tool used to assess quality (respondents satisfaction) was a close-ended questionnaire, self completed by the patients or guardians, questionnaires were read out to non-literate patients or guardians and the answers were written by research team members on their behalf. The same questionnaire was used at both baseline and post-intervention stage to evaluate quality of services.

The framework has provided a mechanism for debating quality improvement strategies - plans, actions and initiatives - and has helped to generate a common understanding amongst the staff involved as to what is meant by Quality. It has also allowed staff to reconcile views and opinions on the priorities for quality improvements and assisted management to identify the factors that can slow down the process of improvement.

Results:

Quality improvements were achieved at both the intervention and reference hospitals, demonstrating that almost any effort to improve quality was successful in improving patient satisfaction. The systematic intervention proved more successful overall. Satisfaction with treatment time increased by 37 % in the intervention hospital, compared to a 21 % increment in the reference hospital. Satisfaction with explanation of any medical procedures to be done, increased by 33% in the intervention hospital, compared to a 24 % increment in the reference hospital. Satisfaction with explanation about medication increased by more than 34 % in the intervention hospital, compared to a 21 % increment in the reference hospital. Satisfaction with nursing care increased by 30 % in the intervention hospital, compared to more than a 20 % increment in the reference hospital. Satisfaction with waiting time increased by 34 % in the intervention hospital, compared to a 24 % increment in the reference hospital. Satisfaction with information about medical diagnosis before discharge from ER increased by more than 33 % in the intervention hospital, compared to a 22 % increment in the reference hospital. Satisfaction with overall treatment received in ER increased by 35 % in the intervention hospital, compared to a 19 % increment in the reference hospital.

The framework has helped to pinpoint weaknesses in the organization of facilities that should be addressed in order to improve service performance. Quality dimensions relating to hospital A&E services were identified as; effectiveness, Accessibility, interpersonal relations, technical competence.

Educational level was found to have an impact on the level of satisfaction in the target hospitals.

Conclusions:

Both the systematic and the staff encouragement led to substantial improvement in quality as judged by patient satisfaction in both study hospitals. Overall the improvement in the intervention hospital (KFH) was of the order of 30 percentage points compared with twenty percentage points in the reference hospital (OH). For specific aspects of the services in A&E the improvements at KFH were statistically significantly larger than at OH but not enough to support the argument that the framework developed for introducing a systematic approach to quality improvement in hospital A&E department in Saudi Arabia has led to an intervention that demonstrates substantial advantages over those that can be achieved by encouragement alone. A further survey twelve months after the follow-up assessment would prove extremely useful in testing the hypothesis that this framework and a systematic approach to quality improvements produced more sustainable results than the informal approach.

Chapter one

Introduction

1.1 Introduction

The concepts of health care quality and quality assurance are relatively new innovations in Saudi Arabia. Of the many dimensions relevant to health care, technical skill is the only dimension that has been studied in detail. Quality assurance started fifteen years ago as individual and informal initiatives guided by active personnel without any local or national plans (Quality Assurance in Saudi MOH. 2004).

Quality of care in Accident and Emergency services in Saudi Arabia has received little attention in international literature until the Government of Saudi Arabia introduced new policies through the newly established Quality Assurance Department in the Ministry of Health, which requires quality improvements in health services that address the clinical standards of health care and responds to the needs of clients and their carers.

A review of the literature has established that current international frameworks employed in Quality Assurance require modification and adaptation for use in the context of the Middle East. Accident and Emergency services are also rather different from the Out-Patient or In-Patient settings in which most quality frameworks have been developed.

Several factors affecting quality in the provision of health care in Saudi Arabian hospitals were identified by (Dixon N. 1982). These are:

- The pace of construction and opening of new hospitals,
- The staffing of Saudi Arabian hospitals by personnel trained in several different countries,
- The lack of long-term comprehensive medical care for most Saudi patients,
- Difficulty in securing and maintaining adequate hospital supplies and equipment.

Dixon concluded that hospital quality assurance, although a western idea, holds merit for hospitals in Saudi Arabia, but for reasons markedly different from those which apply to the US and Western Europe. Introducing standards and quality assurance programs can directly benefit the quality of patient care in Saudi Arabia by helping to establish health care objectives applicable to the kingdom and its people, and to measure achievement of those objectives. Despite the importance of these factors mentioned, what is equally important is a lack of quality culture, which actually hinders the installation of a successful quality assurance program (Al-Qatari G. 1997). Another argument that can be put forward is the absence of management commitment that supports the creation of quality culture leading to a successful quality assurance program.

In the year 2000, Saudi Arabian's Ministry of Health, as part of its commitment to introduce the concept of quality in health care, established a General Directorate of Quality Assurance which linked directly to the Saudi Minister of Health, QA Council in the Ministry of Health under the presidency of the Saudi Health Minister consisting of all the key members in the MOH to pledge their commitment and support to the new national QA activities within MOH facilities.

Quality is a global concern to both providers and the users of the services. Quality is elusive in nature, so many definitions stated for it are still often mis-interpreted “goodness, or luxury, or shininess, or weight”, are different wordings but have similar meaning, which proves how elusive quality is (Crosby P. 1979). Quality in health care is a domain term for a coordinated team(s) of staff and organisational development process taking its strength from knowledge and good practice. Quality in health care has a unique character in that it helps an organisation and its staff to develop experience and knowledge; use of new tools in a systematic way to implement, evaluate, analyse, and resolve any quality problem. This results in quality assurance being considered as a management attitude that can help an organisation to continuously improve quality.

Health care quality is characterised by increasing international attention as a central, rather than optional function of health care. This reflects a number of issues such as, increasing technical sophistication of modern health care, the scope for patients to be harmed by health care interventions, the increasingly complex system from within which health care is delivered, the reorientation to consumerism and the recognition of the patient as a consumer of health care, and the lack or shortages in resources available to health organization, compared to the increasing level of patients needs. Quality assurance is "all the arrangement and activities that are meant to safeguard, maintain, and promote the quality of care" (Donabedian A. 1980). Quality assurance is a system of motivating and incorporating the staff to participate in a service improvement process by creating quality culture.

Implementing quality is a systematic procedure that involves the participation of the whole staff in the organisation to effectively facilitate the transformation to quality

culture. To implement quality, and to continue improving the service, a health organisation must have a quality framework and a strategy for implementation for ensuring that the quality methods are used properly across the services. There are no appropriate quality software or quality packages that a health care organisation can buy and apply to implement quality assurance. Health care organisations should adapt or develop systematic approaches for the implementation of quality, as no specific approaches can be developed, ready for all circumstances and for different settings. (Berwick D., Godfrey A. et al. 1992) outlined an important factor that a health organisation should consider prior to quality implementation which is that, "there is no magic formula for quality management organisation. What works well in one health care organisation might not work in another. Each health care organisation has to recreate a quality management structure in its own image and likeness". (Saturno P. 1999) defined quality models as a representation of reality, the better the fit with reality and the better the explanation of the different aspects of this reality are, the better the model.

Quality program is an important reference for those organisations aiming to improve their services. Research in the field of assessing the effectiveness of any quality improvement program is needed. Despite the presence of many approaches to improve quality, little research available in assessing how effective a quality program is (Ovretveit J. 2002; Ruiz U. and Simon J. 2004).

Service quality improvement poses interesting challenges that have engaged academic and practitioners in the developed countries (Andaleeb S. 2001). Despite the importance of quality, to date there have been few sustained QA efforts in developing countries. Many evaluations have focused on measuring changes in

mortality and morbidity, or on measuring coverage rates. Few have emphasised the quality of services or the process of service delivery. initiatives in developing countries to implement or improve quality are similar in that it follow so many approaches or personal initiatives that leading to different quality issues being missing (De Geyndt W. 1995; Brown L. , Franco L . et al. 2001). In Saudi Arabia, no existing quality frameworks developed locally or nationally to implement quality in hospital is known to exist.

In an emergency department quality is elusive as it task to do anything for anyone at any time (Adams J. and Biros M. 2002). In Saudi Arabia, hospital emergency departments are one of the busiest hospital departments always accompanied by large numbers of attendance with high rate of user's dissatisfaction. Hence in attempting to improve quality of care in Saudi Arabian A&E departments the first step required is the development of a new framework focused on the particular requirements of clients attending such services.

1.2. The aim of study

The main aim of the study was to evaluate how well a structured and systematic approach to Quality Improvement compares with a less formal approach in hospitals Accident and Emergency Services. The structured approach was designed from a Quality Improvement Framework that was developed with reference to existing literature, then tested and refined by discussion with key staff in two hospitals in Madinah. The two hospitals selected for study are King Fahad Hospital (KFH) and Ohud Hospital (OH). The evaluation was done through surveys of client satisfaction at both hospitals, before and following the introduction of the structured intervention at KFH and the informal (unstructured) intervention at OH.

1.3. The objectives

The study objectives were classified into major objectives and secondary objectives as follows:

The major objectives of the research:

1. To develop a framework for quality improvement in hospital A&E departments in Madinah MOH Hospitals (Saudi Arabia) that would support the design of the structured intervention and integrates quality with the strategies of services to be the choice for organizational success
2. To evaluate a Quality Improvement intervention for improving A&E services by comparing how successful such a structured quality intervention is to an informal initiative in which management exhorts staff to try to improve quality.

The secondary objectives are:

1. To identify which dimensions of service quality were seen as important by the A& E staff, managers, and the public using the services in the hospitals concerned.
2. To develop an instrument for measuring levels of service quality at baseline, before the intervention was applied, and at post- intervention, six months after the intervention was undertaken.
3. To evaluate the quality improvements within the intervention and reference hospitals.
4. To assess the influence of respondent characteristics on the levels of satisfaction.

1.4. Study site selection criteria

This study is a case-study involving KFH and OH (MOH) hospitals A&E department in Madinah General Directorate of Health. The selection of this speciality, these hospitals, and this region were due to the following:

1.4.1. Why did this study choose the speciality of A&E?

A&E services in Saudi MOH hospitals, in general, are one of the busiest hospital departments. In most hospitals in Madinah Region, this department is characterised by large number of visits (more than 1,000 weekly) and in the authors experience clients express a high rate of dissatisfaction. The increased number of visits reflects several factors, such as the inefficient primary health care services, long waiting times to get appointment in the hospital, poor referral system from primary health care centres. Hence, patients prefer to visit the hospital A&E directly rather than wait for an appointment. Madinah is one of the two holiest cities for Muslims all over the world. About two million Muslims perform their pilgrimage in the holy lands over a period of time from one to two weeks every year. Such visitors tend to use hospital emergency departments as their main source of health care. There is a consequent pressure on the hospital A&E, which detracts from the efforts of hospitals to deliver quality services to its clients within the limited resources available. The fact that many of the doctors and nurses in A&E do not speak Arabic language could also be a reason for dissatisfaction.

1.4.2. Why the study selected these two hospitals?

The two hospitals chosen for the study were selected because of the author's employment and the fact that they are the only big general hospital providing all services for the community of Madinah. Other hospitals in Madinah are either very

small (with 50 bed capacity) or specialized hospitals such as psychiatric. The two hospitals selected were also willing to cooperate in the study. There are no obvious reasons why KFH and OH are not representative of other public hospitals in MOH, (Saudi Arabia).

1.4.3. The study region

The selection of the study region is due to certain factors as follows:

- Madinah is the place where the author used to work.
- Health services provided from hospitals or primary health care centres in Madinah are similar to services provided from other health regions in Saudi Arabia under MOH.
- Satisfying the high demand of A&E services from Madinah hospitals is a challenge due to the uniqueness (compared to other region) of it as a holy city visited by large numbers of people throughout the year who use hospitals emergency services as his/her source of health care.

1.5. The Organisation of the Study

Based on the above aim and objectives, the study report is organised into the following chapters:

Chapter 1: Introduction

In this chapter, an overview of the study is presented to provide a perspective and it outlines different attributes and definitions explaining the scope of the study. The aim of the study and its objectives are presented. The study site selected is also described from the point of the study speciality, hospitals, and region. Finally, the plan of the thesis is described.

Chapter 2: Literature Review

This focuses on the key elements of health care quality that are relevant to A&E services, reviews a number of quality frameworks that support structured approaches to quality improvement, discusses various structured approaches to implementing quality improvements and considers the issues involved in the measurement of quality.

Chapter 3: Situational Context of the Study

It is essential to give the reader sufficient information about Saudi Arabia. Within this chapter, the geographic and socio-demographic characteristics, the political and economical considerations, and the health care system in the kingdom, policy and organisation for quality in health care in Saudi Arabia are explained. The effect of different Saudi development plans on the health sector is discussed. Different providers of health care in Saudi Arabia will be pointed out to explain the diversity of health services providers. Specific information about the region (Madinah) where

the study was applied will be mentioned, regarding geographic, demographic considerations as well as sources of health services there.

Chapter 4: Study Methodology

This chapter describes the methods used to draft and develop the quality framework that will be used to guide the implementation of the structured intervention. The tool developed to evaluate quality level before and after the interventions (systemic & informal) applied is also discussed. Finally, the intervention implementation process in the target hospitals based on both the quality framework developed and the comparative process is discussed as well.

Chapter 5: Results

This chapter deals with data collected using the quality assessment tool before and after the interventions in the study target hospitals. This is to gain information about quality level in the target hospitals at baseline where no quality intervention has been applied and at post-intervention stage. The quality level measured as how satisfied the respondents are before and after the intervention is implemented.

Chapter 6: Discussions

Based on the results of data analysis, the discussion is presented in a way that links the findings to each study objective.

Chapter 7: conclusions

The study had a number of distinct objectives, hence certain conclusions are set out in relation to each objective.

Chapter Two

Literature Review

2. Chapter summary

This literature review has six main sections. In section 2.2 (and sub-sections) we review the concept of quality and quality assurance in health care moving from the general considerations to a particular use of quality and QA in Saudi Arabia and in A&E services. Section 2.3 describes the use of quality models and frameworks as a means for developing quality improvement interventions. In this section, a number of such quality models and frameworks are reviewed and some comment is made on their use in the context of A&E services. Section 2.4 discusses how quality has been monitored through the use of satisfaction as an indicator. This section moves towards discussion of the particular use of satisfaction monitoring in A&E. Section 2.5 describes some of the gaps identified in the literature review to which this study can address itself. Section 2.6 summarises the whole chapter into a conclusion connecting the literature review with the aim of the study.

2.1. Literature review search strategy

The literature search strategy was designed to identify relevant literature under the broad headings of Quality Improvement and Quality Assurance. This was done in two steps:

Step 1: Search the catalogue of the University of Liverpool (Harold Cohen, Sidney Jones and STM Libraries) and the Saudi MOH Library for relevant textbooks, journals, magazine, policy documents, academic paper, conference paper, internal reports under these headings.

Step 2: Search online databases - MEDLINE, PUBMED, and OMNI using the following key words: “quality /and quality assurance, health care”, “quality /and quality assurance, health care in Saudi Arabia”, “framework to implement quality”, “quality models, quality assurance implementation strategies/projects in developing country”, “quality / and hospital emergency services”, patient satisfaction / and hospital emergency services “standards settings/ and dimension of quality”. Relevant articles from January 1975 through December 2003 were considered for inclusion in the review.

2.2. Values and dimensions of quality

2.2.1. Historical background

Quality in health care is often taken to be an innovation of the late twentieth century, but a concern about the quality of care is as old as medicine itself (Maxwell R . 1984). (Ellis R. and Whittington D. 1993) mentioned that there were systematic schools of medicine and thus traditions of good practice in ancient Egypt, Assyria, China, Japan and Mexico. Written codes of professional conduct for physicians were current in Greek and Roman times and some (like the Hippocratic Oath) remain points of reference for practitioners. These days quality is recognized as the most important part of a strategy for health providers to stay in business in the health care industry, and it is fast becoming a global issue equally important in rich, middle income and resource poor countries. Modern thinking on quality of health care incorporates concerns for views of both the provider of the service and the service users.

Before the 1980s few countries paid systematic attention to the quality of health care and developing countries have been even slower to catch up. (De Geyndt W. 1995; Brown L. , Franco L . et al. 2001; Al - Mandhari A. 2002).

2.2.2. The concept of quality

Quality means different things to different people. It might mean reputation, durability of a product, right price, prompt service, high standard, friendly reception, availability of services and many other things. The term quality is elusive in nature, sometimes being employed in the manner of “Goodness, or luxury, or shininess, or weight”, (Crosby P. 1979), sometimes being used as “fitness for purpose” Juran (1989).

Avedis Donabedian, possibly the greatest commentator on the issue of quality in health care in the past 40 years(Donabedian A. 1966; Donabedian A. 1980; Donabedian A. 1985; Donabedian A. 1986; Donabedian A. 1987; Donabedian A. 1988; Donabedian A. 1989; Donabedian A. 1991; Donabedian A. 1994) is perhaps most famous for introducing the Structure–Process-Outcome model of quality into health care. From the standpoint of this model, the most important aspect of quality initiatives is that they are organized in systematic ways that are capable of being described practically by criteria, indicators and standards.

Is Quality fitness for purpose?

One influential definition of quality is simply expressed as "fitness for purpose", reflecting a belief that quality is the responsibility of an individual department in the organisation by working in accordance with those specifications to achieve fitness for use (Juran J . 1989). On the other hand (Deming W. 1982) defines quality as " not

just satisfying but delighting the customer by continuously meeting and improving upon agreed requirements”, The two definitions are perhaps extremes of the understanding of the term quality in industrial settings. They have both transferred across from industry to health care services (Maxwell R . 1984; Parasuraman A., Zeithaml V. et al. 1985; Feigenbaum A. 1991; Ovretveit J . 1992; Saddique A. 1995). Fitness for purpose in the health context might be understood as "meeting the agreed requirements of those for whom the service is provided" (Stahr H., Bulman B. et al. 2000).

Is it excellence of service?

There is often a connotation with the term “excellence” of service. However, in health services a quality service is increasingly being seen as a service that meets customer's needs within the resources available (Ovretveit J . 1992). This implies that services can demonstrate quality despite the level of resources expended on them, provided that they use the resources in an efficient way.

(Ovretveit J . 1992) argues that quality should include the idea of customer responsiveness, that is of “giving customers what they want”. For him, health care quality means "fully meeting requirements at the lowest cost" or more specifically "fully meeting the needs of those who need the service most, at the lowest cost to the organisation, within limits and directives set by higher authorities and purchaser”.

From the above we might agree with Doyle and Haran who have consistently argued for the pragmatic view that :-

"Quality of care does not mean sophisticated or exclusive care, but is concerned with fully meeting the needs of those who need the service most, at the lowest cost to the organisation, within the limits set by higher authorities" (Doyle and Haran, 2001)

From this perspective we can say that quality is achieved in health services when accessible services which meet the needs of the clients are provided in an efficient, cost effective, and acceptable manner.

Should quality be defined from the perspective of service providers or the clients of the service?

A quality service has to satisfy a number of requirements and interest groups which are often in conflict. Thus the service users and services providers may have radically different views on what constitutes quality. In health care for example, quality includes at least three perspectives (Ovretveit J . 1992; Kaldenberg D. and Regrut B. 1999) :

- The clients' perspective (what clients and carers want from the service affecting both individuals and populations),
- The professionals' perspective (whether the service meets needs as defined by professional providers and referrers, and whether it correctly carries out techniques and procedures which are believed to be necessary to meet client needs) and,
- The management perspective (the most efficient and productive use of resources, within limits and directives set by higher authorities.

(Morgan C. and Murgatroyd S. 1995) state that it is "not a quick fix but a demanding philosophy..[which should]....involve everyone, is about both systems and culture, with decision-making based on data, not opinions or impressions". More recent views on quality increasingly exclude opinions and feelings as touchstones of quality in favour of more quantitative indicators.

2.2.3. Quality in health care

The complexity of defining quality in health care gives it a multidimensional nature with differing views and emphasis.

(Donabedian A. 1980) views good quality care as the kind of care in which medical science and technology are applied in a manner that maximizes their benefits to health without correspondingly increasing risks. He stated, "the degree of quality is...the extent to which the care provided is expected to achieve the most favourable balance of risks and benefits. High quality medical care is traditionally thought to consist of scientific or technical components and an interpersonal component that together enable the patient to attain the highest possible functional state and psychosocial result". This traditional approach to quality has several important limitations. (Linsk J. 1990) puts three limitations to Donabedian's definition, which are: the non-consideration of the other clients in health care; the static approach to quality; and the tendency to focus on physician as well as on certain aspects of physicians' performance. (Laffel G. and Blumenthal D. 1993) add another limitation, which is that it tends to underemphasize the contributions of non-physician and organisational process generally.

(Maxwell R . 1984) defines quality in health care according to a set of features of the service; - access to service, relevance to need, effectiveness, equity, social acceptability, efficiency and economy. The Joint Commission on Accreditation of Healthcare Organization (JCAHO) also share some of the dimensions mentioned by Maxwell as follows:

- Efficacy: Is the care/product useful?
- Appropriateness: Is it right for this patient?

- **Accessibility:** If right can this patient get it?
- **Acceptability:** If right and available does this patient want it?
- **Effectiveness:** Is it carried out well?
- **Efficiency:** Is it carried out in a cost-effective way?
- **Continuity:** Did it progress without interruption, with appropriate follow up, exchange of information and referral?

2.2.4. Quality assurance in health care

Quality Assurance is a systematic and planned approach to assessing, monitoring and improving the quality of health services on a continuous basis. It promotes confidence in the health service amongst the community and the health service staff, improves communications and provides a clearer understanding of community needs and expectations of their health care providers.

1. Quality Assurance is oriented towards meeting the needs and expectations of the patient and the community
2. Quality Assurance focuses on the way we work (how we deliver health services)
3. Quality assurance uses data to analyse how we are working and delivering health services
4. Quality assurance encourages a multi-disciplinary team approach to problem solving and quality improvement

This description of QA which comes from Doyle and Haran (2001) reflects the concerns of many commentators on QA. For example Donabedian defines QA as "all the arrangement and activities that are meant to safeguard, maintain, and promote the quality of care" (Donabedian A. 1980).

Ruelas and Frenk define it as "a systematic process for closing the gap between actual performance and the desirable outcomes" (Cited in (Brown L. , Franco L . et al. 2001)). These comments indicate that QA addresses the gap between the actual and the desired outcomes. It has been argued that successfully narrowing this gap requires a systematic strategy, teamwork, standards to reflect what is to be achieved, effective decision-making, and evaluation (Ellis R. and Whittington D. 1993). They comment that - "QA is the sum of procedures established for making sure and being able to guarantee that high levels of quality are maintained. These procedures include specification of standards, observation of practice, comparison of practice with standards, and instigation of action for improvement as necessary". World Health Organization) report on QA gives a comprehensive view of the aim of QA, which is - "to assure that each patient receives such a mix of diagnostic and therapeutic services as is most likely to produce the optimal achievable health care outcome for that patient, consistent with the state of the art of medical science, and with biological factors such as the patient's age, illness, concomitant secondary diagnosis, compliance with the treatment regimen, and other related factors; with the minimal expenditure of resources necessary to accomplish this result; at the lowest level of risk of additional injury or disability as a consequence of treatment ; and with maximal patient satisfaction with the process of care, his/her interaction with the health care system, and the results obtained"(World Health Organization. 1985).

From a similar standpoint the Australian Council in Healthcare Standards (ACHS) define QA as "a formal process whereby the quality and appropriateness of patient care and/or departmental performance is documented and evaluated by the professional groups responsible or within a multidisciplinary team. The process involves a planned and systematic approach to monitoring and assessing the care

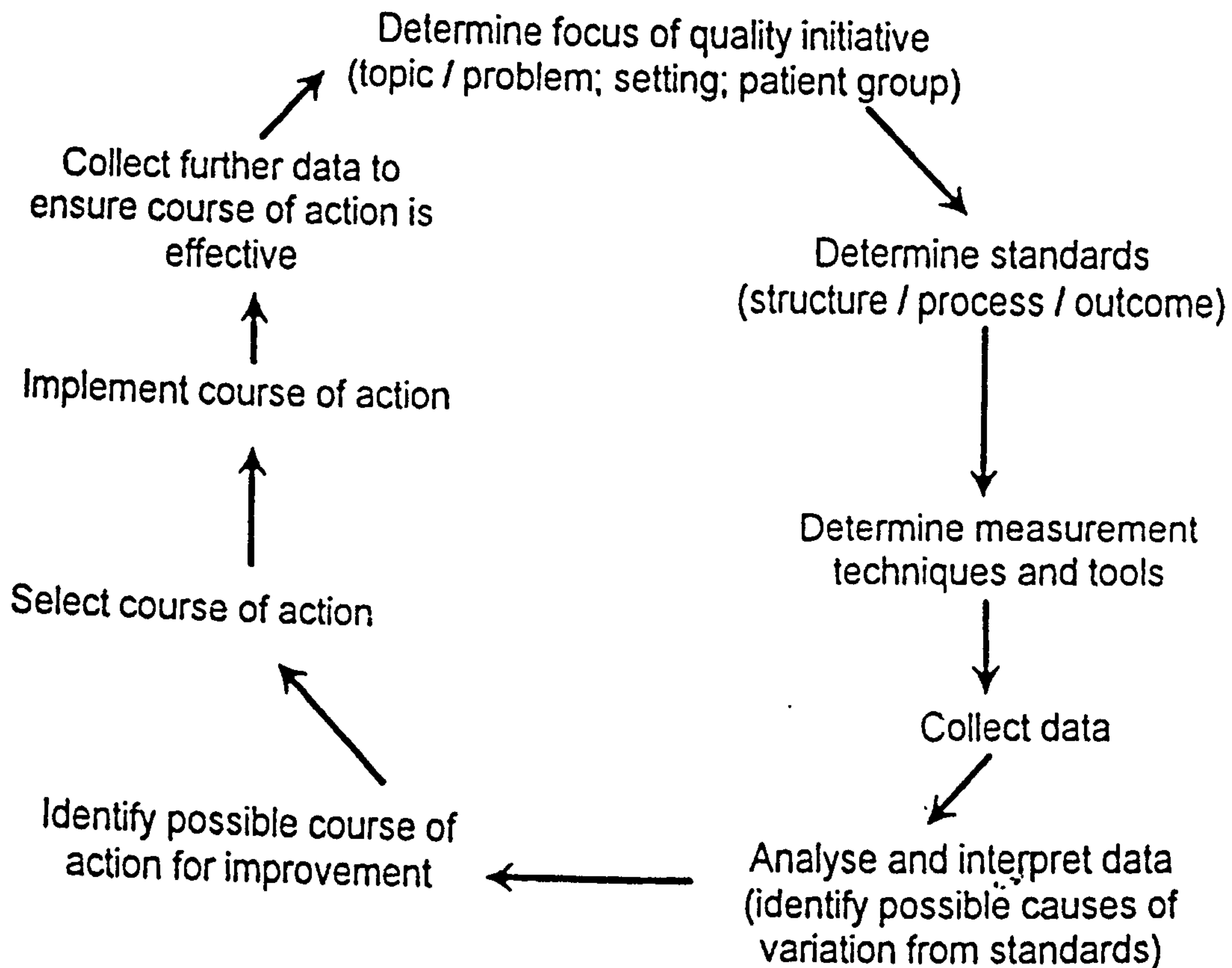
provided, or the services being delivered, which identify opportunities for improvement and provide a mechanism through which action is taken to make and maintain improvements"; cited from (Quality System and Public Health . 1998).

(Laffel G. and Blumenthal D. 1993) comment that a health care organisation's quality assurance program generally has three major foci: 1. assessing or measuring performance, 2. determining whether performance conforms to standards, and 3. improving performance when standards are not met.

All these descriptions and definitions emphasise the following aspects of QA; setting standards, measuring the service according to these standards, improving quality through a systematic approach to quality improvement activities, and evaluating the results of quality improvement activities against the initial measurement. Many of them also point to the benefits provided by having a multidisciplinary team(s) involved in these stages.

The improvements and advances in health technology and public expectations and knowledge, especially in the face of the increasing burden of chronic disease in both developed and developing countries, put pressure on the resources available. This pressure has stimulated the search for ever more cost effective provision of services through the ever wider employment of quality assurance. Quality Assurance is most commonly expressed as a cyclical process, (Ellis R. and Whittington D. 1993). Representing QA as a cycle is useful since it emphasises the aim of continuously improving quality rather than viewing quality improvement as a one off process. The cycle (figure 2.1) is initiated by building a quality culture that motivates the staff to participate in quality activities. The quality assurances begin with standard setting, progress to appraisal of the achievement of those standards and conclude with identification and implementation of action for improvement.

Figure 2.1: Quality assurance cycle (Ellis R. and Whittington D. 1993)



2.2.5. Quality of health care and quality assurance in Saudi Arabia

The concept of quality and quality assurance are new innovations in Saudi Arabia. Considering any dimension of quality, the only dimension that has been considered is the one of technical skills. (Quality Assurance in Saudi MOH. 2004) mentioned that quality assurance started fifteen years ago as an individual non-official initiative guided by active personnel without any local or national initiatives that identified positive aspects of the sporadic quality assurance initiative through the country. The Saudi Arabian Ministry of Defence and Aviation (MODA) has set a precedent for hospital development in Saudi Arabia by stating that it intends to operate its hospital and clinics to the highest standard in order to provide quality medical care for eligible patients. MODA refers specifically to the hospitals standards published as

the 'accreditation manual for hospitals' by the Joint Commission on Accreditation of Hospitals (1981), as the basis for establishing standards for a MODA-operated hospital. This effort to establish and monitor implementation of hospital standards is a noble experiment to attempt to assure optimal quality of service for the beneficiaries of MODA hospitals and the results should be of value to all Saudi Arabian hospitals (Dixon N. 1982).(Al-Mazrou Y. and Farag M. 1994; Al-Qatari G. 1997) mentioned that the official steps towards establishing a quality project started from the primary health care quality assurance projects, and in King Faisal University Hospital ENT department.

(Dixon N. 1982) identified several factors that affect the provision of quality medical and health care in Saudi Arabian hospitals. These factors are

- The pace of construction and of opening of new hospitals,
- The staffing of Saudi Arabian hospitals by personnel that have been trained in several different countries,
- The lack of long-term comprehensive medical care for most Saudi patients,
- Difficulty in securing and maintaining adequate hospital supplies and equipment.

The use of hospital standards and quality assurance programs can directly benefit the quality of patient care in Saudi Arabia by helping to establish health care objectives applicable to the Kingdom and its people, and to measure achievement of those objectives. What is missing, as Al Qatari for example argues, is a lack of quality culture(Al-Qatari G. 1997). Another barrier to QA successfully bringing about quality improvement is the absence of management commitment to increased

performance and improved quality. There have been a few attempts at developing and using quality frameworks in Saudi Arabia (Al-Mazrou Y. and Farag M. 1994; Khoja T. and Farag M. 1995; Al-Faris E., Khoja T. et al. 1996; Al-Qatari G. 1997; Al-Qatari G. and Haran D. 1999). They have struggled to overcome these gaps and barriers, and now the Saudi Minister of Health has created a General Department of Quality Assurance in MOH to provide greater support for quality improvement in the kingdom's health care services. Also, there is a QA Council within the Ministry of Health, which is under the presidency of the Saudi Health Minister and consists of all the key members in the MOH.

2.2.6. Dimensions of quality in A&E

Whilst the specific quality dimensions that one might be interested in, in any particular context, will depend on the type of service provided and the social context of the population being served, six dimensions of quality are recognised as important in most contexts; effectiveness, acceptability, efficiency, access, equity, and relevance to need (Maxwell R. 1984; Maxwell R. 1992; Ellis R. and Whittington D. 1993; Ovretveit J. 1998). These dimensions are quite applicable to hospital A&E department services. For example in the A&E department it should be possible to assess *access* in terms of ambulance response time and waiting time in the casualty department, whilst *relevance to need* requires some review and analysis of the different roles played by the A&E department in major accidents, minor trauma, and as a first stop for primary care treatment. These measures would be different from those about *technical effectiveness*, which might include the adequacy of equipment and staffing in the casualty department, the incidence of complications, and some form of follow up assessment. The *social acceptability* dimension could include conditions in the casualty department, privacy, and standards of communication with

the patient and the general practitioner. *Efficiency and economy* would require workload and unit cost comparisons with other A&E units. (Ellis R. and Whittington D. 1993; AL-Assaf A. 1998; Brown L. , Franco L . et al. 2001) point out that health care quality has several attributes and dimensions. Experts generally recognise several distinct dimensions of quality that vary in importance depending on the context in which QA efforts take place, and QA activities may address one or more dimension. Data collected from several national and international surveys of consumers and quality providers describe these dimensions in this sequence; effectiveness, efficiency, technical competence, safety, accessibility, interpersonal relations, continuities, and amenities. These are not necessarily the right indicators, but they do suggest how recognition of different dimensions of quality may lead to a more illuminating choice of indicators than the standard A&E statistics. This discussion raises ideas about the success of the application of a QA programme and what dimensions need to be tackled for improvement.

2.3. Quality Frameworks and Models

2.3.1. Rationale behind using quality frameworks and models

The implementation of quality improvement activities is often facilitated by a “quality framework” and a strategy for using the framework to design quality improvement activities. By quality framework here we mean a diagrammatic representation of the key components of that aspect of the health care system being considered together with the organisational structures through which we might anticipate quality activities to bring about quality improvements.

Such frameworks can be useful because:

- The process of developing the framework pro-actively provides a mechanism for debating quality strategies, plans, actions and initiatives, and may simultaneously generate a common level of understanding of the vision being pursued and develop commitment to implementation of quality improvement strategies.
- It also assists management to identify the factors which can slow down the process of improvement.
- The framework becomes a reference point for the current and future quality improvement initiatives. It builds on the quality already in place and guides quality improvement in a structured manner.
- The framework can provide a schematic way of communicating across the organisation what the process of quality improvement involves for individuals and key groups
- It provides the means for the local management committee or QA committee to assess the progress made against the plans developed and ensures that issues are followed through.
- It can point out where outside assistance may be required to effectively begin the process of improvement and can highlight training needs of current staff for QA

(AL-Assaf A. 1998)

Two further potential advantages of the use of a quality framework are

- The framework will place the need for improvements in clinical care in the context of other quality improvements.

- The framework establishes a means by which lessons learned can be shared with other parts of the health system.

(New South Wales Health Steering Committee. 1999).

However, the use of a quality framework may have some disadvantages. As more than one commentator has said "there is no magic formula for quality management organisation. What works well in one health care organisation might not work in another. Each health care organisation has to recreate a quality management structure in its own image and likeness" (Berwick D., Godfrey A. et al. 1992). Elaborate conceptual frameworks, such as The European Quality Model (Stewart A. 2003), may be of little help to those organisations just starting out on the path of quality improvement through quality assurance programmes

2.3.2. Frameworks and models for implementing quality

In health care, there are many models used for implementing quality assurance. (Saturno P. 1999) define the quality model as a representation of reality, the better the fit with reality and the better the explanation of the different aspects of this reality, the better the model. Also, he stresses the point that a closer less superficial look at the different models reveals how similar they are and how much they are influenced by terminology, dialects, culture, and commercial basis.

Donabedian Structure –Process –Outcome Model

(Donabedian A. 1988) distinguished three elements of care namely: structure, process and outcomes (figure 2.2).

Figure 2.2: Donabedian model of quality from (Donabedian A. 1980)



Structure denotes resources and the environment in which care is given. These include: material resources; such as condition of building, availability and condition of equipment; human resources such as number and qualification of personnel. Less quoted attributes of the structure include the managerial and wider organisational features such as co-ordination, specification of work procedure and methods for peer review (Donabedian A. 1988; Ellis R. and Whittington D. 1993; Shaw C. 2003).

Process refers to what is actually done in giving and receiving care. Process considers the two sides of health care provision, namely the provider's practice and the patient's activities in seeking care and carrying it out (Donabedian A. 1988). Two aspects of the practitioner performance were reviewed: clinical and non-clinical. The clinical process assess whether good medical care has been applied in terms of history taking, physical examination, diagnostic test and management, technical competence, evidence of preventive management, and co-ordination and continuity of care. Non-clinical aspects of care on the other hand include, privacy, confidentiality, and informed choice. Interpersonal communication is vital for successful implementation of the technical health care. Through personal exchange, patients communicate information necessary for correct diagnosis as well as preferences necessary for selecting the most appropriate and acceptable methods of care (Donabedian A. 1988).

Outcome refers to the effect of care on the health status of the patient. It examines recovery, restoration of function, and survival. Health status, in its broader definition

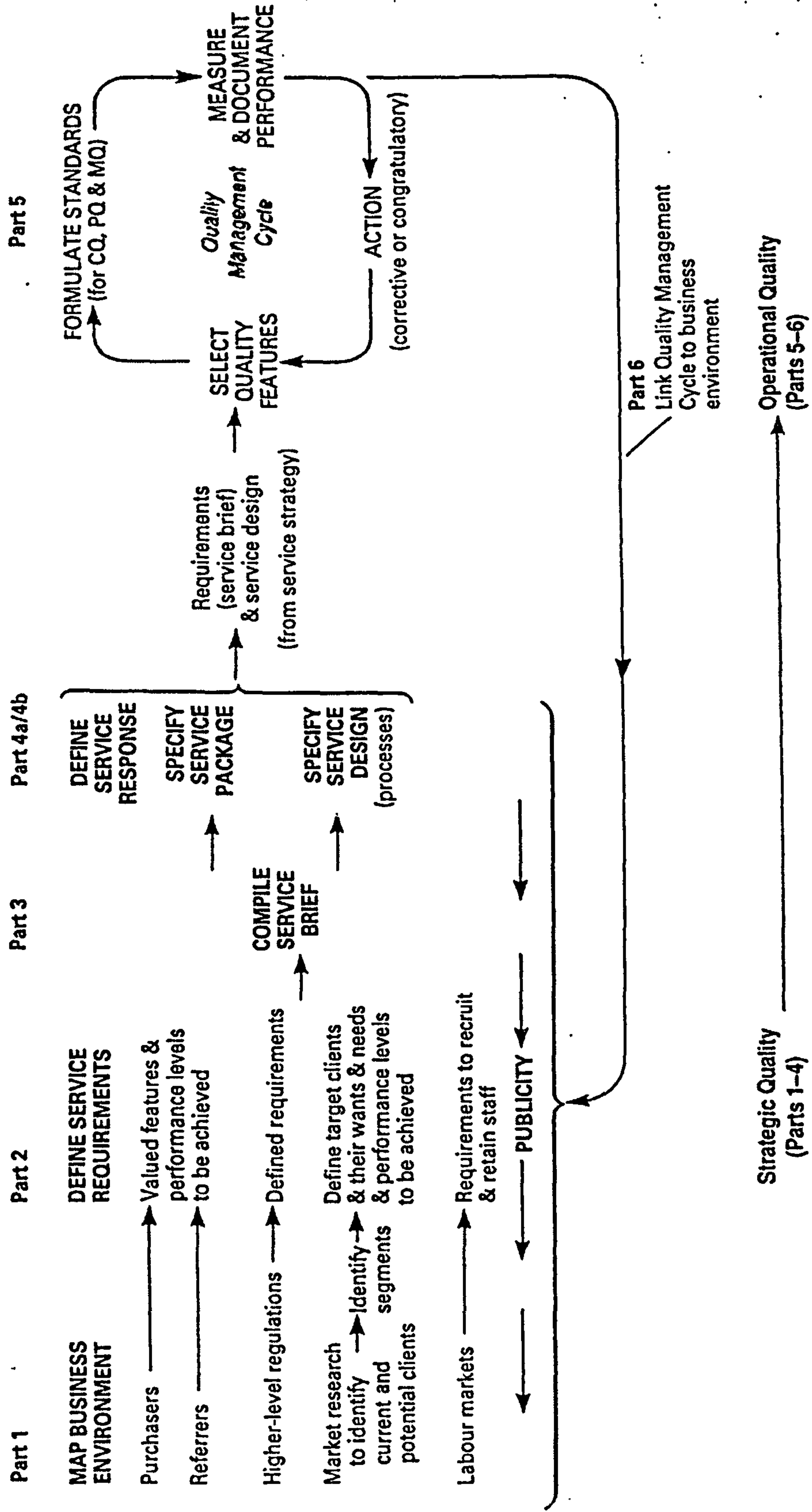
also includes improvement of patient's knowledge as well as their degree of satisfaction with the care (Donabedian A. 1988). Outcomes are more complex when looking at long-term impact on health rather than specific time-limited treatments and interventions (Bowling A. 2002).

The Wel-Qual Framework

(Ovretveit J . 1992) discusses the ' Wel-Qual framework', (figure2.3) that was developed with and for a range of health service providers and their internal service departments. The framework developed was to suit the particular cultural, financial and regulated market circumstances of health services, and that linked business strategy (part 1-4) to quality management cycle (part 5 and 6) to insure that quality managements and improvements are related to the business environment. It covers the initial work of mapping the business environment (part 1) and then defining what is required of the service if it is to compete successfully in future markets (part 2). The framework then shows how the different external requirements of the service are converted into a definition of the service package and into specifications of what the service has to do to meet the requirements (part 3, 4a and 4b). These internal specifications then form the basis for the service operation and the quality management cycle (part 5 of the framework). Part 6 of the framework shows that quality management cycle must be related to the business strategy. It can be argued that the Wel-Qual framework is to be considered as a prototype in developing a national or local quality framework, it has a lot of similarities with the efficient frameworks mentioned before, but the only concerns which need to be considered in formulating or adapting the framework are, first; the business terminology which health care workers have difficulty understanding and integrating into their daily service when this approach is implemented, the second concern; in case of the

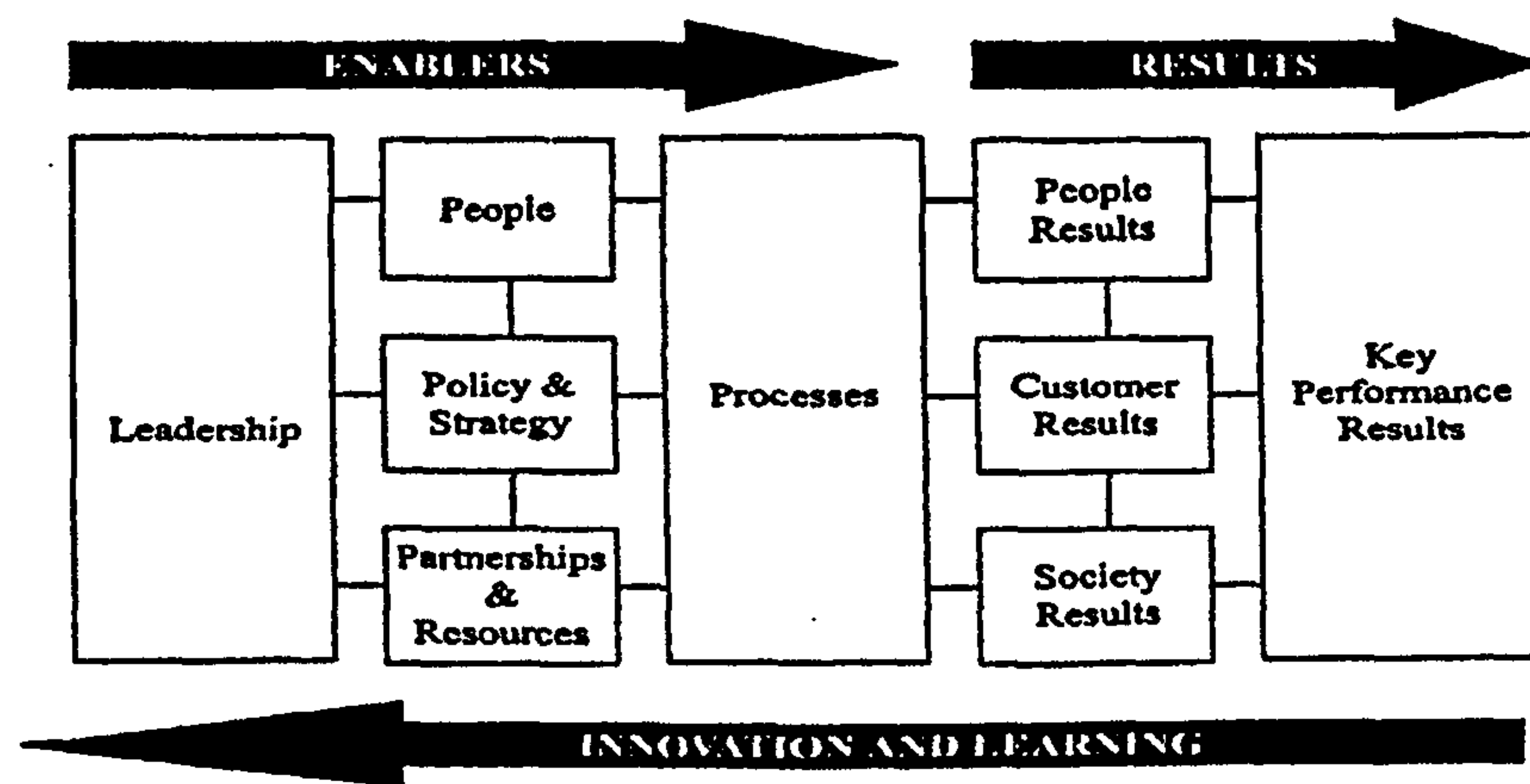
application at the level of MOH or at the level of public hospitals that are not concerned with business competition or market regulations, some modification needs to be applied to fit in with public services.

Figure 2.3: The Wel-Qual framework (Ovretveit J . 1992)



The EFQM Excellence Model

(Moeller J. 2001; Egli Y. and Halfon P. 2003; Stewart A. 2003) mentioned that the EFQM (European Foundation for Quality Management) was founded in 1988 with the endorsement of the European Commission. It is a membership based, non-profit making organisation. The present membership is in excess of 800 organisations, mostly from European countries and branches of inclusive health care. The EFQM has developed a quality management approach, named the Excellence Model, and has introduced the principle of self assessment to apply the model (figure2.4). The model is made up of nine criteria; criteria one to five of the model are grouped as enabler criteria. They are concerned both with the things that are used to make a health organisation function (e.g. leadership, policy and strategy, people, partnership and resources, and health care market knowledge) and also with the processes in a health organisation (e.g. diagnosis and therapy activities that generate care, service and management procedure). Criteria six to nine of the model is grouped as result criteria. They are concerned with the outcomes (e.g. key performance results, customer results, people results and society results) of what is done in a health organisation.

Figure 2.4: EFQM Excellence Model (Stewart A. 2003)

(Moeller J. 2001) discusses that the German Federal Ministry of Health started a quality project using the EFQM Excellence Model, they started to apply the model by doing a self-assessment to identify their strengths and weakness for each criterion. Some barriers were detected by (Moeller J. 2001; Stewart A. 2003) in implementing the model such as lack of time and lack of dedicated staff, the conflict between allocating time to treat the patient or to allocate time to do the assessment, the lack of information systems and information specialists to help health professionals in the assessment, lack of trained support staff, ineffective group dynamics, poor relationships between and within assessment teams, lack of commitment, and another important issue mentioned is that the model comes from an industrial background and is not specific enough to cover all areas relevant to health care. Terminology was identified as another barrier. (Egglı Y. and Halfon P. 2003) argue that this model takes little interest in accountability, which is not surprising since its principal aim is to organise the delivery of awards for excellence and to stimulate self assessment. (Stahr H., Bulman B. et al. 2000; Moeller J. 2001; Stewart A. 2003) mentioned some benefits identified such as that the model provided an indicator of the level of success and an outcome from the assessment; i.e. visible and consistent participation and commitment by the chief executive and the whole management

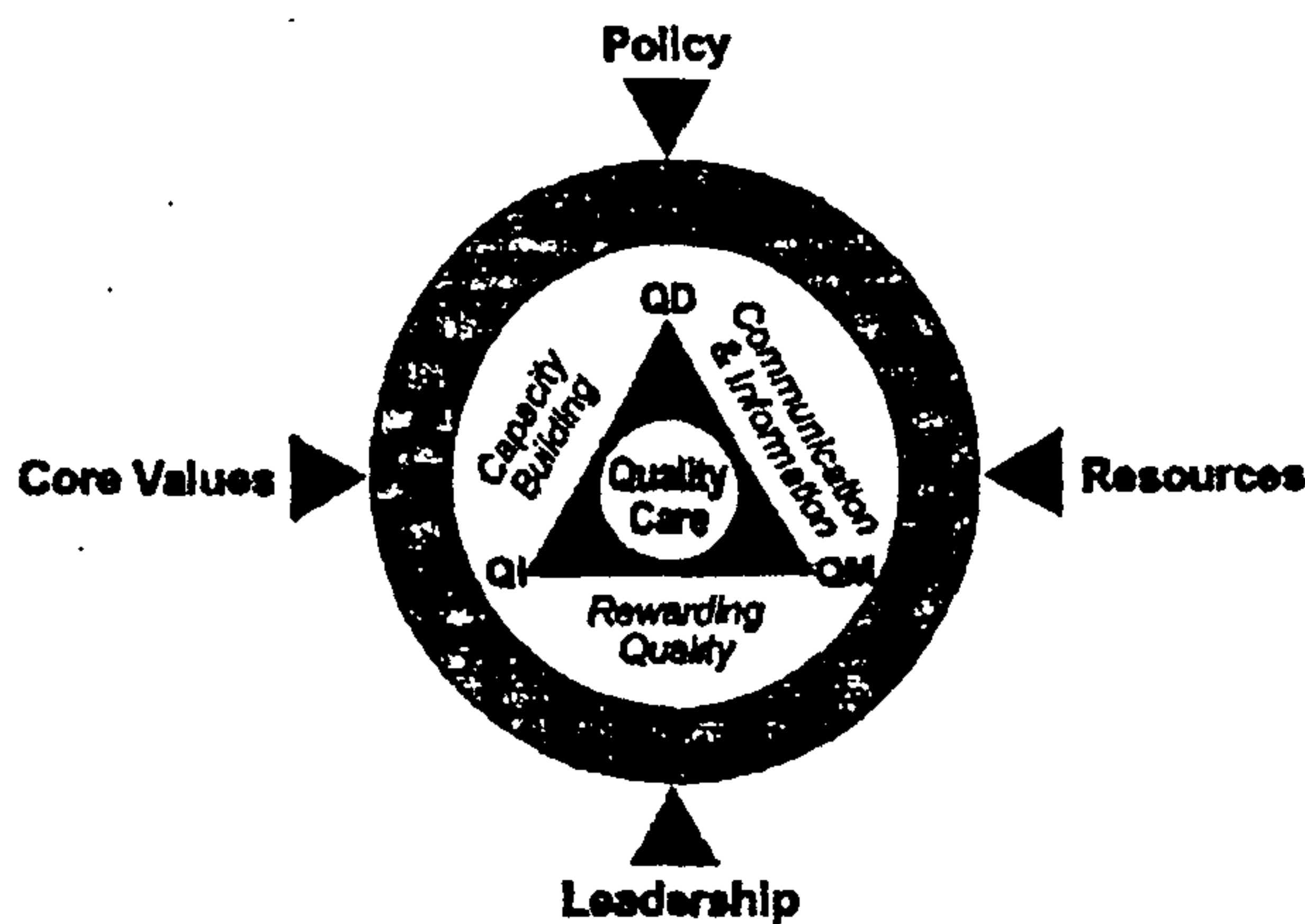
board. The integration of the model into all parts of the managerial process rather than parallel to it is an advantage. The argument for not implementing this model in developing countries could be; the unavailability of resources, the shortage of staff, so no time to participate, the terminology and the lack of quality culture, the need for a huge amount of material and training sessions to raise awareness and stimulate the whole staff participation, and the difference in awareness and perception of quality between developed and non developed countries. Finally, the developed countries have a healthy basic structure and effective strategies applied in their normal daily work help to adopt any framework with little modifications, but in developing countries it is a very different situation.

The QA institutionalisation model

(Franco L ., Silimper D. et al. 2002; Silimper D., Franco L. et al. 2002) discuss a framework that represents a synthesis of more than 10 years of experience assisting developing countries (Latin America and Africa) with their health systems to design and implement QA. It is derived from a combination of the organisational development and quality management literature, as well as retrospective analysis of QA project experience implementing QA activities and building QA programs in developing countries health systems, and personal communication with QA project staff. It is this combination of conceptual models and operational processes that makes the framework more notable, as well as its basis in developing countries (figure 2.5). This framework for institutionalising QA consists of a model of eight essential elements and a 'roadmap' for the process of institutionalisation.

Figure 2.5: The QA institutionalisation model (Silimper D., Franco L. et al. 2002).

Defining quality (QD); improving quality (QI); measuring quality (QM).



(See www.qaproject.org for further details).

The essential elements are the blocks required for implementing and sustaining QA activities. Core QA activities include defining, measuring, and improving quality.

The essential elements are grouped under three categories:

1. the internal enabling environment (internal to the organisation or system)
2. organising for quality
3. support functions.

The enabling environment contains the essential elements of leadership, policy, core value, and resources. Organising for quality includes the structure for implementing QA. This model can be applied at the level of an organisation or a system. It seems that this model is best applied at the national level of a country's MOH.

(The Quality Assurance Project.; Brown L. , Franco L . et al. 2001) recommend another implementation process based on their experiences working in health services in developing countries. They suggest the 10-step process developed by the Joint Commission on Accreditation of Health Care Organisations (JCAHO), this

model attempts to integrate the strength of various models into a simple, logical process for planning and implementing QA activities. The process suggested is as follows:

1. Planning for quality assurance.
2. Developing guidelines and setting standards.
3. Communicating standards and specifications.
4. Monitoring quality.
5. Identifying problems and selecting opportunities for improvement.
6. Defining the problem operationally.
7. Choosing a team.
8. Analysing and studying the problem to identify its root causes.
9. Developing solutions and actions for improvement.
10. Implementing and evaluating quality improvement efforts.

The ACQAP Model

(White N. 1977) refers to a nationwide survey of more than two dozen ambulatory care settings (including what is called an A&E department today) in 1976 by Health Care Management Systems, Inc, to determine state of the art of quality assurance. The survey included a variety of operational programs: single speciality, multiple speciality, and general practice; and fees for service as well as prepaid plans. The quality assurance projects also varied in operating time, budget, and data sources. The survey disclosed the need for a classification system for quality assurance. As a result, the Ambulatory Care Quality Assurance Project (ACQAP) model (figure 2.6) developed as a system of classifying quality assurance programs in various types of

ambulatory care settings, devising methods for assessing these programs, and identifying strengths and weakness in the technical design and implementation of individual programs. The model identifies nine major aspects or components of a quality assurance system. The model can guide development of specifications and tasks for any review system and may serve as a means to assess the system itself. Component 1-of the model, development of approach aids a facility in shaping the philosophy and objectives of the quality system.

Component 2- establishment of administrative procedures helps define organisational structures and serves as a guide to delegation of responsibility and establishment of a mechanism for evaluating the system.

Component 3- selection of topics and providers for review, as topics can be problems or diagnoses and are selected for their potential to identify actual deficiencies in service delivery.

Component 4- criteria development is to develop criteria for the topic selected in component 3.

Component 5- identification of data elements and sources, involves selection of data necessary for the decision and identification of the sources of those data.

Component 6- data collection and processing, to compare data with criteria and assess the appropriateness of care delivered.

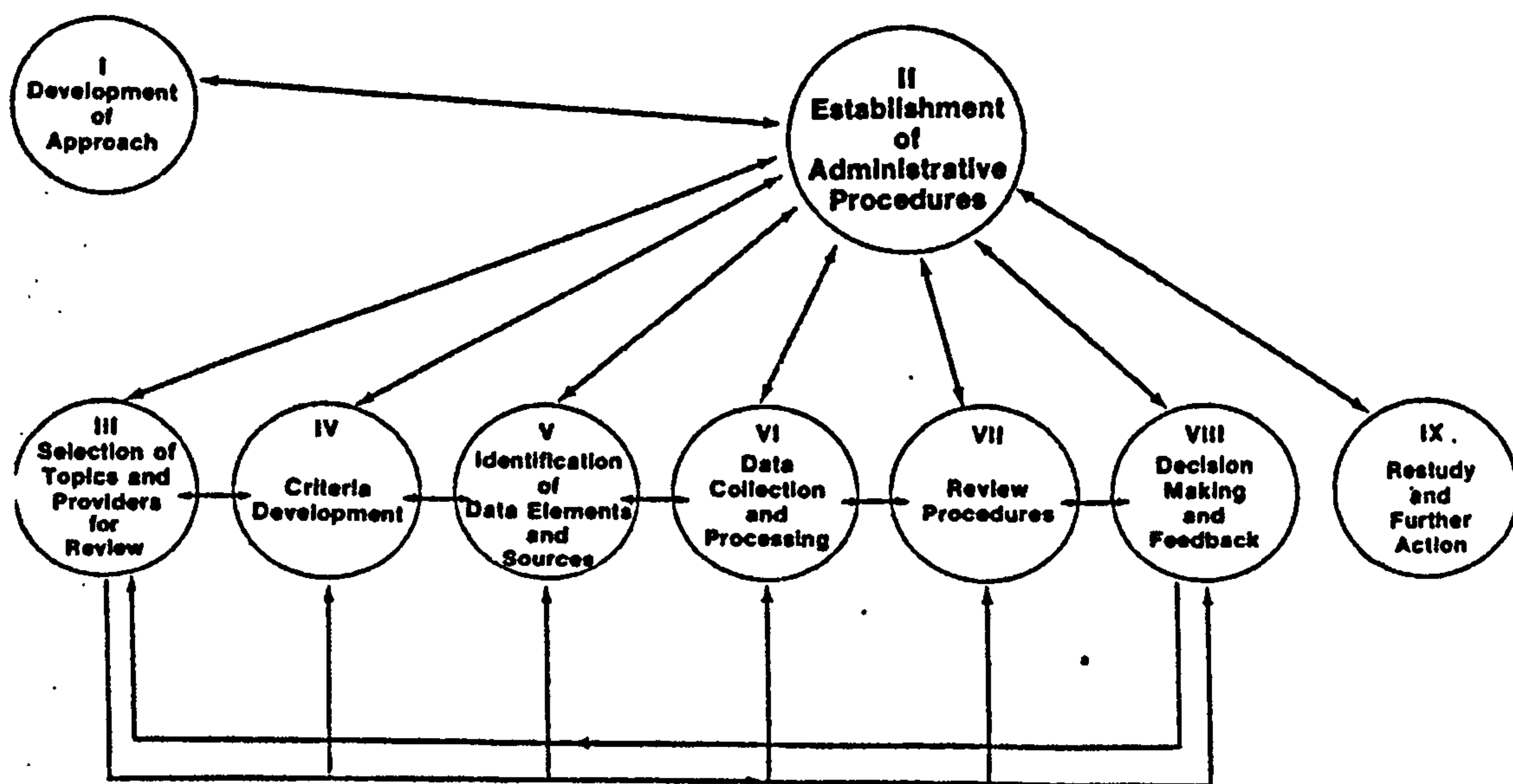
Component 7- review procedure, evaluation and giving feedback for correcting identified problems.

Component 8- decision making and feedback, a restudy conducted to determine whether corrective actions have resolved the problems.

Component 9- restudy and further action. It can be argued that this model is one of the best models that any organisation can follow to implement QA. This model, if to

be implemented in developing countries, needs to be simplified to the extent that any members of any organisation can understand the process and will not find it conflicting with the time or resources available. It can be mentioned that this model provides a rich source for developing quality frameworks.

Figure 2.6: ACQAP Model (White N. 1977)



2.3.3. Experience of using quality frameworks in A&E services

A hospital A&E department is mainly planned to treat any incident for anyone at any time, and any patient that goes to A&E must be assessed and treated in a satisfying manner.(Adams J. and Biros M. 2002; Burstin H. 2002; Graff L., Stevens C. et al. 2002) declare that a relevant definition of quality in emergency practice is not readily available. But while it is important, timeliness is not sufficient as a measure of quality. Specific targets for improvement can indeed stimulate creativity, problem solving, and success. The true route to achieving quality begins with an enduring commitment from the highest leaders of the organisation, willing to exercise their

authority for productive benefits. Quality frameworks in A&E are a system that delivers predictable and desired outcomes and in which all the elements are identifiable and measurable. The uncertainty of the emergency department milieu suggests a context dependent approach to quality that acknowledges these unique emergency department features. Within current frameworks of quality, we would then need to develop emergency department specific approaches to the measurement and management of quality.

To be useful for the developing country, context frameworks must be adaptable to the country, available resources, culture and prevailing conditions within which health services are provided. The experience of the use of established quality frameworks and models in different settings indicates a number of potential drawbacks

- Some are developed for a competitive business or industrial environment.
- Some cannot be successfully employed without a critical mass of available quality experts.
- Some are effective when applied at a national policy level, but not for practical use by district and other local facilities.
- Some are more applicable to a primary health care setting rather than a hospital.

These drawbacks suggest that a locally developed quality framework would be more appropriate for A&E departments in Saudi Arabia

2.4. Quality measurement systems

2.4.1. Monitoring quality implemented using models or frameworks

"What cannot be measured cannot be controlled"(De Geyndt W. 1995). Continuous success can only be achieved where there is feedback, evaluation and improvement. There must be monitoring and planning systems which continually drive the organisation to raise its horizon(Royal College of Nursing of the United Kingdom. 1991).

(Buck C . and McWhinney I. 1980; Peters D. 1993; Sitzia J. and Wood J. 1997; Westaway M., Rheeder P. et al. 2003) refer to Donabedian's three approaches of structure-process- outcome to be used for the assessment or measurement of quality.

In emergency medicine (Croskerry P. 2002; Graff L., Stevens C. et al. 2002) have employed Donabedian's Structure - Process - Outcome model in studying quality of services. Structure refers to those things that are present before the patient visits the emergency department, Process measures are those things occurring while the patient is in the emergency department; whilst structural issues are relevant to quality initiatives that are less accessible, practical, and amenable to change than are process issues. Thus it is process that is usually the focus of quality improvement efforts.

Outcomes are those things occurring after the patients' leaves the emergency department. It includes mortality, morbidity, and quality of life. (Ovretveit J . 1992; Roberts I. 1993; Andaleeb S. 2001) reveal the importance of defining, assessing, and monitoring the outcome in that it is to measure customers judgements of the quality of service, and to be used as part of a quality cycle to ensure effective action and continuous improvement.

Whichever measures are used, there is a need for indicators that can be measured before and after quality improvement activities in order that the success of quality interventions can be identified. Hence a useful quality framework requires steps for assessing baseline and post-intervention quality levels. Monitoring quality should also identify the variance or the gap between the actual situation and the standards that have been set.

Hence, the monitoring of quality improvement often looks at indicators of process, such as the standards set for delivering certain clinical procedures, and at indicators of outcome, such as patient satisfaction. These should be monitored before and after the quality improvement intervention has been implemented so that the success of the quality improvement activities can be assessed.

2.4.2. Satisfaction as an indicator to assess quality

Quality is what the customer say it is, understanding the needs of an organisation's customers at every step in the process of quality implementation program is the key to quality improvement (Melum M. and Sinioris M. 1992). Satisfaction in the field of medical care is one of the most commonly measured patient attitudes, and work in this field has increased markedly in recent years to the extent that it was called one of the quality dimensions. (Ovretveit J . 1992; Roberts I. 1993; Andaleeb S. 2001; Alasad J. and Ahmad M. 2003) mentioned that how to measure a clients judgement of the quality of service should be used as a part of quality cycle to insure effective action and continuous improvement, and poor client quality is expensive, far more expensive than some of the usually minor changes mainly needed to avoid the most common causes of dissatisfaction. (Petersen M. 1988; Lewis J. 1994) argue that patients cannot really be considered good judges of quality, it is not important

whether the patient is right or wrong, what is important is how the patient felt even though the care giver's perception of reality may be quite different.

Quality of health care in developing countries is usually defined and expressed by health professionals from a technical perspective, the delivery of quality health care is a major challenge that health care providers face by emphasizing the importance of patient perspectives in assessing quality in health care (Tangcharoensathien V., Bennett S. et al. 1999; Andaleeb S. 2001; Alasad J. and Ahmad M. 2003)

However, in applying quality in any health organisation we should understand the importance of user's satisfaction as a result of a healthy quality program. (Cleary P. and McNeil B. 1988) (Arnetz J. and Arnetz B. 1996; Salmon L., Gasquet I. et al. 1999) mention that several factors have stimulated research in the area of patient satisfaction. Consumers are becoming more sophisticated about the type of care they receive, providers are becoming more attentive to their concerns, and competition for patients among both prepaid and fee for service providers has intensified. At the same time, social scientists are becoming more involved in health services research, and governmental support for such research has increased. Despite this interest in the measurement of patient satisfaction, methodological approaches are not yet standardised and the literature in the field is large and diverse. There are numerous typologies of patient satisfaction or attitudes, but the available measures assess only a limited number of dimensions of care. Those most frequently measured are the personal aspects of care, the technical quality of care, accessibility and availability of care, continuity of care, patient convenience, physical setting, financial consideration, and efficacy. Patient's evaluations of these aspects of care are often strongly correlated. Measures of the interpersonal aspects and technical aspects of care may tap into a common dimension of satisfaction (Ware J. and Snyder M. 1975;

Rice J., Wegmiller D. et al. 1990). Researchers have often not differentiated the type of satisfaction measured, and frequently only global measures of satisfaction are used. If a scale measures a specific dimension of care that is assumed to be integral to quality care, then the measure of satisfaction may provide important information.

(Donabedian A. 1994) highlights the contributions of the consumer in promoting the quality of health care by assigning the consumer as a definer of quality, evaluator of quality, informant of quality, co producer of care, target of quality assurance, controller of practitioner behaviour, and reformer of health care. As mentioned previously, these are strong indicators that the role of the patient is a basic and vital role in monitoring the success of a quality program.

(Hulka B., Zyzanski S. et al. 1970; Osterweis M. and Howell J. 1979; Ware J. and Hays R. 1988; Fitzpatrick R. 1991; Haran D., Iqbal M. et al. 1993; Arnetz J. and Arnetz B. 1996; Salmon L., Gasquet I. et al. 1999) mentioned that a variety of methods for measuring patient satisfaction have been developed in a number of countries based on various target groups, investigational methods, and cost in terms of time and money. The extent to which the patient is considered is also used as a measure to assess satisfaction. The rationale behind the use of this measure is that patients do not continue their therapy if they are dissatisfied, this is not the case all the time as some patients discontinue their care when they feel that their medical condition has improved. Another measure for assessing satisfaction is the number or the rate of patient complaints or feedback as an indicator of dissatisfaction (Smith H. and Armstrong D. 1989; Lewis J. 1994; AL-Assaf A. 1998; Ovretveit J. 1998).

Questionnaire surveys are common methods to assess patient satisfaction (Wensing M., Grol R. et al. 1994; Williams B. 1994). The advantages of the questionnaire, regardless of the administration methods, are that they are quick and easy to carry out

and cost relatively little to conduct, they are less subject to researcher bias than interviews, less staff training is required, and anonymity is more easily guaranteed (Lewis J. 1994). They can be sent via mail, or through telephone, or completed in the form of a structured interview. In addition, if they are well designed, they can be understood clearly by the clients and can relate directly to satisfaction. Despite this, self completed questionnaires or those sent by post or conducted via telephone have been found to have low response rates: 40% - 43% respectively. Such problems are nevertheless not inherent but rather represent inadequacies in the design process (LeVois M., Nguyen T. et al. 1981). In this respect, questionnaires conducted by face-to-face interview would clearly yield better results in term of the response and would minimise the possibilities of misunderstandings among some respondents (LeVois M., Nguyen T. et al. 1981; Al - Mandhari A. 2002). (Trout A., Magnusson A. et al. 2000) argue that the analysis carried out in sixteen studies in the field of satisfaction with the A&E services from January 1976 through July 1999, patient satisfaction was determined by a survey of patients or their family members or significant others, and that in-department surveys are frequently used, as doing the survey several days after discharge from an emergency department will impact the response rate and introduce study bias. The argument here is to gain better response and clear understanding. It has been suggested to conduct the survey at the site of service in the form of a self completed questionnaire. Meta analysis of studies of patient satisfaction show that questionnaires with more specific content seem to produce more uniformly favourable responses from patients than the negative views elicited from generally-worded questionnaires. The questionnaires are inexpensive, useful for periodic assessment, provide useful information for internal evaluation and modification in a particular organisation, as well as giving data suitable for

comparative purposes. In the study mentioned by (Arnetz J. and Arnetz B. 1996), a questionnaire was developed as a result of group discussions, that comprised the quality of work environment, quality of care, and quality of internal service. The questionnaire consisted of 90 items. Background questions on the patient, such as age, sex, and health status were included. All other questions asked the patient to rate a specific item on a four point Likert scale: "to a great degree", "to a certain degree", "not especially", "not at all". The survey questions are grouped under the following headings: waiting time, security, accessibility, courtesy and care, integrity, information, medical treatment, physical environment, routine, discharge, and work environment. The idea of using this questionnaire is to evaluate the baseline quality of care assessment to identify if meaningful improvements are to be implemented, and then patient satisfaction is reassessed following the implementation of various departmental based-improvement programs. The results reveal that the questionnaire demonstrated valid and reliable properties.

(Hall J. and Dornan M. 1988) mentioned that any instrument of satisfaction should have four key features: directness, specificity, type of care, and dimensionality.

Directness refers to how satisfaction is detected from the patient, as some surveys ask the patient directly about the level of satisfaction such as "how satisfied are you".

Others can detect satisfaction indirectly by answering questions related to the care provided such as asking the patient to agree or disagree with a statement such as "doctor offered complete explanation of medical condition and treatment"(Fitzpatrick R. 1991).(Hall J. and Dornan M. 1988) mentioned that it made no difference in using the direct or indirect question, while (Ware J., Synder M. et al. 1983) argue that the indirect approach tends to be the correct way to assess satisfaction.

Specificity is known as a continuum from taking or obtaining satisfaction in regard to a particular event to the evaluation of the whole health care service. Within the scope of a particular event, an individual's experience tends to be more accurate when comparing the general question regarding the whole health care service (Fitzpatrick R. 1991)

Type of care belongs to the setting in which evaluation takes place, such as inpatient or outpatient settings. Studies assessing satisfaction with a particular kind of care tend to yield higher satisfaction scores than the studies assessing satisfaction about care in general (Hall J. and Dorman M. 1988). This has a strong relation with the previous, specificity of evaluating a particular event needs to be done in a particular setting where the event is practised.

The dimensionality is concerned with the different aspects of care that the patient is being asked. Patient satisfaction studies have proved valuable in so many dimensions (Westaway, Rheeder P. et al. 2003), (Cochrane A. 1972) outlined three criteria by which medical therapies should be judged:

- Effectiveness; does the treatment alter the natural history of the disease for the better?
- Efficiency; does the input justify the output?
- Equality; is there equal access to the treatment or service on the part of the population served?

The population to be interviewed, the location of the interview, the type of questionnaire used, and the way satisfaction is rated are other features to be considered prior to the administration of the questionnaire. The population to be assessed depends on the questions asked, a target population may limit the target population to a subgroup of patients with particular medical problems (hypertension).

(Carr-Hill R. 1992) argue that a satisfaction survey is to be limited to those who are currently using the service, while others argue that health care service is a public service, so the reaction of those who are not immediately or recent consumers of the service, is also relevant. It can be stated here, even if the target group is a patient still using the service, that there is variation in regard to other factors such as age gender, and educational level(Ross C., Steward C. et al. 1995).

The survey setting is a crucial factor. Patients interviewed at home tend to be less satisfied than those interviewed at a health care facility (Carr-Hill R. 1992). The patient prefers to give their opinion at home rather than at the health facility, as they might think that their response will affect their treatment. Another argument here is that evaluating satisfaction at home tends to give a lower rate of satisfaction, as the time interval between the visit and the survey is too long (not more than two days after the visit) so the patient may have forgotten some aspects of service that may constitute a small detail needed to assess satisfaction (Carr-Hill R. 1992; Trout A., Magnusson A. et al. 2000).

The scale and the score to be used with each question is highly relevant, as questions may be answered in so many different ways varying from "yes" to "no" response to the choice between more than two alternative responses per question. Likert responses of different grades are more sensitive than "yes / no" responses since the latter may conceal any grievances if respondent options are limited. Researchers prefer to use the Likert scale because patients have a greater opportunity to express their views (Carr-Hill R., Humphreys K. et al. 1987; Ross C., Steward C. et al. 1995).(Trout A., Magnusson A. et al. 2000) outlined some future directions and recommendations for conducting satisfaction survey in hospital emergency departments: satisfaction associated with the care of children in an emergency

department (ED) and future investigations should measure the satisfaction of children themselves. This would be interesting to do but raises the question of whether resources are available and if the quality level is sufficient to support this issue in developing countries. The inclusion of satisfaction research of family members or friends who accompanied the patients, because these individuals are as affected by the hospital experiences as the patient, would standardise the methodology used to measure satisfaction. For example, framing the overall patient satisfaction questions as follows "in terms of meeting your expectations for treatment and care, rate your satisfaction with your overall care in the ED"; use of self-administered, in-department, confidential questionnaires where possible to limit acquiescence and sampling biases. Address trends in patient satisfaction and associate these trends with service innovation; limit surveys to a minimal number of questions. Brief and focused surveys will maintain patient interest, facilitate administration of the survey, and enhance compliance with survey response.

Satisfaction is not a single term that any researcher can measure directly, assuming that satisfaction is directly related to how care affects personal, certain factors mentioned by (Osterweis M. and Howell J. 1979; Carmel S. 1985; Cleary P. and McNeil B. 1988; Sitzia and Wood J. 1997) such as patient sociodemographic features, physical and psychological status, attitudes and expectations. Many studies have found substantial associations between patient satisfaction and sociodemographic features such as age, but the results however are inconsistent and sometimes contradictory, the exception being that older patients tend to be more satisfied than younger patients. The physical and psychological status is mainly concerned with the health condition of a patient prior to receiving treatment that may

cause the patient to be more or less satisfied and the studies showed a positive association between health status and satisfaction.

The question of whether age, gender, or educational backgrounds have an impact on patient satisfaction is an important one to be considered. There have been so many arguments in discussing these issues and their impact on satisfaction, as patient satisfaction is a term that can be interpreted differently by patients, its meaning can also differ for one patient at different times (Carr-Hill R. 1992; Arnetz J. and Arnetz B. 1996). The argument to be addressed here, is that these issues are difficult to standardise and vary from population to population depending on the setting or service on which we need to assess the quality (Cohen G. 1996). Also, the researcher could use the result of other studies as comparative data to his findings, but with caution this data can be used for planning purposes but would need some further analysis or deep surveys.

Various studies have shown diverging results concerning possible relationships between patient characteristics and patient satisfaction with care and treatment (Cleary P. and McNeil B. 1988; Williams S. and Calnan M. 1991; Minnick A., Roberts M. et al. 1997). Younger patients reported to be less satisfied with given care compared to older patients (Williams S. and Calnan M. 1991; Carr-Hill R. 1992; Cohen G., Forbes J. et al. 1996; Sitzia J. and Wood J. 1997; Lovgren G., Sandman P. et al. 1998; Wallin E., Lundegren P. et al. 2000). (Williams S. and Calnan M. 1991) found that sociodemographic variables such as age and gender, to be of importance when assessing care, while, (Steptoe A., Sutcliffe I. et al. 1991; Wallin E., Lundegren P. et al. 2000) mentioned that gender has no effect on satisfaction, but university educated patients tend to be less satisfied with care given to them. (Alasad J. and Ahmad M. 2003) argue that females tend to be more satisfied than male

patients, and a higher level of education is accompanied with a low level of satisfaction. These are important considerations when using surveys of patient satisfaction

2.4.3. The assessment of patient satisfaction in A&E departments

The emergency department is one of the busiest and most overcrowded facilities within the hospital and is frequently described as a bottleneck (American College of Emergency Physician 1990) .(Vanrooyen M., Grabowski J. et al. 1999; Sanders A. 2002b) pointed out that concern about the quality of health care has been a major focus of the public, the government, regulatory agencies, and payers as problems in the quality of health care; the underuse of health care services, the overuse of health care services, and the variation in health care services, all of major concern to consumers, purchasers, and policy makers. Quality problems in health care can undermine the confidence that medicine is scientifically based on the speciality of emergency medicine marked by high stress, high acuity of patients, immediate decision making with incomplete data, and an inability to control the patient volume, all these factors can affect the quality of health care delivery in the emergency care system. Hospital accident and emergency department (A&E) is the first level of hospital patient contact having both physical and social dimensions. Hospitals emergency admissions have even greater impact than arranged admissions. Considering the ever-tightening constraints of managed care, health care providers are highly cognizant for the need to progressively improve service delivery. Consequently, hospitals (A&E) are devoting considerable attention to quality implementation and improvement methodologies. These can give organisations measurable performance gains necessary for successfully responding to pressures for

lower costs, higher quality, satisfying patients and/ or family's needs and expectations, and improving access.

(Moore K., Coddington D. et al. 1996; Reger L., Tourneau L. et al. 1996; Smith H., Piland N. et al. 1999; Dorozynski A. 2002) reveal that in the past, quality assurance and utilisation management programs in hospitals and other intensive care settings provided a convenient platform for the evolution of inpatient quality control programs.

(Kennedy M., Boyce N. et al. 1999) declare the importance of quality in hospital emergency services and the major impact on care delivery in the study aimed to describe the current level of implementation of quality management structures and practices with Australian hospitals emergency departments, and to describe the level of association between the presence of quality management structure and process, and the achievement of associated improvements. The results of the study show that designation of hospital quality improvement physicians was founded in 40 % of institutions, an emergency department quality improvement physician by 40 %, and an emergency department quality improvement nurse by 67 %. A structured system for quality management indicator analysis was present in 67 % of the departments, in 45 % of the departments public reporting of performance occurred. The conclusion of the study revealed that a demonstration of the links between quality management structures, its indicators of activity, and the achievement of outcome improvement is fundamental to quality improvement methodology. These links provide support for the effectiveness of quality approach in promoting change and performance improvement.

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A&E yearbooks illustrate how the number of attendances has steadily grown over the years. The use of A&E departments by patients whose ailments are neither accident nor emergency has been deprecated for years. It is a well-known fact that many of the accidents that are attracted to hospitals are minor ones which general practitioners can deal with. The misuse of A&E department may occur because patients have mistaken beliefs that their condition require the services of an emergency hospital service and mistaken beliefs about the urgency of their condition, and because patients are not registered with a general practitioner, all these factors indicate the need for an effective quality assurance programme to enable emergency services to deal effectively with patients who are in need, in a timely manner.

It is very important in any emergency service for the purpose of implementing quality, to try to find the points of weakness that will be considered as the starting point for quality improvement, such as a complaint against the department services(Schwartz L. and Overton D. 1987) . (Curka P. , Pepe P. et al. 1995) explain the relationship between incidence, source, and reasons for all complaints received by a large municipal emergency medical services programme, with a retrospective review of all complaints received during three consecutive years (1990-1992) in a centralised emergency medical services system serving a large municipality (population 2 million). The study reveals that a review of complaints provides information regarding emergency medical service system performance and reveals targets for quality improvement.

2.4.4. Assessment in A&E in general

Users' satisfaction occupies a central position in the strategy of marketing-oriented organizations since the purpose of marketing is to satisfy consumer needs in an efficient manner, thereby generating the requisite profit for the organization to survive and grow (McMillan J., Younger M. et al. 1986). In A&E departments, patient satisfaction is particularly important as these departments have been viewed as the 'shop window' of the hospital services. More people are seen in A&E than any other hospital department and the public perception of the hospital services may be based purely on this department (Booth A., Harrison C. et al. 1992). The high volume and high complexity of emergency practice creates an environment that is prone to errors and quality concerns. The lack of continuity with patients, coupled with an inadequate information infrastructure for care across the continuum, often forces emergency providers to see patients without all the information needed to make cost-effective, high quality decisions (Burstin H. 2002).

(Trout A., Magnusson A. et al. 2000) recognized patient satisfaction as an indicator of the quality of care provided by the emergency department (A&E) personnel. It is this perception of satisfaction that becomes the basis for future A&E choice or the recommendation of a specific A&E to other potential patients. They perform an evidence-based literature review to: 1) characterize measures of patient satisfaction; 2) identify factors that have been associated with overall A&E patient satisfaction; 3) critique the methods used to assess patient satisfaction in the literature; and address how this information can be beneficial to those reading the satisfaction literature or designing a satisfaction survey instrument. The Medline database was searched for studies addressing A&E patient satisfaction, from January 1976 through July 1999. Results showed that multiple measures have been used to evaluate overall patient

satisfaction. Sixteen studies were found associating A&E patient satisfaction with service and patient factors. Most studies are observational and of these, most are cross-sectional. Hence, cause-and-effect determination of factors responsible for patient satisfaction cannot be resolved using the current literature. Conclusions can be drawn that despite considerable methodological variability, key themes (e.g., association of satisfaction with patient information, provision of patient interpersonal factors, and perceived waiting time) emerge from a review of the A&E patient satisfaction literature. To standardize future investigations, clinicians and investigators should use a common definition for the state of overall patient satisfaction, e.g., when the patient's own expectations for treatment and care are met (or exceeded). This common definition should be incorporated into the instrument used to measure overall A&E patient satisfaction.

In a US study (Gesell S. 2000) the ten key features of quality in A&E that influence patient satisfaction were:

- Degree to which staff care about you as a person.
- How well you are kept informed about delays.
- Nurses concern to inform you about treatment.
- Amount of attention paid to you by nurses.
- Staff concern to inform your family/ friend.
- Nurses take your problem seriously.
- Courtesy shown toward family/friend.
- Doctors concern for your comfort.
- Doctor takes your problem seriously.
- Doctor explains tests and treatments.

At face value, many of these would be appropriate for use in the Saudi setting.

In a systematic review (Taylor C. and Benger J. 2004) describe evidence relating to patient satisfaction in emergency medicine from January 1990 to January 2002. Reviewed papers were divided into those that identified the factors influencing overall satisfaction in an emergency department, and those in which a specific intervention was evaluated. Results showed that, patient age and race influenced satisfaction in some, but not all, studies. Triage category was strongly correlated with satisfaction, but was confounded by waiting time. The three most frequently identified service factors were:

1. Interpersonal skills/staff attitudes;
2. Provision of information/explanation;
3. Perceived waiting time.

Seven controlled intervention studies were found. These suggested that increased information on A&E arrival, and training courses designed to improve staff attitudes and communication, are capable of improving patient satisfaction. None of the intervention studies looked specifically at the effect of reducing the perceived waiting time. Key interventions to improve patient satisfaction will be those that develop the interpersonal and attitudinal skills of staff, increase the information provided, and reduce the perceived waiting time. Future research should use a mixture of quantitative and qualitative methods to evaluate specific intervention. The issue of the need for a mixture of quantitative and qualitative methods to evaluate intervention is within the scope of this study and its methodology (see introduction & methodology chapters).

2.4.5. Assessment in A&E in Saudi Arabia

In Saudi Arabia, the emergency departments are the only widely available medical service free of cost in the “out of hours” period. Hospital Emergency Departments are characterized by the following:

- The absence of common work standards for all staff to follow,
- Lack of qualified emergency doctors and nurses,
- The presence of a mixture of staff nationalities (Arabic & non-Arabic speakers),
- Poor referral system from primary care,
- The absence of quality champions to motivate improvement and staff participation in quality projects

Since quality in health care is a recent initiative in Saudi Arabia, especially within the scope of Ministry of Health services, there is little experience of measuring patient satisfaction in such settings (Al-Qatari G. 1997; Al Shahrani N. 1999; Al-Qatari G. and Haran D. 1999). Data in this field is limited and existing studies focus on the technical side of emergency services such as the urgency of the presenting problems (Al-Shehri A., Thomas M. et al. 1991; Siddiqui S. and Ogbeide D. 2002).

Consequently, there is no national standard instrument for measuring patient satisfaction within hospital emergency departments in Saudi Arabia. Hence we must look to the experience in other developed countries to create instruments that are acceptable, valid and reliable in a cost-effective timely manner.

2.5. What are the gaps in experiences of quality improvement implementation?

2.5.1. Experience of using quality frameworks in different settings

Quality language still causes much confusion as the terminology used has a special meaning that is not found in dictionaries, other words have multiple meanings and there is a need for standardising quality wordings within the terminology to describe concepts, deeds, and meanings. (Saturno P. 1999) mentioned some obstacles to standardisation, the differences in the technology, dialect, and cultural history of the various industries, the rapidly changing ingredients of fitness for use (quality), and the deliberate efforts of human beings to create and use terminology to secure benefits for their organisation and for themselves.

(Ovretveit J . 1992; AL-Assaf A. 1998) outlined the key components of any organisation quality framework as follows:

- Organisation has a strategy.
- Organisation defines its target clients and their needs.
- Organisation is clear about the requirements that it has to meet.
- Organisation has an overall design.

Organization strategy is a strategy that helps the organization to determine the success of the health service and is clearly understood by all. The strategy gives the direction and focus to health organizations and provides a vision of the position the service wishes to occupy in health markets. Any organizational strategy should revolve around the quality management systems, and planning should be such that a quality product results. The organization should define the target clients that the service is projected to and the needs of those clients. All this cannot be reached without a healthy organization that has a structure to survive on. (Ovretveit J . 1992; Ellis R. and Whittington D. 1993; Joint Commission on Accreditation of Healthcare

Organizations 1993; AL-Assaf A. 1998; Reinke J. 1998) agree that a structured approach to quality implementation is effective when dealing with complex processes or problems.

2.5.2. Experience in developing countries

To date there are few documented/ published sustained QA efforts in developing countries. The Quality Assurance Project has been a leader in efforts to improve quality of healthcare in developing and middle income countries. This programmes objectives are to:

- Promote the application of effective improvement methodologies to strengthen quality of priority health services
- Institutionalize quality assurance activities at a national or regional level
- Build institutional capacity to sustain quality assurance efforts
- Document and evaluate improvements in human resource management (HRM) that affect quality of care
- Conduct research to adapt QA and HRM approaches to the needs of developing and middle-income countries
- Improve outcomes in the priority health areas, such as child survival, family planning, HIV/AIDS, malaria, safe motherhood, and tuberculosis

A few developing countries have institutionalised a formal quality assurance program (De Geyndt W. 1995). In Malaysia, the quality assurance programme started in 1985 at the level of MOH hospitals. To implement QA two approaches have been adopted: the National Indicator Approach using indicators common to most hospitals; and the Hospital Specific Approach where each hospital identifies its

own shortcomings in quality. There are eight steps of the cyclical quality assurance process:

- Problem identification: national and hospital specific;
- Prioritisation of problems: selecting problem areas strategically;
- Assessment of quality of care: formulate criteria for selecting good quality indicators, apply preset criteria, establish cut off points and identify quality problems;
- Problem analysis: determine the possible causes of the problems;
- Investigation: confirm the causative factors identified earlier;
- Identification of remedial actions: identify practical and easily implemented measures;
- Implementation of remedial actions: draw up action plan, assign implementation responsibility and set time frame;
- Evaluation of quality of care: assess quality again and repeat QA process cycle if quality is still not meeting the preset criteria.

At that time, the Malaysian MOH successfully installed a QA program and developed a large number of indicators and standards (Malaysia 1991). The Malaysian experience is one of the most successful experiences as it provided a practical guide to a simple way of implementing quality assurance at local and national levels. The first comment is that in the approaches mentioned, it is easier if the two approaches are combined to form one MOH national approach; the National Indicator Approach uses indicators common to hospitals, and each hospital applies this approach according to its quality shortcoming making it easier and practical. The second comment was that they did not mention or explain if there was a strategy for

quality planning or not, as the strategy would assure continuity of quality and support management.

During the last decade, quality of health care has received increasing political and public health attention, fuelled in part by growing local autonomy and democratisation, decentralisation of health systems, and health sector reform. (Silimper D., Franco L. et al. 2002) discussed that world wide, significant efforts are underway to improve the quality of health care being offered to people, and quality assurance activities are critical to these efforts. They argue that the key question is how to establish and maintain QA as an integral, sustainable part of a health system or organisation. Ministries of Health want to know in which component they should invest scarce resources in order to maintain implementation of effective QA interventions throughout their delivery systems.

In Saudi Arabia the quality assurance project started with the Primary Health Care (PHC), the project was established with the objective of setting standards for the various primary health services and activities, and covered aspects of them initially. Another objective was to define sensitive indicators to continuously assess and monitor compliance with pre-set standards and outcome measures. The third objective was to define the planning, monitoring and evaluation process. Both intrinsic and extrinsic standards were used, taking into consideration the Donabedian model of quality composed of structure, process and outcome, as a framework (Al-Mazrou Y. and Farag M. 1994; Al-Qatari G. 1997).

(De Geyndt W. 1995; Brown L. , Franco L . et al. 2001)share the same ideas about the QA implementation strategy in PHC in Saudi Arabia in general by using Donabedian's model of implementation. Their implementation strategies are:

- QA must be customer driven: customer needs and expectations drive the QA efforts;
- QA must focus and improve the work process and systems;
- QA must raise performance standards and assure conformance;
- QA requires a supportive organisational culture to encourage a team approach to problem solving and quality improvement;
- QA must use data to analyse service delivery process.

(De Geyndt W. 1995) mentioned that the proposed conceptual model has settled around the structure-process-outcome (Donabedian's model of quality see section 2.3.2) to be used in developing countries, and this will require defining the three concepts; examining the empirical relations and casual linkages among these three concepts; selecting and organising measurable indicators; and stating the minimal organisational and technical requirements for proper implementation of quality improvement measures. He argued that a single minded preoccupation with structure-process-outcome may obfuscate the goal of changing organisational cultures to include quality improvement as part of the fabric of the day to day work in providing health care, and it must be stressed that the degree of difficulty in measuring quality increases as one moves from structural variables to process measures and to outcome of patient care. (Egglı Y. and Halfon P. 2003) argue that the Donabedian's model is inappropriate for organising hospital quality management. In philosophical terms, they mentioned that structure is defined as the steadiness of process (Peacocke A. 1983), and most researchers have distorted this by substituting

resources for structure and activities for process, although these concepts are by no means interchangeable: both resources and activities can be viewed as process or structures. Resource transactions are actual processes, whereas the quantity and type of resources used are structural. The arguments here made by (Eggle Y. and Halfon P. 2003) is that Donabedian's framework is derived from the systemic model, which stipulates that the hospital generates a process which transforms resources into health results (Donabedian A. 1980). This model is subject to doubt, however and should be viewed as both input (investment) and output (benefit) and it is difficult to imagine hospital transformation without patient input (uncertainty, suffering, poor prognosis, etc.) and output (diagnosis, relief, improved prognosis, etc.). The previous argument is to some extent a deep philosophical analysis of Donabedian's model or framework, but the arguments here in using this model is that the patient concerns and participation should be seen at the core of applying this model. Another argument may be that this model is inefficient in applying quality in hospitals as the outcomes vary from one hospital to another and are evaluated differently from one patient to another and quality service in hospitals deals with pain and recovery. Another argument made by (Gilson L., Magomi M. et al. 1995) that good structure is necessary, but not sufficient in providing high quality health care. For example, if there is no scalpel in the operating room, the process of care for a patient with appendicitis will clearly be poor .so it could be suggested that this model would be more efficient when applied in PHC as there are certain goals to be achieved that are easily compared with others e.g. vaccination coverage.

2.6. Conclusion

Quality in health care is an important issue recognised today as a global concern to all countries to ensure that the health service provided is a quality service. Quality improvement is based on individual and organisational changes in attitude and awareness. It is about both system and culture. In Saudi Arabia, the concept of quality and quality assurance are new innovations. In the year 2000, the Ministry of Health, as part of its commitment to quality health services, established a General Directorate of Quality Assurance in Ministry followed by quality assurance departments in every health region of the country. The A&E departments (study target department) is the first level of hospital patient contact, and is one of the busiest and most overcrowded facilities within the hospital and frequently accompanied by a high rate of complaints and dissatisfaction, so quality improvement is a major concern for both clients and providers as well as the government

To make continuous quality improvements within the A&E department services, we have considered the potential usefulness of developing an appropriate quality framework for Saudi Arabia and designing a strategy for introducing quality assurance methods across the A&E services. Such a quality framework should provide:

1. A means for development of quality culture among health care providers;
2. A model for how quality improvement can be achieved as a result of an increase in services users satisfaction;
3. A means of evaluating and demonstrating quality improvement;
4. A means for integrating quality improvement into the organizational strategies.

The aim of this study was to develop and implement such a quality framework in Madinah hospital emergency services in Saudi Arabia, and compare how effective the structured quality intervention (developed as a result of quality framework) applied in one hospital A&E department (King Fahad Hospital) was with efforts to improve quality in a second hospital A&E department as a reference hospital (Ohud Hospital) where no structured approach to quality improvement was employed.

In the developing of the quality framework employed in this study, the study was most influenced by:

- The steps of the ground work needed to develop any quality framework (see section 2.5.1) outlined by (Ovretveit J . 1992; AL-Asaaf A. 1998);
- The quality cycle (figure 2.1) mentioned by (Ellis R. and Whittington D. 1993);
- The Wel-Qual frameworks (figure 2.3) developed and pointed out by (Ovretveit J . 1992);
- The 10-steps implementation process of quality assurance developed by JCAHO and mentioned by (Brown L. , Franco L . et al. 2001) as the implementation process was based on experience of QA projects in developing countries (see section 2.3.2).

The following chapter describes Saudi Arabia from different perspectives. Information about the study region (Madinah) where the study was applied will be presented.

Chapter three

Situational Context of the Study

3. Chapter summary

This chapter provides the background about the kingdom of Saudi Arabia, describing the geographic and socio-demographic characteristics, the political and economical considerations, and the health care system. The effect of different Saudi development plans on the health sector is discussed. Different sources of health care in Saudi Arabia will be pointed out to explain the diversity of health services providers. Specific information about the region (Madinah) where the study was applied will be mentioned regarding geographic, demographic considerations as well as sources of health services there.

3.1. Saudi Arabia

3.1. 1. Geographic and socio-demographic consideration

Saudi Arabia is an Islamic monarchy that approximately occupies four-fifths of the Arabian world (figure 3.1). King Abdulaziz Bin Saud unified Saudi Arabia under the name of Kingdom of Saudi Arabia on 18th September 1932 proclaiming the Kingdom of Hijaz in the west and Najd in the centre. The total land area is 2,250,000 square kilometres (868,730 square miles) the country has no rivers or lakes except for dry “wadis” or river beds which contain water only during the rainy season. The climate in the country is hot and dry. A humid climate prevails along the coast for six months of the year. During the long summer month’s midday temperatures may reach 48 °c. Winter is reasonably cool. The average annual rainfall throughout the country is generally very low, being 5 inches or less. Vegetation is sparse and widely scattered.

The fauna is also limited. The most important crops are dates, wheat, barley, corn and alfalfa. Fruit and vegetables are being grown in increasing amounts (Sebai Z. 1985). The land area of Saudi Arabia is bigger in size than that of Western Europe or almost equal to one third of that of the United State of America. According to the 2004 census, the population is 22,673,538 million: Saudi citizens 72.9%; 27.1% non-Saudi residents. The Kingdom consists of thirteen Administrative Regions: Al-Baha, Al-Jouf, Asir, Eastern, Hail, Jizan, Madinah, Makkah, Najran, Northern Border, Qasim, Riyadh, and Tabouk. The entire population is Muslim, speaking Arabic, English is the country's second language. The Saudi currency is the Saudi Riyal (one American Dollar is equal to 3.75 Riyals).

Figure 3.1: Map of Saudi Arabia from (Saudi-US Relation Information Services. 2005) .



3.1. 2. Political considerations

The Custodian of the Two Holy Mosques, the King, is the highest political and administrative authority in the country. Islam is the source of judgment and the source of life and every process is controlled by the regulations of Islam. Nowadays democracy is being introduced within the political culture of Saudi Arabia by introducing an election process and voting system, this can be seen by the introduction of the Saudi Consultative Council that is made up of appointed citizens who have the knowledge and expertise in all issues needed for the governing body. The Consultative Council's job is to study any subject referred to them to help the government to take decisions. The City Council is another way of democracy implemented in year 2005. This council belongs to each city. The council consists of members, half of them assigned by elections from the public and the other half selected by the government. The main job of this council is to discuss issues relating to the city's improvement.

The King is assessed by the Crown Prince, Council of Ministries, which meets every Monday with the King to discuss national and international issues and take appropriate decisions regarding it to run the administration of the country.

An Amir, who is assigned by the Minister of the Interior and then appointed by the King, governs each of the thirteen Administrative Regions. The Amir is accountable to the King, the Crown Prince, and the Minister of Interior. Each region consists of towns and villages, a Mayor appointed by the Amir of the region governs the towns, and a chief also appointed by the Amir governs the villages. Each region has authority to govern its own affairs. Each ministry has its own branch in every region to deal with the Ministry's scope and delivery of service, for example the MOH branch in Madinah region is called General Directorate of Health in Madinah. These

branches are accounted to its Ministry's Deputy Ministers, and the Regional Amirs. Each administrative region has its Regional Council which is supervised by the Amir, and members who are the heads of all governmental branches or department besides some appointed members who are key members in the community that all meet weekly with the Amir or his personal deputy.

3.1. 3. Economic consideration

Saudi Arabia has emerged from being an underdeveloped desert kingdom to become one of the wealthiest nations in the region by the aid of vast oil resources. The oil price fluctuations impose serious economic challenges to Saudi Arabia. Oil revenues comprise about three-quarters of the national income, making the country highly vulnerable to world price fluctuations. The country is highly dependant on oil revenues as the main source of income. (Gallagher E. and Searle C. 1985) mentioned that the revenue from the export of petroleum is virtually the sole source of wealth for the country. In recent years, the condition has improved to the extent that leads to a noticeable development in the health service in Saudi Arabia. Saudi Arabia's wealth has generated a great deal of pressure on the social and economic sectors of the nation facing challenges of rapid development. The discovery of oil resources was the major turning point in the economic field but also in the health care industry.

Resource utilisation and the spending pattern of Saudi Arabia are affected by some factors that are considered to affect the pattern of resources spending. (Al-Qatari G. 1997) mentioned that the country occupies a large land area straining the efforts usually made to extend health care to every corner. This is coupled with a high urbanisation rate, 80% in 1994 that has characterised the country, which requires that

large resources be put into providing the various essential services. This has diverted many of the resources that were supposed to be put into rural areas to meet the high demands in urban areas. The huge desert area, coupled with the varied topography in the various areas, has made it difficult to connect the various areas of the country. The high number of neighbouring countries, Jordan, Iraq, and Kuwait in the North, Bahrain, Qatar, and United Arab Emirates in the East and Oman, and Yemen in the South, and the long coastal area both in the east and the west, has increased the efforts necessary for security as well as for economic and health control.

This is also true due to the presence of Makkah and (Gallagher E. and Searle C. 1985) . The huge oil revenue with the unstable oil prices along with the dependence on oil revenue as the main source of income has made planning difficult.

This has also contributed to embarking on many projects that were not easy to finance, taking into consideration the fluctuating oil prices. On the other hand, the high rate of development over two decades that has touched almost every aspect of life and almost every corner of the country has necessitated a running cost for many of the projects, which are becoming hard to sustain with the rocketing of the world prices.

One can add the increasing demand for money to perform the necessary preventive and corrective maintenance (scheduled and non-scheduled) that has increased with the increased lifespan of the existing projects, which has also contributed to resources utilisation.

The relatively high percentage of expatriates in the country as a source of cheap labour, although gradually decreasing, has contributed to the unemployment problem

and has urged the government to take many precautions to encourage the private sector to employ Saudis.

Other major factors that directly affect the health of the people as well as the health services of the country are:

- The very rapid growth rate 3.74.
- The tradition of a large sector of the population which dictates that in any service facility with the potential utilisation of male and females, separation of services by a gender will be the rule, with the consequent duplication of services, efforts and money spending. Many female doctors and female nurses refuse to deliver services to males, prolonging the dependence on female expatriate health workers. This doesn't necessarily have to do with the religion of Islam (Sullivan S. 1993; Luna L. 1998; Brown C. and Busman M. 2003).
- The presence of what is called the "knowledge gap". The development of plans to provide the various modern facilities present in any western country, better housing, safe water supplies, good sanitation system, appropriate free health care, efficient communication facilities, good transportation system and reasonable and free education system. The ordinary citizen has not yet gained adequate knowledge that matches the level and pace of development reached, resulting in the knowledge gap. This has many consequences that affect the pattern of health problems in the country such as increased smoking rates, high car accidents rates, obesity, and other life style problems.

- The government's commitment to give free medical services at high standards give the public a role in applying pressure on the government to gradually increase spending in health sectors.
- The shortages in Saudi medical staff that necessitate the continuous need for expatriate health workers in a market of increasing salaries that has no limit to plan resources to.

3.1.4. Health care system in Saudi Arabia

The health care system has distinctive features that make it unique. The Ministry of Health was established in 1951, before that time the only known health care provider was the Arabian American Oil Company (ARAMCO) that provided health care mainly to company employees and their families. People used the traditional way of seeking treatment from people who seemed to be expert at that time, others used to travel to other countries such as India and Egypt seeking proper health care. By the establishment of the Ministry of Health, the development in health care services started to develop slowly until the mid-seventies where the development started to be rapid in all aspects of life as a result of the expansion of the oil industry (table 3.1). The health service is free, and from that time started in a coordinated way as health services were provided through hospitals and health centres. The uniqueness of the Saudi health care system is due to the fact that many sectors share the delivery of health services to specified groups of people, or provide health services for the community on the basis of tertiary care (table 3.2), but has no responsibility over the whole Saudi population.

Table 3.1: Development of Health Service in MOH compiled by the author from (Ministry of Health 2003)

Provision	1995	1998	1999	2000	2001	2002
Hospitals	176	187	188	191	192	193
Beds	27,000	27,790	27,860	28,140	28,290	28,790
Doctors	15,476	14,786	14,970	14,950	15,299	15,602
Nurses	35,219	36,340	37,126	36,495	36,855	37,273
Assistant Health Personnel	19,039	21,338	22,141	21,392	22,417	22,936

Table 3.2: Health Care Service Provision Statistic in Saudi Arabia from (Saudi Arabian Information Resource 2004)

Provision	Number
Hospitals	324
Beds	46,622
Doctors	31,983
Nurses	67,421
Assistant Health Personnel	38,519

3.1. 4.a. Administrative pattern of health services in MOH

MOH was established in 1951 and the Saudi government assumed a direct responsibility for public health and welfare in the whole Kingdom. The existing organisation of health services was established according to a long term plan begun in 1956 by the MOH (World Health Organization 1986). The geographical and historical characteristics of the country still play an important role in formulating the

administrative structure of MOH. The country is divided into 19 health regions, general directorates or directorates called "Mudderiaah", each with a general director or director with responsibilities for their own health and sanitation conditions. The administration of health services is highly centralised in decision making with a tendency to control the level of spending, as the resources become more difficult to obtain. Figures 3.2 and 3.3 show the organisational chart in the MOH and in each directorates or general directorates of health.

Figure 3.2: The organisational chart for the Saudi MOH

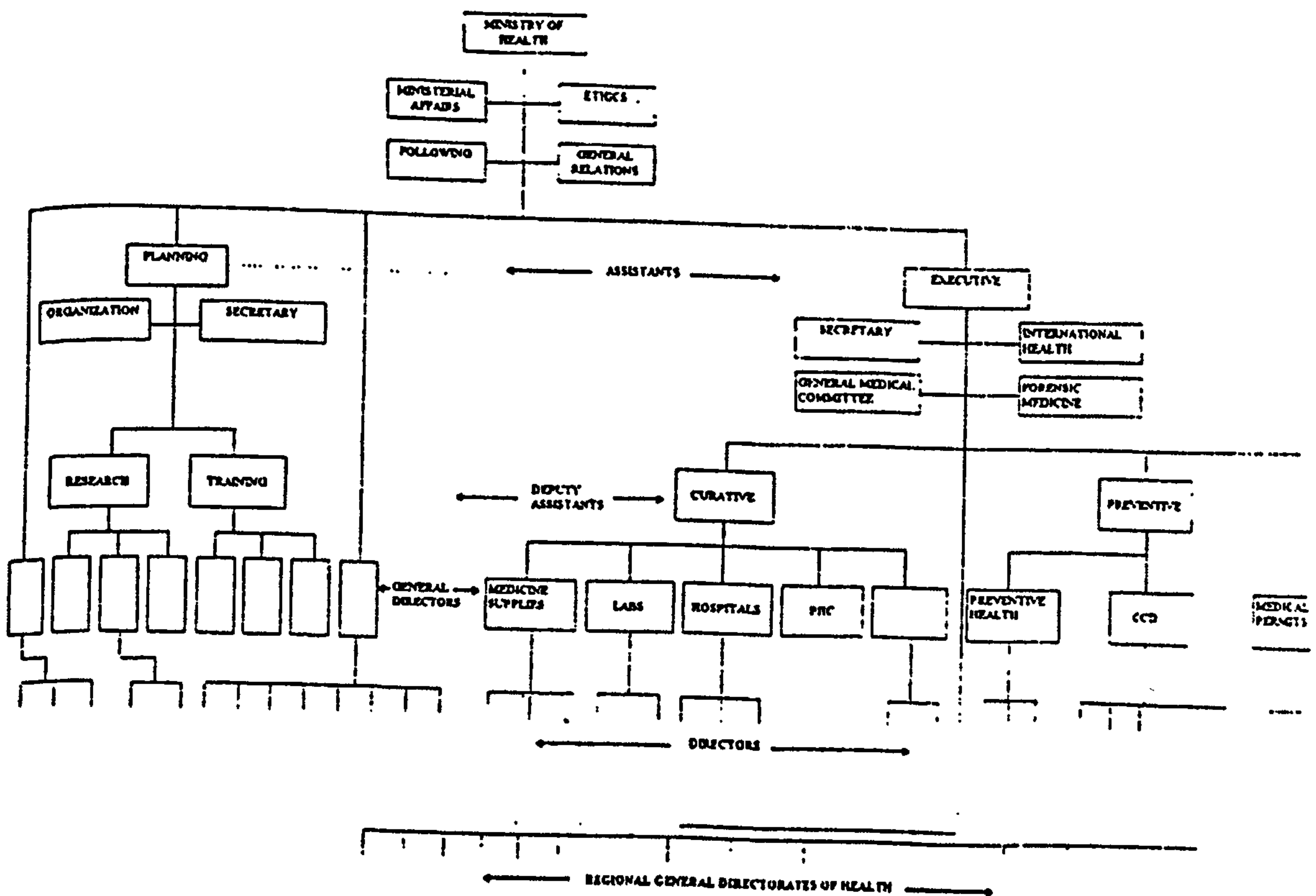
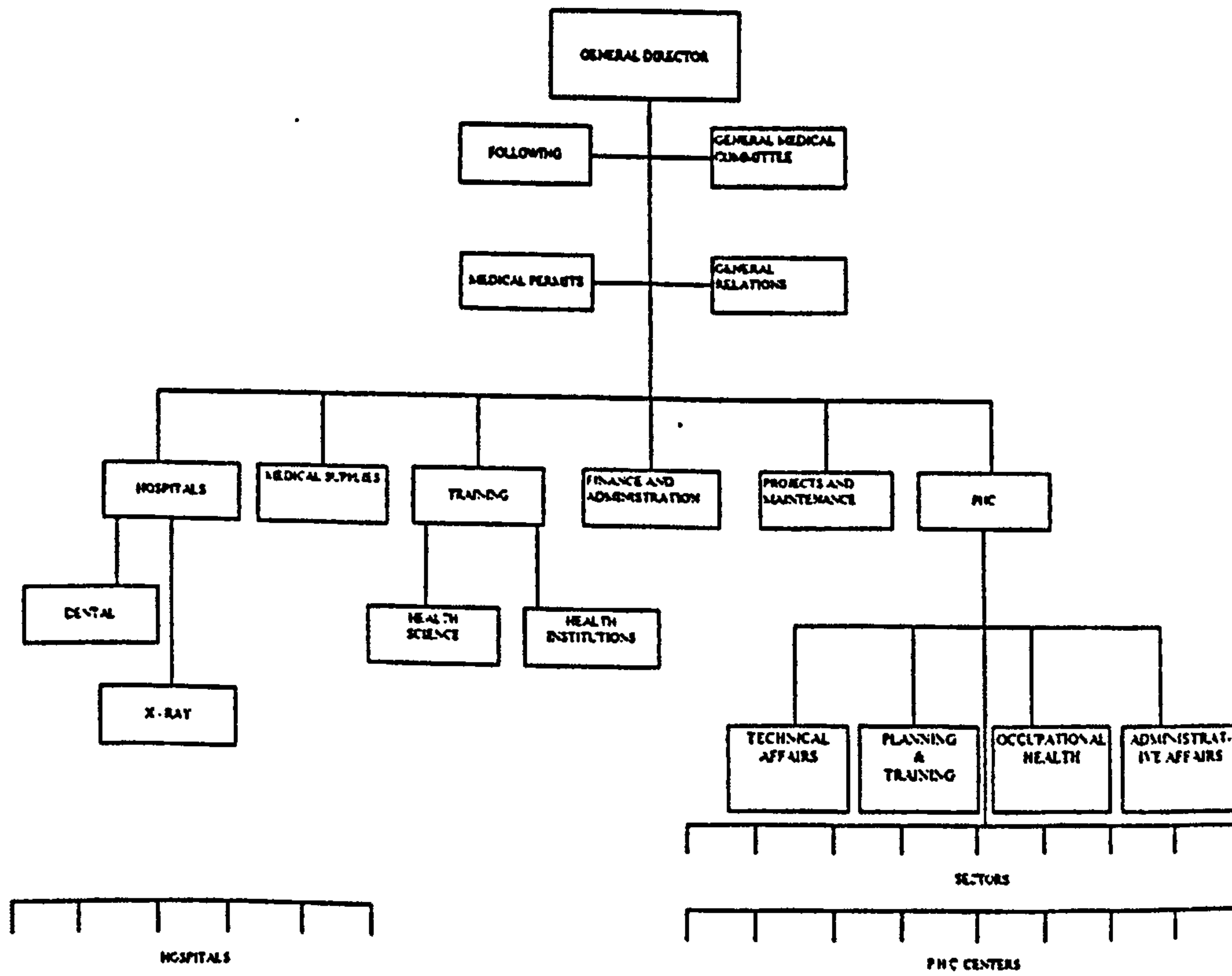


Figure 3.3: The organisational chart for General Directorate of Health



3.1. 4.b. MOH budget percentages in relation to the national budgets

The MOH percentages of budget in relation to the national budget has shown an increasing pattern of allocating money for the improvement of health care services and how the government puts health care as priority (table 3.3). Up to now, the exact amount of national expenditure devoted to hospitals, primary health care centres, etc. is not officially recognised.

Table 3.3: Percentage of MOH budget in relation to National Budget in Millions of Riyals (*) compiled by the author from (Ministry of Health 2003)

Year	MOH Budget	Percentage in relation to National Budget
1980	566	2.3
1986	882	4.4
1992	1028	5.2
1997	1075	5.9
2001	1305	6.8

(*) At the time of writing the thesis, the fixed rate of Saudi Riyals in relation to the American Dollar is 3.73 Riyals for every Dollar.

3.1.4. c. MOH General Directorate for Quality Assurance

Quality assurance activities within Saudi MOH as mentioned in section (2.2.4.c.) of chapter two was seen as new innovations in Saudi Arabia. (Quality Assurance in Saudi MOH. 2004) mentioned that quality assurance started fifteen years ago as an individual non-official initiative guided by active personnel without any local or national initiatives that identified positive aspects of the sporadic quality assurance initiative through the country. In the year 2000, the Saudi Arabian Ministry of Health, as part of its commitment to implement quality, created a General Directorate of Quality Assurance linked directly to the Saudi Minister of Health. The Ministry QA Council within the Ministry of Health, and under the presidency of the Saudi

Health Minister, consists of all the key members in the MOH who give their commitment and support to the new national QA activities within MOH hospitals.

According to (Quality Assurance in Saudi MOH. 2004) the directorate of quality assurance consists of four department as follows:

- 1- Department of Quality Assurance for Medical Services.
- 2- Department of Quality Assurance for Supportive and Administrative Services.
- 3- Department of Standards.
- 4- Department of Research and Training.

The QA Directorate objectives were as follows:

- 1- The establishment of policies and procedures to implement the ministry quality assurance council recommendations.
- 2- Identification, conceptualizing, and analyzing quality problems related to MOH and its regional branches.
- 3- Identification and studying quality improvement opportunities.
- 4- Evaluation and assessment of quality assurance programs.
- 5- The participation and cooperation with other MOH department in planning for quality assurance programs.

3.1.4.c.1. What does the General Directorate do and what QA initiatives are already taking place

From the time of its establishment, the QA Directorate made great efforts in attaining its objectives by the following:

- 1- Raising awareness of quality to leaders in MOH (regional general directors, hospitals directors, and regional quality managers) with lectures and group discussions.
- 2- Assessment of current quality situation by measuring and evaluating clients satisfaction with regard to some types of health services.
- 3- Initiated a small hospital quality project to attain commitment for quality from MOH key members and leaders in each general directorate or directorate.
- 4- Submitted suggestions and recommendations to higher authority in MOH regarding QA issues.
- 5- Delivered training courses to train staff to work as quality coordinators and quality officers to help in implementing a quality assurance program.
- 6- The creation of scholarships for the Saudi staff to obtain Master and PhD degree in quality to cover the shortage of Saudi staff in this field and to assign them within the MOH and its branches in each province.
- 7- Publication of certain materials regarding QA that helped to raise awareness and obtain leaders commitment for quality implementation.

3.1.4. c. 2. Role of each health province in relation to QA

It can be argued that, within the context of every regional general directorate or directorate, it is premature to establish complete or small projects in QA because of problems which inhibit implementation i.e.; first, within the General Directorate of QA in MOH, the number of staff working is almost 10 people, most of them non-Saudi (who are liable to leave the country at any time if they find another better jobs or feel they need to be close with their families) sharing all the work responsibilities

(quality work & directorate administrative work). All of them with no degree or qualification in quality but with acceptable experience in quality in health care which means they are still in need for more qualified staff especially Saudi staff to plan and implement quality effectively and continuously. It could be argued that almost 10 staff is an enormous team to head up QA leading to better impact at regional level and below with this level of health region. The answer to this argument could be the fact that all the QA staff in Ministry of health are with no quality degree so they might miss the scientific approach to plan effectively for QA strengthen the need for more training and educational programmes for the present staff and for more Saudi qualified staff to join MOH; second, within the directorate or general directorate of health in each province, there are few staff (not qualified in quality) with acceptable skills and knowledge, and some have no staff at all. From the foregoing, it can be concluded that the liability of quality assurance implementation in regional general directorates or directorates within the MOH General Directorate of QA, are still at infancy stage waiting for more qualified staff to be assigned within MOH and its regional branches to assure quality services being delivered to the whole population.

3.1.4. c. 3. How people feel about QA

People, have so many different perceived perspectives of QA assurance activities within MOH health services. Those who are highly qualified perceive quality as a way of the health organization to survive and defend it against any claims made against it. They believe in QA as a successful tool that the organization should apply, in line with management policy to find opportunities for improvement and continuously do so. The shortage in qualified staff and top management commitment, according to them, are the obstacles in implementing effective quality programs.

Others perceive quality as a secondary and not a basic key feature within the organizational structure. This perspective defines quality as a property for show only and continuous education programs, rather than a strategy for implementation and improvement of the service quality.

Lastly, others perceive quality as a threat, that when implemented will lead to staff being punished or the organization being attributed with low quality care.

3.2. The Saudi Development Planning and the Health Care Services

The rapid pace of development in Saudi Arabia makes the country one of the largest in the investment and commercial fields, as well as working and business activities. The Kingdom has witnessed drastic advances in the provision of health care during the last three decades. The socio-economic status of the country has improved significantly during this period, which has been paralleled by a similar increase in health personnel, hospitals, health centres, and an increased awareness among the population about the use of such facilities. The development plans that were carried out during this period paid much attention to upgrading health care sectors in order to meet the new challenges and improve quality care through seven development plans (Al Shahrani N. 1999). A series of 5-year development plans were established in 1970 to " maximise earnings from oil over the long term, and conserve depletable resources, to reduce economic dependence on the export of crude oil, to develop human resources by education, training and raising the standards of health, to increase the well-being of all groups within the society and foster social stability under circumstances of rapid social change, and to develop the physical infrastructure to support the achievement of such goals" (Ministry of Planning 1970).

The first 5 year development plan (1970-75) was developed to focus on developing the standards of health care services which included the upgrading of the health centres, introduction of health preventive programme, and health education and nutrition (Ministry of Planning 1975). Efforts were focused on increasing the number of doctors, nurses and technicians, and skilled ancillary personnel. All these efforts were designed with an eye toward Saudization where Saudi nationals would be expected to run, supervise and lead these facilities. Consequently, many Saudis were enrolled on different health programmes in major American and European countries. During the application period of this plan, quantity in the form of meeting the demands of excessive numbers of patients was the main concern of the health authorities with some emphasis on the quality of care given to patients. Also, these plans addressed the quality of life with an emphasis on housing, especially for those with limited income (Ministry of Planning 1975).

The second 5-year development plan (1975-80)(Ministry of Planning 1975) was directed to focus on the following objectives mentioned by (El Mallakh R. 1983) :

- Increasing the overall number of clinics and developing existing clinics,
- Developing preventive services to reduce the pressure on medical services.

This plan was to expand health services provided to the population in all regions with a comprehensive range of preventive and curative health services so that the people would gain a higher level of health and both contribute and benefit from the socio-economic development.

The third 5-year development plan (1980-1985), (Ministry of Planning 1980) pointed out the main objectives of health services in the Kingdom as:

- Improvement of the health status of the people and the control of endemic diseases;
- Providing all the people with free, comprehensive and integrated health services;
- Improvement of health manpower;
- Strengthening environmental health, preventive medicine and primary health care;
- Encouragement of the private health sector

This plan emphasised a direction toward improving the health condition of the people and providing a comprehensive system for the delivery of free health care service by opening more hospitals and so more beds became available, “the third plan projected to provide for 36 new hospitals to be built with the total capacity of 7,550 beds. The existing hospitals were expanded to provide 2,000 additional beds. The result of the construction was 5,538 new hospital beds by 1985 and a further 5,162 in the fourth plan (El Mallakh R. 1983). This plan also considered the importance of health manpower training, record keeping as part of the early hospital information system using computers and health research.

In the fourth 5-year development plan (1985-90) efforts were made to improve and expand health care facilities, assuring the distribution of these services all over the country, according to geographical consideration and also to expand the supply of health manpower in the Kingdom (Ministry of Planning 1985) . It can be stated that this development plan is distinguished in its qualitative direction to make development cover all health facilities (Al Shahrani N. 1999). (Ministry of Planning

1985) pointed out the main objectives of the fourth development plan in the health services areas were:

- To strengthen primary health care as the basis of a comprehensive health services network;
- To increase the coordination between the Ministry of Health and other agencies providing health services;
- To further develop the health services manpower of the Kingdom at all levels.

The fifth 5-year development plan (1990-95) was a shift in planning for most effective and efficient health care services through the emergence of new health problems, increased utilisation of health services, lack of coordination between the various health care providers and between the various level of health care, and increased financial constraints. (Ministry of Planning 1990) mentioned the target of the fifth development plan as the following:

- Increase the ratios of health manpower within the population to be one physician per 500 inhabitants, one nurse and health technician per 225 inhabitants;
- Construct 150 new primary health centres and operate 500 additional primary health centres with priority being given to regions having no primary health centres;
- Train 4200 physicians, 565 specialist physicians, 5880 nurses, and 7560 health technicians in the hospitals and training centres of the Ministry of Health;
- Expand the computer capability and information system at health directorates, hospitals and primary health centres.

Within this development plan, health care services achieved high quality. Medical programmes were expanded significantly that covered almost all the big cities in the country, resulting in highly recognised internationally hospitals being equipped with the most advanced medical equipment and run by highly qualified teams consisting mainly of Saudis.

The sixth 5-year development plan (1995-2000), more emphasis was shifted toward qualitative approach. It also stressed the importance of primary health care, health education and preventive health programmes. Emphasis was also put on increasing the effectiveness of various curative and preventive health services with the ultimate goal of protecting and improving the Saudi population (Ministry of Planning 1995).

Referring to the content and objectives of the various development plans, it could be argued that the shift was from comprehensive care towards a qualitative approach inserting certain measures to ensure the provision of quality health care.

The seventh 5-year development plan (2000-05), (Ministry of Planning 2000) outlined the objectives of this plan as follows:

- To provide an appropriate range of services, such as health care services, and to keep expanding these services to citizens, along with diversifying the means of financing and managing such services
- To continue to develop health manpower, upgrading its efficiency through training, and to replace non-Saudi manpower with Saudis
- To enhance the contribution of private health sectors
- Developing mechanisms to insure and measure efficiency and increase productivity

- Expand the health service infrastructure with an emphasis on maintaining and improving the existing facilities
- Encouraging the voluntary community participation in the planning for health care services
- Providing enhanced health programs such as maternity and child care in all aspects and at all levels, and ensuring increased attention for the disabled, introducing national programmes for their rehabilitation
- Giving attention to primary health care, health awareness and preventive medicine, increasing the effectiveness of preventive and curative institutions along with expanding the scope of health care provision for all citizens.

This development plan is to be considered as the superstar plan, as the shift is very clear to improve and expand the health services considering the importance of value for money. Another issue is the continuous commitment to improve and expand the primary health care services, with special consideration to health programmes for the whole nation. A new issue, which is indicated explicitly in this plan, is the recognition of public participation in health planning through the encouragement of voluntary work. Another issue is the recognition of the needs of the disabled and the importance of their participation and the necessary role for introducing health services according to their medical conditions.

There has been a steady improvement in main health indicators over the past 40 years, probably due to improvements in the socio-economic life style (table 3.4).

Table 3.4: Main health indicators in Saudi Arabia over the years since 1960, compiled by the author from (Al-Qatari G. 1997; Al Shahrani N. 1999; Ministry of Health Statistical Department 2004).

Indicator	1960	1981	1985	1990	1991	1992	2002
<5 Mortality Rate (/ 1000 live births)	292	131	109	91	43	40	22.4
Infant Mortality Rate (/1000 live births)	190	110	70	65	33	35	19.1
Life Expectancy At Birth	43	55	62	65	69	69	71.4
Maternal Mortality Rate (/100,000 live births)	-	-	-	-	90	41	14
Crude Birth Rate (/1000 population)	49	45	41	42	36	36	31
Crude Death Rate (/1000 population)	23	13	8	7	5	5	2

3.3. Health care providers in Saudi Arabia

The previous development plans assumed that health services were provided in Saudi Arabia from several agencies and government departments. These separate services were created with the third development plan (Al Shahrani N. 1999), until recently it is still the same and when looking to the recent health development plan (the seventh) it could be argued that it stresses these issues, as well as the role of private sectors, are to be encouraged. In addition to MOH, many other governmental sectors provide health care services to its personnel and their families on the basis of hospital care, primary care services or both (table 3.5). This includes The Ministry of Defence (MODA), the National Guard, the Ministry of Interior (MOI), and King Faisal Specialist Hospital & Research Centre. These sectors have their own health facilities such as hospital and primary health centres to provide complete health services to their employees (except King Faisal Specialist Hospital & Research Centre), and to be as tertiary care providers for patients referred from public hospitals.

In addition to those mentioned in table 3.5, many other agencies provide health care for their employees and their families only, and if needed referred their patients to MOH hospital or any other tertiary care hospitals, these agencies are:

- Ministry of Social Affairs;
- The General Presidency for Youth Welfare;
- The General Organisation for Social Insurance (GOSI);
- Private Hospitals and Poly Clinics.

Table 3.5: Saudi governmental health care providers from (Ministry of Planning 1980) cited from (Al Shahrani N. 1999)

Agency	Responsibility
1- Ministry of Health	Provision of health care through primary care centres and hospitals; preventive health services; Hajj health services for pilgrims; curative and preventive health policies and goals; medical licensure; and pharmaceuticals standards.
2- Ministry of Education	Provision of school health for students.
3- Ministry of Higher Education	Responsibility for all the phases of the medical schools in addition to the Universities Hospitals*, responsibility for the medical care of their personnel
4- Ministry of Defence and Aviation (MODA)	Responsibility for the medical care of their personnel and administration of their hospitals*.
5- Ministry of Interior	Responsibility for the medical care of their personnel and administration of their hospitals*.
6- National Guard (NG)	Responsibility for the medical care of their personnel and administration of their hospitals*.
7- Specialist Hospitals	Highly specialised treatment hospitals such as the King Faisal Specialist Hospital and the King Khaled Eye Specialist Hospital *.
8- Red Crescent Society	Emergency ambulance services; special responsibilities during Hajj; operation of emergency centres.
9- Royal Commission of Jubail and Yanbu	Medical care from hospitals located in the two industrial cities of Jubail and Yanbu.

(*) Serves as tertiary care centre for the government hospital especially MOH Hospitals.

3.4. Madinah Area

3.4.1. Geographic considerations

Madinah is located in the centre, of the western part of the Kingdom of Saudi Arabia, which is called 'the Hijaaz'. Specifically: longitude: 39.36 degrees East, latitude: 24.28 degrees North. The temperature ranges between 15-44°C.

The city lies approximately six hundred and twenty-five metres above sea level. Madinah is four hundred and thirty kilometres north of Makkah, and about one hundred and fifty kilometres east of the coast of the Red Sea, travelling in a straight line.

The Province of Madinah is composed of 6 large towns (Mohafazah); Yanbu, Aloullah, Almahd, Khaibr, Badr, Alhonakiah, and 7 small villages (Markz). The Province is bounded on the north by the Province of Tabuk, on the south by the Province of Makkah Al-Mukarramah, on the west by the Red Sea and on the east by the Provinces of Al-Riyadh (the city of Riyadh itself 980 km. away), Al-Qaseem and Ha'il (figure 3.2).

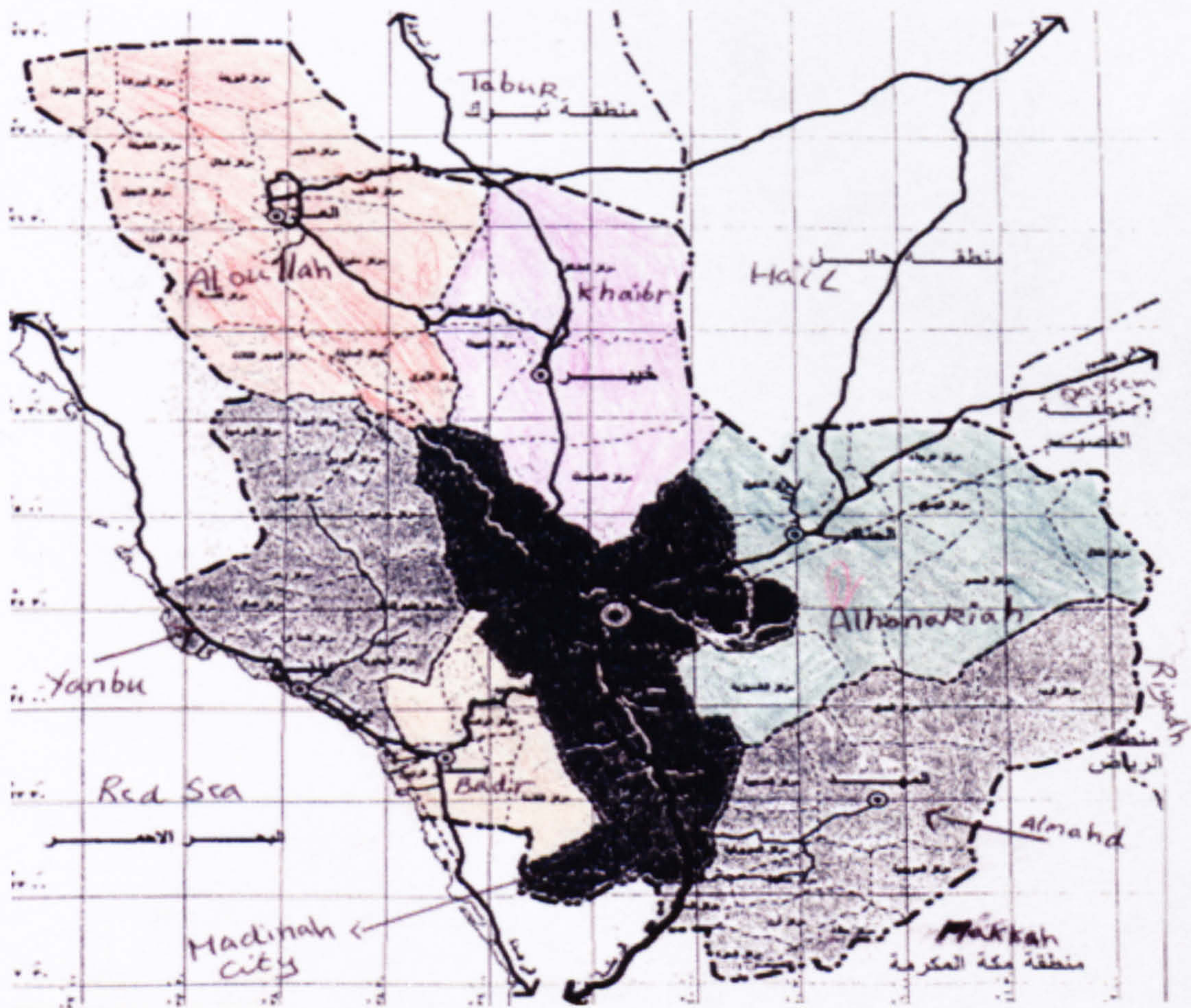
As to its size, the diameter of Madinah at its maximum width is approximately thirty kilometres. The area of Madinah is approximately five hundred and eighty-nine square kilometres, of that, two hundred and ninety-three square kilometres are occupied by buildings and their contingent land; the remainder occupied by mountains, valleys, wadis, cemeteries, public gardens, the highway infrastructure and other municipal services.

Madinah has enjoyed a distinctive location and has been historically significant and strategically important for ages. Passing commercial caravans travelling between

Ash-Shaam (Syria) and Yemen stop to find rest, and to re-supply with fresh farm products.

Madinah is now a religious centre, as it is the second holiest place in Islam and the destination of Muslims from all over the world.

Figure 3.4: The administrative map of Madinah region



3.4.2. Demographic considerations

Madinah is the largest Province in the Kingdom and one of the more famous provinces in the Kingdom of Saudi Arabia and is one of the most prosperous in growth and development. Over the past three decades, the population has multiplied several times.

The census of the year 1413 A.H. [1992 C.E.] reported the population of Madinah to be six hundred and eight thousand. (It is currently thought to be approximately 800,000) but Madinah Province is recently 1,500,000 with a growth rate 3.51 annually (Madinah General Directorate of Health 2003). This is divided between people descended from different tribes (Bedouins) and from the people of Madinah city, whose families have resided there for centuries. Others are immigrants, having originally come years ago from the Arab and Islamic countries for work.

The population is distributed in three structural development 'rings', the centre of which is The Prophet's Mosque and extends out as far as the areas behind Mountain Uhud to the north, Dhul Hulaifah (Abar 'Ali) to the west, Sed But'haan to the south and Al-'Aqool to the east.

A result of developmental growth is the distribution of population in the residential districts of Madinah. The concentration moved from the quarters directly surrounding the Prophet's Mosque, becoming multiplied in the further districts. The reason for this was the rejuvenation of districts through development to ensure and provide residential and commercial services to visitors. An example is with the districts of Qurbaan, Qubaa', Harrat Ash-Sharqiyah, and Harrat Al-Gharbiyah. This is also seen at the edges of Madinah in Abar 'Ali, Al-'Aqool and Syed Ash-Shuhadaa' (Madinah areas names). Additionally, there are always permanent residents and large numbers of visitors in special seasons and in the months of Ramadan and Dhul-Hijjah (Islamic Calendar).

3.4.3. Sources of health care in Madinah Province

Health services in Madinah Province are offered from 15 hospitals with 1985 beds capacity (another extra new hospital with 50 beds outside Madinah in small village (Fageer) is ready, but until the time of writing the thesis, not started yet), and from 127 primary health care centres. The two health institutes (one for male students and one for female students) is an academy that belongs to Madinah General Directorate of Health and accepts students after high school to provide Madinah health sector with nurses, technicians, and other health personnel staff.

3.4.3. a. Health services Inside Madinah city

Madinah health services are provided from either hospitals or primary health care centres (figure 3.5). The primary health care service is provided from centres distributed geographically all over Madinah as follows;

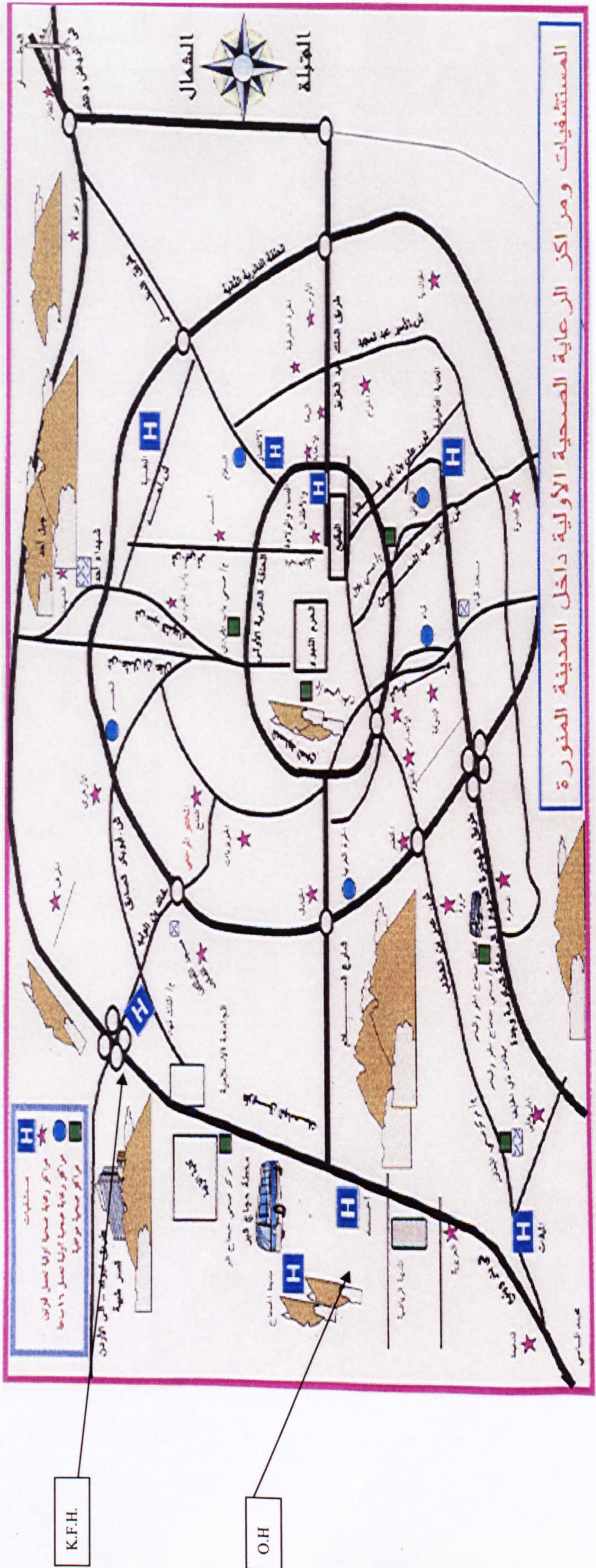
- North Health Sector involves 10 primary health care centres to cover northern area with primary health care services
- South Health Sector involves 11 primary health care centres to cover southern area with primary health care services
- East Health Sector involves 10 primary health care centres to cover northern area with primary health care services
- West Health Sector involves 11 primary health care centres to cover northern area with primary health care services

In Madinah there are 8 hospitals providing different type of medical services as follows (table 3.6).

Table 3.6: Hospitals inside Madinah (Madinah General Directorate of Health 2003)

Hospital Name	Beds Capacity
King Fahad	432
Ohud	239
Maternity and children's	391
Al-ansar	72
Meqat	66
Psychiatric	120
Rehabilitation	136
Infectious disease	47

Figure 3.5: The Health Map inside Madinah; ☆ for hospital, ○ for PHCC work for 16 hours, □ for seasonal PHCC open only in Hajj.



K.F.H.

O.H.

3.4.3.b. Outside Madinah city at small towns and villages

Health services are provided from either 7 hospitals or 85 primary health care centres. The primary health care services are provided from centres distributed geographically and according to special socioeconomic factors such as poverty over the area.

3.4.4. Main health problems in Madinah

Madinah is a large area with quite a large population. No official reference can be found to explain or detect the pattern of health problems, also from searching the MOH Statistical Report, nothing special can be detected as being a main health problem in Madinah. From the experience of the author, it can be conceptualised that the main health problems in the area are obesity, diabetes mellitus, and cardiovascular disease that is common within a high percentage of the populations and the problem is worsening with undiagnosed cases as a result of poor primary care services. This can be due to the development of life style of the population.

3.5. The influence of Islam on the responsibility for quality in health care

Islam is the Kingdom's religion and constitution. The doctrines of Islam were proclaimed by the Prophet Mohammed (PBUH) in 610 A.D. to his wife and a few close friends. The message of Islam received by Mohammed from the Angel Gabriel, stressed the total dependence of man upon one God (Allah) who has perfect knowledge and power and who transcends all things and beings. The message established Man's responsibility for the poor, the weak and adds that all will undergo judgement in the next world for their deeds in this world. Goodness will be rewarded and evil will be punished (Al Shahrani N. 1999). Islam is the encompassing ethos of

Saudi Arabia (Gallagher E. and Searle C. 1985). People cannot achieve fulfilment in life or in the hereafter without cooperating with each other to obtain benefits and prevent harm (Khoja T. and Farag M. 1995). It is also mentioned that Islamic science is the pioneer in the field of standards of the quality, type of performance, deed and saying. The Islamic scientists are leaders by using Islam as a basis for their practices. In the same way, other fields of science such as history, interpretation, doctrine, literature, linguistics, medicine, pharmacology, etc are all based on the tenets of Islam. Islam provides a guide to the rights of the society as Allah did not lay down law for an individual's interest but for the society as a whole, therefore a good Muslim should work for the society welfare. This direction and social interaction clarifies the need for a Muslim to recognise their obligations to live their lives according to the principles of Islam. (Khoja T. and Farag M. 1995).

From the foregoing, it can be concluded that as quality in health care means conformance to standards and aiming to satisfy the needs of society by way of a unified effort to do good, Islam as a religion is the source of guidance and support to Muslim organizations aiming to improve their communities as well as health care quality within the regulation of Islam.

3.6. Implications

It is realised from the foregoing that as a result, quality health care is placed as a top priority and the focus for the government and the public as well. Planners pay more attention to health care services, as it appears from the previous multi providers and multi practice organisation that necessitates the careful organisation of these services delivery. Quality as a solution is to be the tool to organise these services, beside the progress in public education and welfare being productive and healthy. The

kingdom's improvement plans move from opening health facilities, to preventive, then curative, cost effective considerations, public involvement, special needs groups considerations, considering the participation of private sector in services delivery which means giving the health customers a vote in deciding and evaluating the quality of services. The value of money is now to be raised in all aspects of services including health services. The fluctuation of oil prices is a major force for the government to search for ideas to sustain the effective delivery of health care without being affected by changing oil prices.

All the previous are an indicator for the need of quality framework that can be applied.

The framework should consider the manpower and their knowledge, the clients needs, and the shortage of resources that might affect the delivery of services by overusing the resources ineffectively, or by duplication of work done leading to a greater proportion of dissatisfaction and failure in service delivery.

The next chapter will describe the methods that were used to accomplish this study

Chapter four

Study Methodology

4. Chapter summary

This chapter is divided into five sections. The first section presents the nature of the study and the target hospitals chosen for the study. The second part points out the study plan and timescale of activities with regard to different research objectives to be achieved. The third section presents the methodology for developing and modifying the conceptual quality framework that will be used as a structured intervention. The fourth section will explain the development of the assessment tool to evaluate quality level by evaluating the change in the level of user's satisfaction at baseline stage, before implementing the intervention on the identified quality dimensions and at post-intervention stage, after the implementation of the intervention. The fifth section explains the intervention implementation process in the target hospitals, whether based on a structured one in KFH, or an informal one (unstructured) in OH.

4.1 Study plan and the time scale of activities

This study is a case-reference study (Schwappach D., Blaudszun A. et al. 2003) employing a quasi-experimental design involving Accident & Emergency Departments in two hospitals in the Madinah General Directorate of Health in Saudi Arabia, one is the intervention hospital (King Fahad Hospital, KFH), the other is the reference hospital (Ohud Hospital, OH).

The major objectives of the study:

1. To develop a framework for quality improvement in hospital A&E departments in Madinah MOH Hospitals (Saudi Arabia) that would support the design of the structured intervention and integrates quality with the strategies of services to be the choice for organizational success
2. To evaluate a Quality Improvement intervention for improving A&E services by comparing how successful such a structured quality intervention is to an informal initiative in which management exhorts staff to try to improve quality.

The secondary objectives are:

1. To identify which dimensions of service quality were seen as important by the A& E staff, managers, and the public using the services in the hospitals concerned.
2. To develop an instrument for measuring levels of service quality at baseline, before the intervention was applied, and at post- intervention, six months after the intervention was undertaken.
3. To evaluate the quality improvements within the intervention and reference hospitals.
4. To assess the influence of respondent characteristics on the levels of satisfaction.

In order to address these objectives the following study plan was developed.

STEP 1. The development of an appropriate quality framework. This was done in 2

stages:

1: Develop a structure and draft the framework.

2: Review and modify the framework with staff and stakeholders.

STEP 2. The development of a tool to measure quality. This includes the following

stages:

1: Operationalising the quality dimension to be included in the measurement tool.

2: Testing the measurement tool and revising it.

STEP 3. Training of the 2 research teams, and piloting the measurement tool.

STEP 4. Undertaking the baseline survey.

STEP 5. Developing and implementing the structured intervention for quality improvement and the informal process employed in the intervention hospital and the reference hospital respectively.

STEP 6. Undertaking the follow-up survey.

Table 4.1 shows the timescale of various activities within the study plan.

Table 4.1: Study plan and timescale of activities

Date	Activity
Step 1- The development of quality framework	
May, June, and July 2002	Structuring and drafting the framework
August and September 2002	Reviewing and modifying the framework
Step 2- The development of the measurement tool	
August and September 02	Identifying the quality dimensions to be covered
October and November 2002	Development of the quality measurement tool (the questionnaire for the baseline and follow-up surveys)
Step 3 – Training of the 2 research teams, and piloting the measurement tool.	
January 2003	Training for questionnaire survey
February 03	Piloting of survey tool and methods
February 03	Revision of tool and methods
Step 4 – Baseline survey using the above quality measurement tool	
March 1 st – 7 th 2003	KFH Survey
March 1 st – 7 th 2003	OH Survey
Step 5- The intervention implementation process	
March- August 03	The structured intervention process in KFH
	The comparison process of quality improvement in OH
Step 6 – post-intervention survey using the above quality assessment tool	
August 21 st – 31 st 2003	KFH Survey
August 21 st – 31 st 2003	OH Survey

4.2. Comparison of intervention and reference hospitals

The two hospitals chosen for the study were selected on the basis of the author's employment, which facilitated full cooperation in the study. For Study site selection criteria and how representative the target hospitals see section 1.4 in chapter one. There was little hard data available at study commencement on how these A & E departments compared with others in Saudi Arabia, but there are no compelling reasons to believe that they are not representative of other public hospitals within the MOH facilities.

Both hospitals provide similar services within their Accident & Emergency departments (see table 4.2). They provide these services free to the whole population of Madinah, and they act as referral hospitals for patients from other hospitals and primary care centers of Madinah. Table 4.1 compares the two study hospitals on available data from the existing sources. The main differences between these hospitals are:

- 1- KFH has more hospital beds than OH,
- 2- OH is located in a high-density residential area and constitutes the only source of emergency care in that area. Also, OH A&E department is used by clients to provide non-urgent care (primary care). KFH is located in a prestigious area near to hotels, palaces, and luxurious villas, so the number of patients using KFH emergency department is generally lower than at OH.
- 3- Non-urgent visits by clients in KFH are less than in OH. Likewise, urgent visits are more in KFH due to the fact that most of the Madinah visitors, (as a holy city mentioned in introduction chapter section 1.4) due to the availability of hospital beds, use KFH A&E as their source of medical care, where the majority of them come in critical condition.

- 4- Catchment wealth with KFH are more for the same reason in point (2)
- 5- Access to alternative care (private) is high in KFH due to the fact that KFH is located in more wealthy area,
- 6- Nurses number in KFH is more than in OH.

The two hospitals are similar in the numbers of doctors and the facilities available except for OH, where services such as X-ray, pharmacy and laboratory are centrally provided and serve all hospital departments including A&E.

Table4.2: Comparability of the two study hospitals

	KFH	OH
Beds	432	239
Visits to A&E in 2002	128,000	177,222
Re-attendance rate	Not available	Not available
Urgent visit	High	Low
Male: female ratio	Not available	Not available
Ambulance arrival %	Not available	Not available
Catchment wealth	High	Low
Access to alternative care	High (private)	Low
Case-mix (trauma, medical)	Not available	Not available
Waiting times	Not available	Not available
Doctors	20	21
Nurses	53	40
In-patient admission rate	Not available	Not available
Facilities (diagnostic, treatment)	General diagnostic and treatment facilities for A&E departments. (eg cardiac monitors, ECGs, defibrillators, respirators). Dedicated X-ray rooms, pharmacy, and laboratory serving the Emergency department only	General diagnostic and treatment facilities for A&E departments. (eg cardiac monitors, ECGs, defibrillators, respirators). X-ray department, Laboratory and pharmacy shared with the rest of the hospital departments, and located far from ER.
Hospital QA Department	Not present	QA Department run by one experienced nurse

4.3. The development of quality framework structure and content

4.3.1. Methodology for developing the conceptual quality framework

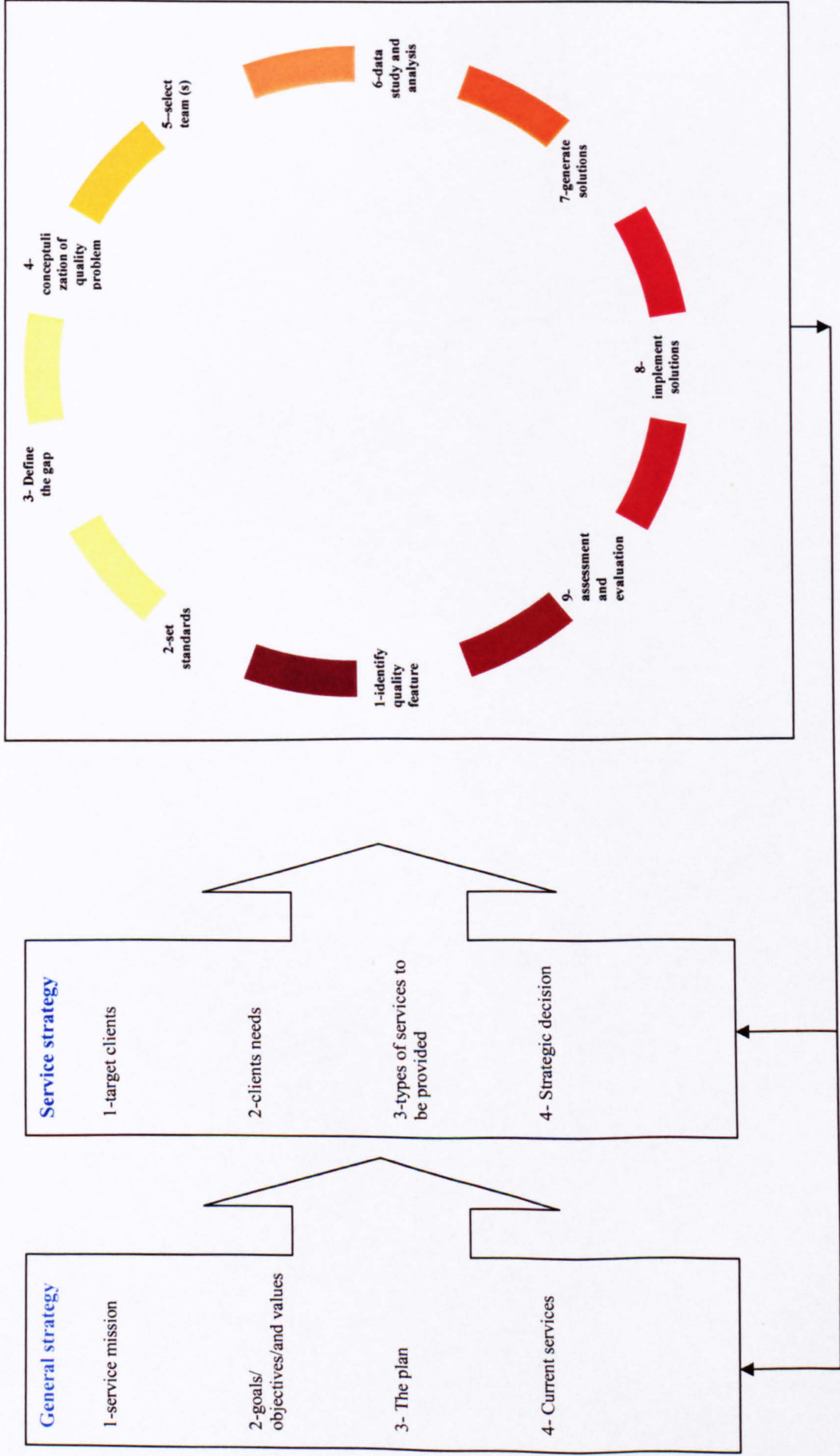
Here we describe the initial development of the quality framework on which the structured intervention is based (figure 4.1). The initial framework resulted from a review of existing frameworks and models of quality improvement, guided by consultation with quality experts in the Liverpool School of Tropical Medicine. Where it found that in Saudi Arabia no effective or efficient local or national framework for introducing and implementing quality in health care settings was known to exist, it can be said that a framework was lacking, particularly for those organizations attempting to introduce and maintain quality services and those attempting to assess their service quality before starting a formal processes of quality improvement, or to provide some indication of how the various aspects of quality fit together. The development of the initial framework is based largely on the quality frameworks and models described in chapter two sections 2.4.2 & 2.8.1.

The most significant references are:

- The steps of the ground work needed to develop any quality framework (see section 2.5.1) outlined by (Ovretveit J . 1992; AL-Asaaf A. 1998);
- The quality cycle (figure 2.1) mentioned by (Ellis R. and Whittington D. 1993);
- The Wel-Qual frameworks (figure 2.3) developed and pointed out by (Ovretveit J . 1992);

- The 10-steps implementation process of quality assurance developed by JCAHO and mentioned by (Brown L. , Franco L . et al. 2001) as the implementation process was based on experience of QA projects in developing countries (see section 2.3.2).

Figure 4.1: The first version of conceptual framework before final modifications



4.3.2. Methodology for consulting health staff and the public to review the quality framework

The quality framework was discussed with staff involved in the provision of hospital emergency services (both staff in emergency departments and staff in those units who interacted with A&E department), and public representative group in a position to comment on the quality framework, to review the framework (Ovretveit J . 1992).

The target population for this consultation and review were Health providers (doctors and nurses), and hospital management boards in the two target hospitals of the study.

Individuals from these target groups were selected by position according to their role in the provision of hospital emergency services. This framework was also presented to a group of the public because of their membership of the Madinah local health council (The Emarah Council) and those members of the public in a position to comment on the application of the quality framework. Health professionals and management board were contacted by invitation letter, attached to the first draft of the framework, for their participation in the study prior to the date of the meeting. This letter invited their participation in the study making it clear that their participation was optional (see Appendix A for the invitation letter).

Their feedback and comments were collected in response to the following:

- The feature (s) of the framework which is (are) important;
- The feature (s) of the framework which is (are) not important;
- The feature (s) of the framework which is (are) important and need to be added to the framework.

The author visited the target hospitals and the target public location and conducted the review process. Participants were given a copy of the framework and the accompanying description provided in section (4.3.2.3). Feedback was obtained by

getting individuals to take part in a general discussion, requesting them to comment on the three points noted above. The discussions were done individually, one for health professionals and the other with hospitals management board. For the group of the selected public (Madinah Health Council) the method used was focus group discussions. Their feedback and comments were collected in response to the previous points mentioned with members of the health profession and management board. According to (Bowling A. 2002) FGDs have the advantage of making use of group dynamics to stimulate discussion, gain insights and generate ideas in order to pursue a topic in greater depth. The focus group discussions took place outside of the hospitals in Emarah council office. The group was invited to the FGDS in advance by letter outlining the purpose of the study (Appendix B).

4.3.2.1. Sampling for reviewing the quality framework

According to (Ellis R. and Whittington D. 1993; Bowling A. 2002), there are no guidelines about the numbers of groups to aim for, but it depends on the complexity of the topic, and the focus group will typically contain between six and twenty participants and a group leader. In this study, the groups that commented on the applicability of the framework were made up of 5 groups as follows:

- One group of KFH health professionals (doctors and nurses) consisting of 12 participants (table 4.3);
- One group of KFH management board (hospital director, executive director, medical director, and other hospital department managers of those departments that have direct links with health services provided from the hospitals, such as patients affairs, social services dep.) consisting of 12 participants (table 4.4);

- One group of OH health professionals (doctors and nurses) consisting of 8 participants (table 4.5);
- One group of OH management board (hospital director, executive director, medical director, and other hospital department managers of those departments that have direct links with health services provided from the hospitals such as patients affairs, social services dep.) consisting of 12 participants (table 4.6);
- One group of the male public because of their membership of the Madinah local health council (The Emarah Council) and those members of the public in a position to comment on the application of the quality framework consisting of 10 participants (table 4.7).

For each group, a leader from the participants was assigned who had skills to run and motivate other participants for active participation in the discussions. The discussions continued until saturation developed (same issues being raised), the author attended and supervised the whole steps of discussions and helped to clear any points the participants felt it difficult to comment on or understand.

Table 4.3: KFH Health Professional

No.	Nationality	Age	Gender	Profession
1	Saudi	35	Male	A&E Manager (doctor)
2	Egyptian	45	Male	A&E Acting Manager (doctor)
3	Egyptian	37	Female	A&E doctor
4	Syrian	40	Male	A&E doctor
5	Sudanese	42	Male	A&E doctor
6	Philippino	38	Female	A&E Chief Nurse
7	Egyptian	45	Female	Hospital Nursing Director
8	Indian	37	Female	A&E Staff Nurse
9	Saudi	42	Male	Head of General Surgery Dep.
10	Saudi	44	Male	Head of General Medicine Dep.
11	Saudi	43	Male	Head of Cardiology Dep.
12	Syrian	47	Male	Head of Intensive Care Dep.

Table 4.4: KFH Management Board

No.	Nationality	Age	Gender	Profession
1	Saudi	45	Male	Hospital Director
2	Saudi	42	Male	Medical Director
3	Saudi	37	Male	Executive Director
4	Saudi	36	Male	Manager of Patients Affairs
5	Saudi	35	Male	Manager of Social Services
6	Saudi	46	Male	Manager of Out Patient Dep.
7	Saudi	34	Male	Manager of Safety and Security
8	Saudi	36	Male	Manager of Biomedical Engineering
9	Saudi	36	Male	Manager of pharmacy
10	Saudi	46	Male	Manager of X-ray
11	Saudi	35	Male	Manager of Laboratory
12	Saudi	33	Male	Manager of Supportive Services

Table 4.5: OH Health Professional

No.	Nationality	Age	Gender	Profession
1	Egyptian	47	Male	A&E Manager (doctor)
2	Pakistani	40	Male	A&E Acting Manager (doctor)
3	Egyptian	37	Female	A&E Doctor
4	Saudi	38	Male	A&E Chief Nurse
5	Saudi	28	Female	A&E Staff Nurse
6	Philippino	45	Female	Hospital Nursing Director
7	Saudi	44	Male	Head of General Surgery Dep.
8	Sudanese	48	Male	Head of General Medicine Dep.

Table 4.6: OH Management Board

No.	Nationality	Age	Gender	Profession
1	Saudi	48	Male	Hospital Director
2	Saudi	43	Male	Medical Director
3	Saudi	40	Male	Executive Director
4	Saudi	37	Male	Manager of Patients Affairs
5	Saudi	35	Male	Manager of Social Services
6	Saudi	43	Male	Manager of Out Patient Dep.
7	Saudi	30	Male	Manager of Safety and Security
8	Saudi	34	Male	Manager of Biomedical Engineering
9	Saudi	41	Male	Manager of pharmacy
10	Saudi	48	Male	Manager of X-ray
11	Saudi	31	Male	Manager of Laboratory
12	Saudi	37	Male	Manager of Supportive Services

Table 4.7: Male public group (Emarah Council)

No.	Age	Educational level	Marital Status	Profession
1	47	PhD Degree	Married	General director
2	52	Master Degree	Married	Ex- general director
3	48	Master Degree	Married	Business man
4	45	Bachelor Degree	Married	Work in Social Services
5	46	PhD Degree	Married	Work in Social Services
6	50	Bachelor Degree	Married	Private work
7	43	Bachelor Degree	Married	Military staff
8	40	Bachelor Degree	Married	General Director
9	39	Master Degree	Married	General Director
10	42	Bachelor Degree	Married	General Director

4.3.2.2. Data analysis for reviewing the quality framework

The whole discussions were tape recorded, in addition to notes being taken by the group leaders and the author to compare the results and to bring up any details that may have been omitted or not written appropriately. Data analysis was carried out according to the framework approach described by Pope et al (Pope C., Ziebland S. et al. 2000; Bowling A. 2002). This analysis employed five stages as follows:

- Familiarisation: immersion in the raw data (or typically a pragmatic selection from the data) by listening to tapes, reading transcripts, studying notes and so on, in order to list key ideas and recurrent themes
- Identifying a thematic framework: identifying all the key issues, concepts and themes by which the data can be examined and referenced.
- Indexing: applying the thematic framework or index systematically to all the data in textual form by annotating the transcripts with numerical codes from the index.

- Charting: rearranging the data according to the appropriate part of the thematic framework to which they relate, and forming charts.
- Mapping and interpretation: using the charts to define concepts, map the range and nature of phenomena, create typologies and find associations between themes with a view to providing explanations for the findings.

The feedback and comments collected from those groups is described as follows:

1. Common points of responses:

- All groups' members realized the importance of the quality and the benefits that the organization and the communities will get from the introduction of quality. Managers queried "why are we too late in adopting quality issues".
- The quality framework is an important tool that helps the organization to introduce and continuously improve the services provided from the organization. The framework helps the organization to save time and resources that the organization may spend when improper implementation has occurred.
- The whole groups agreed that all the features of the framework are equally important, but within the framework part (general strategy), the current service should be as no. 3, then the plan will be no. 4, as the plan is to realize the vision of the organisation that comes after the definition of the current service. Figure 5.3 shows the conceptual framework before the modification is applied. The continuous

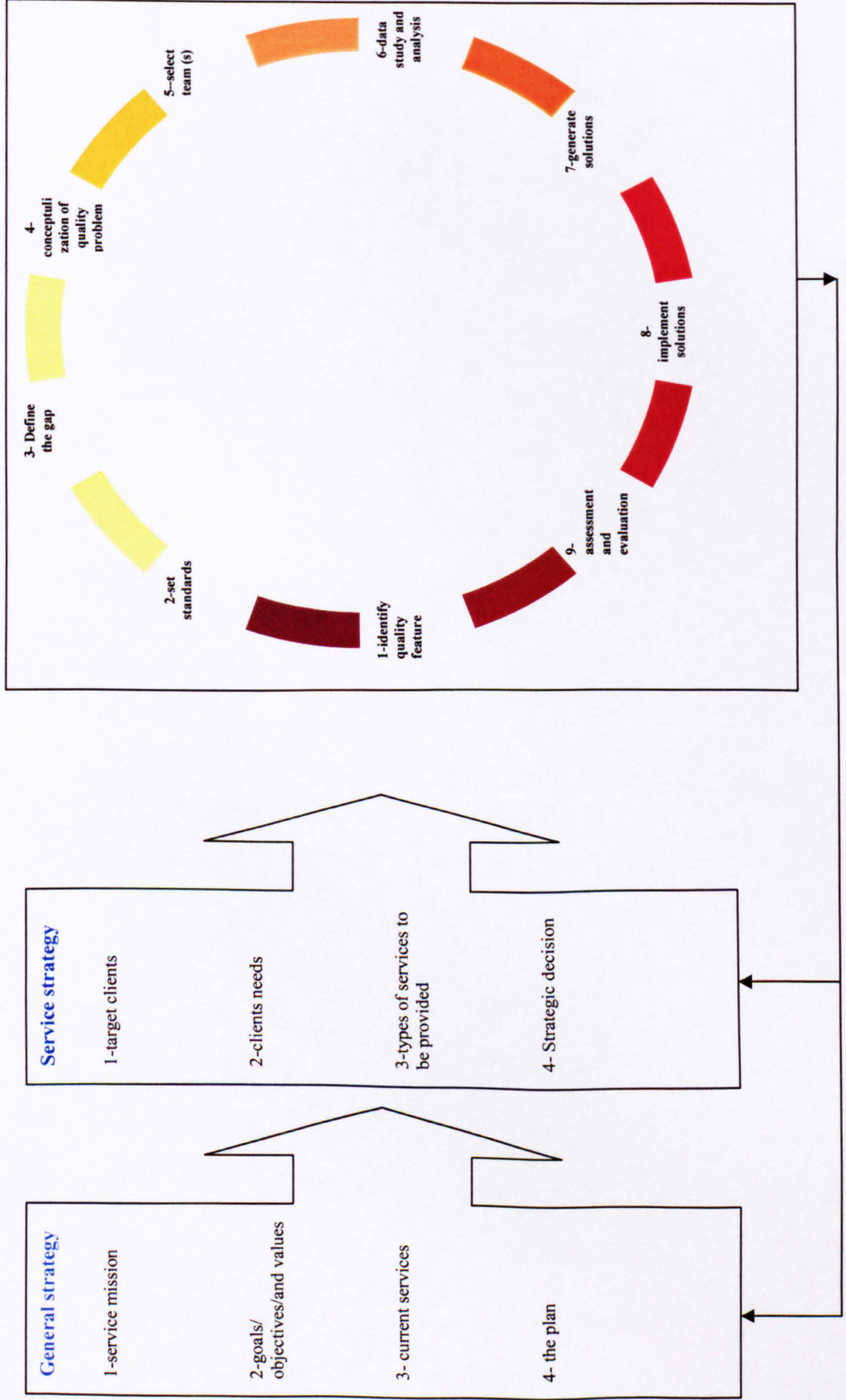
implementation of the framework to different services and organizations will determine which feature(s) of the framework are more important than others, features not important, and feature(s) important and needed to be included (according to the service and the nature of the organization), and may lead to the development of other quality frameworks. Health professionals stated, “what if the framework is applicable in an emergency, what about medical or surgical departments for instance?”

- The missing role of the public member’s participation in planning for health at national or local level is clearly stated. The group’s members stress the point of sharing responsibility between health organisations and the public to facilitate effective service provision and to reduce the rising public dissatisfaction of health services.
- The role of quality education / management commitment / presence of quality consultant at the start of any quality project for help and advice
- All groups members strongly agreed on the application of the suggested quality framework considering the above issues.

2. Minor points of responses:

- The operational quality (part no.3); the choice to use the nine steps, some of them, combine two or more steps in one step, and add an extra step is according to the

Figure 4.2: Conceptual quality framework to introduce quality in A&E services



4.3.2.3. Features of the resulting quality framework

The framework consists of three main parts:

- 1) General strategy.
- 2) Service strategy.
- 3) Operational quality.

Each part will be discussed and the practical results of the whole framework application will be mentioned later in this chapter.

1)-General strategy;

A strategy, which determines the success of the health service and is clearly understood by all. The strategy that gives the direction and focus to a health organization and provides a vision of the position the service wishes to occupy. Any organizational strategy should revolve around the quality management systems, and planning should be such that a quality product results. General strategy defines or describes the following;

Service mission;

- It is about why the service exists and what it does
- A statement of the purpose of an organization or one of its components
- Mission statement comes from a head, it answers the following questions for the organization
 - What is our main service
 - Who is our customer
 - How we offer this service

Goals / objectives / and values:

Goals:

- A general aim towards which to strive
- The ultimate desired state towards which objectives and resources are directed, hence the goals are not constrained by time or resources
- A statement of a desired future state, condition, or purpose
- Broad statements that describe the outcomes an organization is seeking

Objectives:

- A measurable condition or level of achievement at each stage of progression towards goals
- A target that must be reached if the organization is to achieve its goals
- An end point of all the planned activities, either achieved or not achieved
- Objectives carry with them a relevant time frame within which the objectives should be met

Values:

- Principles, beliefs or statement of philosophy that guide behaviour and that may involve social or ethical issues
- Beliefs which every one shows as mission & vision are carried out

Current services;

Defining the services and sub –services provided from the health organisation.

Plan;

Plan to realize the vision, including the finance, personnel, buildings, and equipment and timetable.

2)-Service strategy;

It is the key component of the general strategy and it defines or describes the following:

Target clients;

Who are the clients or service users that are served by the organisation?

Client's needs;

What are their needs, so the organisation focuses its services to meet these needs.

The type of services which are to be provided to the clients;

According to the clients needs, what are the services to be provided to the clients?

Strategic decision;

On which services to offer and which services to expand or discontinue which come as a result of the above.

3)-Operational quality;

This part of the framework is to use quality issues which are important to managers and staff to learn about quality and be familiar with a cyclical approach and the principles of introducing quality and the continuous improvements through the practical use of the operational quality steps (figure 4.2).

The quality features are the first part of the cycle that come from data from the previous parts of the framework. This data is critical in attracting clients to the service and influence service users' decisions about the service. This data should be available in order to select the quality features (dimensions). The aim is to improve those features of quality which are important to quality implementations and continuous improvement. The cycle consists of 9 steps as follows:

1) Identify quality feature(s):

Features are those aspects of service which are critical to each dimension of service quality and may come from clients / professionals / managers aspects of quality. At the start only a few will be picked out, so that a full cycle can be established. Too many features make it impossible to set standards, measure performance and follow through the cycle to action all the quality features. It shows that the service is not clear about priorities and has not done a strategic analysis.

2) Set standards:

In this step of the cycle, a service takes each of its quality features and formulates a standard(s) for it. Standards are formulated for clients / professionals / and management quality features, and brought together to create an integrated and balanced set of standards for the service. In doing this, the service addresses any conflict between standards, and picks out areas where changes may improve all dimensions of quality at the same time.

3) Define the gap variations between what is currently being done and what should be done:

It is defined by gathering baseline data on what is currently being done (current situation) and what should and could be done, so as to have an idea about the variation between the current situation and the service standard(s) predicted, and to measure performance in relation to each standard(s).

4) Conceptualisation of quality problem;

The point of setting standards and defining the gap variation in performance will enable the organization to conceptualize the quality problem as the actual performance and performance as prescribed by standard(s). The problem statement should identify the problem and how it manifests itself. It should clearly state where the problem begins and ends, and how to recognize when the problem is solved.

5) Select team(s);

Once quality problems are conceptualised, a small team should be assigned to address specific problems. The team will analyse the problem, develop a quality improvement plan, implement, and evaluate the quality improvement efforts. The team should comprise those who are involved with, contribute input or resources to and / or benefit from the activity or activity in which the problem occurs. This ensures the involvement of those most knowledgeable about the process.

6) Data study and analysis to identify possible causes;

Understanding of health service organization delivery of care will lead to clear understanding of the problem and its possible causes and requires systematic in-depth analysis. Once several potential causes are identified, the team should determine which ones are the most damaging by addressing these critical causes. The team can realize significant improvement with minimal efforts. If the team found that data collected previously from step no.3 was not enough to identify possible causes, the team may need to conduct an in-depth examination. Such studies can be based on clinical record review, staff or patient's interviews, service delivery observations, or any combination of the above and at this stage, the team can apply and use also some statistical quality tools.

7) Generation of solution(s);

Generating solution(s) should be a team effort. The team develops potential solution(s), unless the procedure is a question of the sole responsibility of an individual, and it may be necessary to involve personnel responsible for the process related to the root cause. Solutions to quality problems or quality improvement activity can take several forms. A solution may be very straight forward such as reminding staff through supervision or focused in-service training. Solutions may also take the form of work aids. Some problems, however, are more difficult to solve because they require procedure redesign. Team(s) is encouraged to think creatively and to generate a variety of solutions options. Choice among potential solutions should be based on an examination of the options potential cost and effectiveness.

8) Implementation of the solution(s);

The team evaluates the aspect of care or service and generates solution(s), so action should be recommended and implemented. The team determines the appropriate solution depending on the aspect of care. The team may implement the solution by themselves and forward the results to the leaders. The action should be directed toward the root causes and should have an eye toward overall improvement in the quality of care. The team must determine the necessary resources and timeframe and decide who will be responsible for implementation of action.

9) Assessment and evaluation of solution(s);

Assessment and evaluation does not end when actions are implemented, whether the solution(s) implemented actually improve the service should be determined and the improvement should be maintained. The team should select indicators to assess whether the solution(s) was implemented correctly and whether it resolves the problem it was designed to address.

4.4. The development of the assessment tool

4.4.1. Methodology for identifying the quality dimensions

After the framework was modified, it was ready to be used as an intervention to implement and improve the quality of emergency services in the intervention hospital. To accomplish this, the quality dimensions (features/ problems) on which the framework were to be applied were identified. These dimensions, which are of a high volume, and have a hugely negative impact on the services provided in both hospitals (the intervention and the reference) it seemed that the quality framework would play a major role when applied to these dimensions. It is the dimensions of any service that, if considered properly, will reflect how good the service quality is. The dimensions of service quality considered in this study are the dimensions pointed out by (Ellis R. and Whittington D. 1993; AL-Assaf A. 1998; Brown L. , Franco L . et al. 2001) when they all mentioned that health care quality has several attributes and dimensions, and data collected from several national and international survey of consumers and quality providers describe these dimensions in this sequence; effectiveness, efficiency, technical competence, safety, accessibility, interpersonal relations, continuities, and amenities.

The aim of this study is to ask those involved with the provision of hospital emergency services, such as staff in emergency departments, staff in those units interacting with A&E department, and public representative groups to list quality dimensions (features) that they all think affect the A&E services in both hospitals and rank them according to their priority to them, and to match the feedback from these different groups to see whether they share the same opinions regarding the same dimensions. At the end, a list of all quality dimensions concerned with hospitals emergency services was developed and listed according to priority.

4.4.1.1. The target population for identifying the quality dimensions

Due to time constraints, and because the groups used previously were representative, the same target population used in the previous study (section 4.3.2.1) in commenting on the value of the framework was used, but three new public groups were added to gain more opinions and ideas about the quality dimension accompanied by low satisfaction from the external customer (the public) and internal customer (health providers) (Williamson J. 1978; Arnetz J. and Arnetz B. 1996; Gavin C. and Turner M. 1997; Ovretveit J. 1998; Salmon L., Gasquet I. et al. 1999; Wallin E., Lundegren P. et al. 2000)

4.4.1.2. Methods used to obtain the feedback for identifying the quality dimensions

The same method discussed in part section 4.3.2 was used. Public focus groups (patient and/or guardians) took place outside of the hospitals in the local university facility.

4.4.1.3. Sampling for identifying the quality dimensions

From the target population mentioned, the groups used to select the quality dimensions (features) were made up of 8 groups, the first five groups were the same groups used in commenting on the value of the framework, but the latter three public groups were new groups as follows:

- One group of male public of mixed socio-economic status consisting of 10 participants (table 4.8);

- One group of female public of mixed socio-economic status consisting of 11 participants (table 4.9);
- One group of female public of mixed socio-economic status consisting of 9 participants (table 4.10).

Each group was given explanatory notes to help with a brain-storming process, about general issues relating to each dimension of service quality with guidelines to help the participant to concentrate and think in a proper way and to save any time that could elapse in thinking about similar issues, asking them to list the important quality issues with regard to his/her experience from their last visit to hospital A&E. The list was derived from previous studies and experience of the author and the research team (Appendix C). For each group, a leader from the participants was assigned who had skills to run and motivate other participants for active participation in the discussions and the discussions continued until saturation developed (same issues being raised). According to (Bowling A. 2002) groups have to be carefully balanced in relation to the age ,sex and ethnic status of respondents: for example if young people, women, or people in ethnic minority groups are in disproportionately fewer numbers in the group they may feel socially constrained and not contribute freely to the discussion. The argument whether within each group the highly educated participants will be in a position to speak and discuss issues more than the less educated participants were kept to the minimal as each group leader will run the discussions and read to the illiterate group members and explain to him/her, giving equal chances to each member to give his opinions and feedback.

The author attended and supervised all the whole stages of discussion and helped to clear any points the participants felt it difficult to comment on or understand.

Table 4.8: Male public group

No.	Age	Educational level	Marital status	Profession
1	27	Bachelor Degree	Married	Teacher
2	30	High school	Married	Policeman
3	40	High school	Married	Labour work
4	31	Master degree	Single	Administrative work
5	55	Non Educated	Married	Taxi drivers
6	60	Bachelor Degree	Married	Engineer
7	42	Non Educated	Married	Bus driver
8	23	Secondary school	Married	Airport staff
9	29	Primary school	Married	Secretary
10	36	Secondary school	Single	Security

Table 4.9: Female public group

No.	Age	Educational level	Marital status	Profession
1	30	Secondary school	Married	House wife
2	35	High school	Married	Receptionist
3	30	High school	Married	Secretary
4	60	Non Educated	Married	Labour
5	40	Secondary school	Single	House wife
6	26	Bachelor Degree	Married	Teacher
7	55	Non Educated	Divorcee	Security
8	21	Non Educated	Married	House wife
9	28	Secondary school	Married	Administrative work
10	33	High school	Single	Art work
11	36	Bachelor Degree	Single	Engineer

Table 4.10: Female public group

No.	Age	Educational level	Marital status	Profession
1	30	High school	Married	Social services
2	57	Non Educated	Married	Labour
3	22	High school	Divorcee	Secretary
4	36	High school	Married	Lab. Tech.
5	24	Secondary school	Married	Receptionist
6	49	Non Educated	Single	Security
7	65	Non Educated	Married	Baby sitter
8	39	High school	Married	Police work
9	27	Secondary school	Divorcee	Nursery work

4.4.1.4. Data analysis for identifying the quality dimensions

The same methodology applied in section 4.3.2.2 was applied. The feedback was analysed to identify the quality dimensions. Then the quality framework described in section 4.3.2.2 was used to guide the improvements in the quality of emergency services. This constituted the intervention within KFH hospital. The results obtained from those groups are described as follows:

1) Common points of agreement:

The response collected according to the frequency, priority, and importance to the groups' members. Table 4.11 shows the dimensions of service and mentions the quality issues relevant to each dimension.

Table 4.11: Quality dimensions

Service dimension	Quality issues
Effectiveness	No or poor screening and selection of patient for treatment in ER. This is due to the absence of criteria for triage and the way of treating the patient doesn't consider the urgency of the case. This leads the patient to feel that this hospital emergency department is not respecting his case and it may lead to worsening his condition "why is this hospital not considering my case urgency".
	Delay of specialist doctor's response from the wards when they are called to come to ER. The system in Saudi MOH hospitals is that if needed, a specialist on duty in the wards will be called down to examine patients in ER and take a decision regarding the case. This leads to too much time being spent by the patient occupying the bed and a delay in making a decision as to whether to admit or discharge the patients from ER.
	Care given by doctors is not appropriate. The patient / guardians don't know what is going to happen to a patient, and who is going to see the patient "even with the treatment, I did not feel fine".

	<p>Doctors and nurses not making enough medical effort to help patients “we think that service given is not optimum and better services could be delivered”</p> <p>Lack of information available to patients or families about whom to ask about patient condition / and what is recommended to the patient after discharge “we do not know if it is possible and how to ask about patient’s medical condition, we feel doctors are unwilling to explain to us”.</p> <p>The purpose of drugs or laboratory investigation is not explained to the patient or guardians accompanying them.</p> <p>Care given by nurses not appropriate “Nurse’s work is not according to what we need as patients, we feel nurses don’t care or are not serious in considering patient’s care needs”.</p>
Accessibility	<p>Lack of information available to patients or families about the system of ER / location of services related to ER e.g. Lab, Pharmacy, X-ray.</p> <p>Long waiting time for the patient to be seen by doctors “we used to wait a very long time to be seen by doctors “.</p> <p>Long waiting time to get laboratory results.</p> <p>Long waiting time to make X-ray and take the results.</p> <p>Long waiting time for medication to be dispensed from pharmacy</p>
Interpersonal relation	<p>Lack of efficient staff / patients / family personal relations during the time of visit to ER</p>
Technical competence	<p>Absence of qualified emergency specialized doctors (certificate in emergency medicine).</p> <p>Absence of qualified emergency nurses (diploma / certificate in emergency nursing).</p> <p>Low skills and knowledge of ER doctors.</p> <p>Low skills and knowledge of ER nurses.</p>

2) Minor points of agreement:

- Language barrier between staff, patients, and families, so no clear understanding of the medical diagnosis and treatments.
- Lack of maps or guidance for direction in ER that the patient or guardians of the patient can follow to lead them to where they need to go, whether it's to the patient's bed or elsewhere.
- Request of unnecessary laboratory investigations.
- Some staff not trained well on how to operate and use the medical equipment properly.
- Old / out of order medical equipment
- Instability of ER staff either due to shifting to another ward or hospital, or due to ending of their contract or resignation. This leads to a gap in knowledge and skills needed for good emergency quality care (brought up by management board and health professionals).
- Lack of job descriptions for ER nurses which may lead to interaction with other jobs e.g. social workers, messengers.
- The absence of complete patient's data record to be used as tool for future improvement.

The previous points mentioned, especially the issues of agreement, give a clear picture about the dimensions to be tackled by the systematic intervention designed as a result of the conceptual quality framework in the emergency services in KFH hospital. At this point the framework was reviewed, ready to be used and the dimensions (features) to apply the quality framework was identified

4.4.2. Methodology of Development of the quality assessment tool

This part of the thesis consists of two studies done separately in target hospitals at different time intervals (stages), the baseline stage and the post-intervention stage. In this study, the questionnaire was the main instrument used to evaluate the quality level with regard to the specific quality dimensions selected for the intervention to evaluate how effective the structured intervention for improving emergency services was, and to assess Patients' and guardians' satisfaction at baseline before the implementation and post- implementation stage of the framework (Gavin C. and Turner M. 1997). The questionnaire was designed in such a way as to translate the research objectives and reflect on the issues needed to be considered in this study. In this study, the questionnaire measured how satisfied the patients and their guardians were (that accompanied them during the visit to hospital A&E department) with regard to quality issues (the identified dimensions of quality that were selected by all the groups mentioned previously, see in section 4.4.1.4). The questionnaire is a close-ended questionnaire, self completed by the patients or guardians, questionnaires were read out to non-literate patients or guardians and the answers were written by research team members on their behalf. The same questionnaire was used at both baseline and post-intervention stage to evaluate quality of services.

4.4.2.1. Target populations of evaluating quality level

The patients and guardians attending the emergency department of the two hospitals (KFH & OH) at the time of the study were the target populations. This included the guardians (family members and / or friends) those who accompany patients for their visit to A&E department or who stay with the patient as companions (most older and young patients always have someone to accompany them to the hospitals) because

these individuals are as affected by the A&E experience as the patients (Al Shahrani N. 1999; Trout A., Magnusson A. et al. 2000). Participants were recruited in A&E departments of the two hospitals after receiving treatment at an A&E department before discharge. Informed consent by the author and the research team was elicited from each participant. It was made clear to participants when approached that treatment was not dependent on study participation, and that the information given would be treated with confidentiality. The research team members were from outside the target hospitals assigned by the author and the Madinah General Directorate of Health. The research team members welcomed the participants to join the study, brief descriptions about the study were given to them. When the selected eligible patient / guardian refused to participate, substitution of the previous eligible participants was allowed. The research team was trained to use an informal friendly approach and to use their experience in asking the patients/ guardians to participate. Great efforts were made to avoid non-participation and/or non-cooperation.

1- Sample inclusion criteria of evaluating quality level

- All nationalities, except temporary visitors to Madinah as they do not reflect patient experience or guardian's experience of using hospitals A&E services were needed to fulfill the study requirement.
- Adult patients 19 years of age or more.

2- Sample exclusion criteria of evaluating quality level

- The exclusion of respondents of ages less than 19 as it has been found that below this age legally in Saudi Arabia, they are not capable of making decisions about important issues relating to their lives. The pre-piloting and piloting stage shows that participants under the age of 19 may give vague, incorrect, and uncertain answers as it was noticed that he / she depended on the personal feelings against people he / she met in giving the feedback and on most occasions, it was decided to ask the guardians accompanying him / her to participate.
- Mentally ill patients or guardians accompanying them in stressfully emotional conditions as these patients are medically and psychologically unfit to judge the quality of services provided to them, as well as their guardians, as they are mostly worried and fully occupied, engaged with medical staff, and emotionally depressed, this may lead to refusal of participation or if they participate, their answers to questionnaire questions may be affected by their emotional conditions.
- Patients not exposed to full A&E services (patients referred from other hospitals for 2nd opinions or advance lab or X-ray tests, patients referred from other hospitals for admission to the hospital, and patients seen only by triage doctors and discharged from A&E) as those patients are lacking the desired A&E services experience needed for the eligibility for inclusion to comment fairly on the quality of services.
- Seriously ill patients whose medical condition may be worsened by participation, even with their agreement to participate.

4.4.2. 2. Sampling and sample size for evaluating quality level

The study was conducted in two hospitals having A&E throughputs of more than 1,000 patients per week, the sample size was calculated on the basis of a 95% level of confidence, and accepted error of +/- 5% around an estimate of 50% for any question in a questionnaire.

The level of improvement anticipated (as measured by the questionnaire) is 10% after the application of the intervention with power (%) of 80%.

The sample size calculation is 385 in each hospital at each stage using the Win Episcopo program (Win Episcopo 2.0) see Appendix D1. Given that we were also interested in looking at the sex breakdown of the data, this increased up to 400 in each sub-group defined by hospital and sex at each stage (baseline and follow-up).

So the total number of sample size will be 1600 participants as follows:

- At baseline stage of the study; a total of 800 participants were recruited, 400 participants were recruited from each hospitals (the intervention and the reference), and each 400 were divided into 200 male participants and 200 female participants.
- At post-intervention stage of the study; a total of 800 participants were recruited, 400 participants were recruited from each hospitals (the intervention and the reference), and each 400 were divided into 200 male participants and 200 female participants.

4.4.2.3. Data collection instrument of evaluating quality level

The previous study (section 4.4.1.4) was made to detect the hospitals emergency service quality dimensions that reflect all aspects of services provided from hospital A&E, and ranking them into lists according to priority and importance. The most important and those with the most impact and influence on the service were at the top of the list, using the service quality aspects of each dimensions selected. After dimensions of service were identified as the dimensions to be tackled by the structured intervention process, quality was assessed with regard to these dimensions, to check for the applicability of the framework to be used to implement and improve service quality in A&E departments. The important aspects of these dimensions were identified and included in the initial questionnaire. Pre testing of the questionnaire revealed some related aspects that have been included. Many points were raised during the meeting with the research team, key members in Madinah General Directorate of Health and after consulting members of patients using the hospital emergency services that helped in modifying some statements or aspects to be clarified and better understood by the participants.

The questionnaire is a close-ended questionnaire self completed by the patients or guardians, questionnaires were read to non-literate patients or guardians (Appendix E). The questionnaire comprised the following sections:

- Personal data of the participants.
- Characteristic of the current visit.
- History of the previous visits.
- Satisfaction with regard to various aspects of the service quality selected.

The options to answer were offered to participants with regard to patient/guardian satisfaction constructed on a 5-point Likert scale:

1= very unsatisfied,

2= unsatisfied,

3= uncertain,

4= satisfied,

5= very satisfied.

An open-ended question was added to encourage participants to mention issues that were significant to them and not included in the questionnaire.

4.4.2.4. Data collection method of evaluating quality level

Due to the religious and traditional social reasons in Saudi Arabia, same sex interviewers (research team member) were assigned to each male and female participant. This desired a large number of research team members. This had the advantage of reducing embarrassment and possible inhibitions that females might have in answering questionnaires given by male research members and vice versa. The team to conduct the data collection (using the questionnaire) were 11 persons in each hospital to start data collection at the same time, 4 (2male/ 2female) in the morning shift from 7am 3pm, 4 (2male/ 2female) in the afternoon shift from 3pm 11pm, and 3 (2male/ 1female) in the night shift from 11pm 7am as the number of patients attending the A& E is lower than the morning and the afternoon shift. The team consisted of staff from quality management departments in Madinah General Directorate of Health assigned as team supervisors in each work shift in both hospitals (the author used to supervise all the teams), nursing staff with good experience in introducing questionnaires, patient affairs staff. All these staff were

from outside the study hospitals and able to speak English to help in case of non-Arabic speaking participants. The data collection took from 7-10 days at each hospital at each stage.

Training of the research team

A research team (assistance) was used, who came from outside the target hospitals to help in this part of the study(Alasad J. and Ahmad M. 2003).

The research team was chosen from those staff involved mainly in patient interview and different data collection techniques to overcome any problems that may arise due to inadequacy of skills, so the training provided was just to refresh and raise a common understanding of the study objectives and data collection methodology. The team was trained on:

- Not to underestimate or overestimate respondents knowledge and experience,
- Lay-out, Presentation, introductions, and instructions should be clear and used with an informal friendly approach,
- How to motivate the respondent to participate,
- Not influence the respondents to give desirable results.

Non participation was extremely low, as the methods used to introduce the study, explain its objectives, and the outcomes expected of this study, were very clear and encouraging for patients /guardians to participate. It was fascinating to them which could also be because the community of Madinah had no previous experience of any type of research projects that included public participation, whether patients or guardians, which may be the reason for the high rate of participation. The non response was N= 47(2.9%), the main reasons for the non response were mentioned in

table 4.12. the non-participation were kept to a minimum by the effective methods used by the research team to introduce the study, its objectives, and the outcomes expected as result of this study.

Table 4.12: Main reasons for non-participation.

Reasons for non participation	Number (N)
No time after discharge from A&E to participate as the driver was waiting, taxi was waiting outside and incurring more charges due to delay of participation, the car was not properly parked incurring possible penalty	18
According to the patient claims, the health condition prevented him/her from participation, although he / she was medically fit to participate	8
The responses would be used against his / her rights to proper treatment in the study hospital	6
Not allowed to interview females as some cultural traditions prevented the women from speaking to people not concerned, as relatives as well as medical staff should coordinate with the guardians in asking and giving instructions regarding history of the disease, diagnosis, and treatment	4
Nothing is going to be changed, so why should I participate	4
Participation is a waste of time	3
Do not trust the research team members	2
Unknown reasons	2

4.4.2.5. Piloting and its outcomes before starting quality level evaluation

Assurances that the instruments used for the study were applicable to the Saudi community. To attain that, the following steps were conducted:

- An English-Arabic translation expert made an English-Arabic translation of the questionnaire into Arabic. Another expert who had not seen the original questionnaire was then asked to translate from Arabic to English. Comparing this later translation with the original English copy showed no differences (Appendixes E& F).

- The questionnaire was discussed with Hospital Administration Affairs staff in Madinah General Directorate of Health as they supervise the work of all hospitals in Madinah and are aware of any important issues to be considered in the questionnaire, the Madinah A&E hospitals departments directors (as their daily work in the A&E will ease their ability to give valuable comments), selected groups of the public who use the hospital emergency services and were in a position to comment on the applicability of the instrument to raise any aspects significant to them, not included in the questionnaire, and to comment on which place in emergency department to conduct the survey. It was found that the following issues were important and need to be added to the questionnaire:
 1. A statement regarding the patients right for proper treatment whether they participated or not in the study
 2. The appropriateness of treatment given to patient's health problem
 3. Receiving information that is understandable regarding what is wrong with the patient
 4. Services provided from departments that have direct contact with A&E department such as the laboratory, X-ray, and pharmacy. The time to get the results or medications from this department, also the behavior of these departments staff was considered to be part of the patients evaluation of the A&E department services provided. This to be compatible with the nature of work in A&E departments in Saudi Arabia due to the medical and psychological condition of the patient or the guardian accompanying him/her thinking that any detail of services provided inappropriately affects their satisfaction of the services provided.

- The questionnaire was pre-tested in a hospital emergency department different from the study hospitals. (Al-Ansar Hosp.) , general hospital in the middle of Madinah with bed capacity of 72 beds and 500-800 emergency visits daily. This was done to assess whether the wording of the questionnaire was appropriate and understandable and whether the questionnaire covered all the aspects of quality of hospital A&E services.
- A pilot study to test the questionnaire before real implementation was carried out in Meqat hospital, a general hospital of 66-bed capacity and 150-200 daily emergency visits. The pilot was undertaken in order to:
 1. Make a final check that the content of the questionnaire is understandable by individuals of different educational levels and ages.
 2. To assess the feasibility of the sampling and questionnaire procedure.
 3. To check the acceptance and understanding of the research team with the objective of the study, and check the efficiency and capability of the research team to handle the processing of questionnaires of different individuals from different educational levels and ages to assess the adequacy of training given to research team.
 4. To check for the best place to conduct the survey before discharge from A&E.
 5. To practise the way each group from each work shift can organize, cooperate, and work with each other.

After completion of the pilot study and the analysis of its results the following issues were found:

- The content of the questionnaire was fine and nothing needed to be added or modified.
- It had been noticed that for old and non-literate patients or guardians the research team member read the questions out, but the answers given were those preferred by the participants.
- For the research team members, as most of them came from a medical background (male and female) it was found that if they could handle the survey wearing his normal medical uniform or any dress other than the national Saudi Dressing of "Thoub" for male and "Abbayiah" for female, this led to a high percentage of satisfaction because the respondents believed that their feedback would affect their treatment or the results would be acted upon by the person who interviewed them or the department mentioned by the questionnaire.
- The way the research team introduced the study and its objective was unsatisfactory and needed further improvement to persuade participants to participate for the aim of improving the A&E services.
- The best place to fill the questionnaire was in the waiting area after completion of treatment and before exiting the emergency department, as the patient was exposed to a full package of A&E services.
- It was necessary for the research team member to check for the completion of all the questions in the questionnaire before the participants left the hospital.
- It has been realized that participants under the age of 19 may give vague and incorrect answerers as he / she depends on the personal feelings against the

people he / she met in giving the feedback, so it has been decided to ask the guardians accompanying him / her to participate.

4.4.2.6. Data processing of evaluating quality level

- Each research team member in each work shift was instructed to check each questionnaire form for completion and legibility before the participant exited the hospital.
- Each member, after checking the completion of the questionnaire gives it to the shift team supervisor to double check the completion of the form.
- At the end of each shift, all the completed forms were returned to the researcher (author) on his attendance to the department to discuss the details of how the work was done in the shift. In addition, the author also checks the forms to make sure they were complete.
- Upon collection of the forms, the forms were given serial numbers for each participant in each hospital, in order to avoid any mix up of the forms.
- An SPSS file was created, one SPSS file was created to assess the level of satisfaction between each hospital at different stages (baseline and post-intervention) and the same hospital at baseline and after the implementation of the intervention (post-intervention), each participant was given the same serial number in its form, original data for variables such as age, educational level, characteristics of current visit, and history of previous visit were entered immediately. For the satisfaction assessment questions, the 5-point Likert scale scoring system was used. The data from each day were entered daily into the SPSS file by the author.

- Entered data were then screened for any entry mistakes especially those related to satisfaction scores, by comparing 5% of the forms with their entered data/ scores, and by checking the output of the descriptive statistics as well.
- Clean data file had been produced with 3 back-up copies.

4.4.2.7. Data analysis plan for evaluating quality level

Data analysis was carried out using SPSS version 11. To obtain significant difference in improvement between the intervention hospital and the reference hospital, a test was developed in Excel in consultation with a statistician in the Liverpool School of Tropical Medicine (Appendix D2).

4.5. The intervention implementation process

This section will present the intervention implementation process whether the structured one implemented in KFH or the comparison process of quality improvement (staff encouragement) implemented in OH. It worth mentioning and comparing the intervention in each study hospital before discussing in detail each intervention. Table 4.13 shows the process of intervention implemented in each hospital during the period of six months.

Table 4.13: The process of intervention in study target hospitals

Structured intervention at KFH	Unstructured intervention at OH
1-ER Quality improvement team	1-QAD staff meeting with the chief of the related department such as laboratory, X-ray, pharmacy, nursing, and medical director.
2-ER standards formulation	
3-Identification of ER quality problems	
4-Assigning ER quality officers	2- chief of ER meet with his doctors and nurses to explain to them the study and the hospital rule.
5-Quality education program	
6-Formulation of ER mission statement	3-A memo issued by the chief of ER relating to the recommendation of the meeting encouraging his staff to do better
7-Formulation of ER strategic plan	
8-Assigning chief of units in ER	
9-Formulation of trauma team	
10-ER patient information	

4.5.1. The structured intervention process in KFH

Following the development and modifications of the conceptual quality framework, a systematic intervention was designed from the conceptual framework, developed to apply and see how effective the framework in introducing quality in ER services in the intervention hospital was (KFH).

To give a clear picture of the results obtained it is important to discuss what steps of the intervention were applied (table 4.13).

4.5.1.1. ER Quality Improvement Team

This team played a major role in facilitating the implementation of the framework as a tool for QA and is the team mentioned in step 5 of the operational quality part of the framework. The team:

- Consists of 8 members.
- Supervised by the Hospital Medical Director.
- The team leader is ER director.
- The team consists of doctors and nurses all working in ER sharing both technical and managerial skills in emergency services and they are very competent to participate in any quality application and services improvement.
- The team meet regularly on Thursday mornings on a weekly basis and some times daily if there are issues to be discussed and analysed (the whole team or selected members) and meet with other ER staff in the newly developed Monday scientific continuous educational programme.
- The goal of the team is to introduce and improve service quality in the emergency dep.
- Certain objectives were defined to achieve this goal:
 - Suggesting an opportunity for quality improvement by identifying the weaknesses and negative points in the services,
 - Suggestions to develop service standards according to resources availability,
 - Do studies and in-field patients/guardians surveys and interviews or other type of staff surveys,

- Collect and analyse service data to check for optimal quality services and their compatibility with other services provided from other hospital departments leading finally to increased percentages of satisfied patients.
- To raise awareness of the concept of continuous improvement as one of the basic rules of ER staff members, and
- Work in coordination with other hospital teams and committees to gain integrated quality hospital services

4.5.1.2. Formulation of standards in hospital emergency services

This part is the second step of the operational quality cycle of the framework as the quality features to work on are already mentioned and identified.

As part of the intervention applied, the emergency department quality improvement team was involved in formulating these standards, as there are no such written standards present in ER to be followed and applied before applying the intervention. All emergency staff and hospital management board recognised the importance of improving the services provided by them and to prevent any unnecessary corruption or interaction in the services of the department, as it has been noticed that new staff are frequently assigned to work in ER. These standards contain all aspects of emergency services that staff follow relating to the dimensions of quality, which is important to obtain quality services recognised by service users. Quality improvement team trained in developing service standards by using certain sources e.g.

- Their experience and knowledge
- MOH circulars and memos.

- MOH policy & procedures (Ministry of Health. 2000; Ministry of Health. 2001).

Some existing standards from different organisations e.g.

- Joint Commission on Accreditation of Healthcare Organization (Joint Commission on Accreditation of Healthcare Organizations. 1999).
- Military Hospital (Riyadh, KSA) standards (Armed Forces Medical Services(AFMS) Quality Assurance Department.).
- National Guard Hospital (Riyadh, KSA) Accreditation Manual (National Guard Health Affairs. 2001).
- Saudi Aramco hospital standards (Saudi Aramco Medical Services Organization. 1994)

The team created standards and reviewed them for their importance, clarity, applicability, and feasibility for implementation in ER.

Twenty one standards were developed in English and Arabic as the staff working in ER are classified into English speakers and Arabic speakers (Appendix G&H), five of these standards are time scale standards developed by sharing the professionals from inside and outside the departments and patients / guardians accompanying them inside ER and tested with close observation to assure the applicability of these standards, which were all finally approved by the medical director to be applied.

The standards were then circulated to all ER staff in Arabic and English, heads of other medical departments to inform their doctors, posted in patient waiting areas, above each bed in ER to inform the patients / his guardians about what standards were being applied in the ER, nurse station, and finally the doctors room.

The outcomes of using these standards are excellent as doctors and nurses and other staff in ER start to apply them with patients and the feedback from patients is excellent as they become very satisfied with the services provided and the way they are provided, which is proved by percentages of satisfaction that will be mentioned in the next chapter.

4.5.1.3. Identification of quality problems

These are the quality problems that were identified by ER quality team as a result of personal experience and feedback collected from all ER staff, whether medical or non medical. It identifies those features that relate to quality dimensions whether direct effect or indirect, such as administrative issues, that prevent staff from performing a good job. Table 4.14 shows the conceptualisation of quality problems related to ER services, its influence on the services, and the solution generated by the quality team applied.

Table 4.14: quality problems affecting delivery of service in ER

No.	Quality problems (cause)	Its influence	Solution(s) suggested and applied
1	Ineffective & non-trustable primary care centres.	Large numbers of patients visiting ER are not real emergency cases, so they interact and influence diversely the care given to all patients in ER especially acutely ill patients who need more care.	<p>a-) triage unit established following the Canadian E.D Triage and Acuity Scale to select cases according to care priority & urgency and to reduce the waiting time the patient may need to stay before he/she is seen by doctor (Beveridge R., Clarke B. et al. 1998), very detailed explained copy is left in ER for any staff to see and read for further explanation)</p> <p>b-) after triaging, non urgent cases forwarded to primary care centres (PHCC).</p> <p>c-) in the case of patients arriving at PHCC closing time, triage doctors in some cases (not emergency but need treatment) can examine the case and give medication and refer the case back to PHCC for follow up</p>
2	Absence of hospital trauma team	Acute cases when more than 4 cases or polytraumatized patient arrive at once in ER, care given is ineffective as it is provided by ER staff who are already examining other patients.	Hospital trauma team was created (section 4.5.1.9).

3	Unnecessary referral from PHCC to hospital ER.	Patients visiting ER referred as an emergency case but in fact they are not, which lowers the effectiveness of services provided.	Weekly collection for the PHCC referral forms and continuous meetings and discussions with chief PHCC Doctors in Madinah to take action regarding these unnecessary referrals.
4	Experience variations between ER doctors and residents on duty (ROD) doctors called from hospital wards to give opinion and take decision regarding the case.	A major delay for the patient in ER as decision to admit or discharge is not yet taken by ROD, due to different opinions between him and the ER staff (ER staff mainly have 10 years experience, but most of the ROD doctors are new with at least 3 years experience despite all having equal qualifications)	3 medical specialists & 3 surgical specialists from ER staff assigned to be chief doctors in each work shift and one of their responsibilities is to take the decision, to avoid any noticeable delay
5	Lack of written standards.	Staff have no common standards to follow, so each one develops his own standards according to his experience & knowledge.	Work standards developed by the ER quality team which share all the expertise and expectations (section 4.5.1.2)
6	Absence of chiefs for different units in ER	No effective quality services and lack of responsibilities from each unit in ER.	chief (doctor with valuable experience & knowledge) assigned for each unit in ER, triage, treatment, and critical care (section 4.5.1.8)
7	Lack of proper referral from other hospitals to KFH ER.	Wrong patients referral to ER Requesting services not available e.g. psychiatric/ paediatric /gynaecology.	Coordination between all Madinah Hospitals to discuss cases with the recipient hospital before referral to ensure availability of services requested.

8	Lack of assigned social workers in ER	Doctors waste a lot of time in dealing with patients/guardians social issues, that time primarily should be directed to other patients so effectiveness can not be obtained completely.	4 social workers assigned to help doctors in dealing with social and emotional issues regarding the patients or their relatives presented with them by covering ER beside their ward duty.
9	Wrong patients flow in ER.	Patient flow was improper so patients miss the location, where to go and what to do when arriving at ER.	a-) ER patient information was formulated to guide the patient during his/her visit to ER (section 4.5.1.10). b-)patient endorsement from triage to other ER area was activated.
10	No status board available	Chief doctors / ER Director/Medical Director/or even patients' relatives cannot know the patient name, bed no., time of admission to ER, diagnosis, and treating doctor.	Status board used with all information about patients in ER.
11	Lack of staff for personal affairs.	Almost all ER staff used to give excuses to leave for a period of time to do some personal administrative work e.g. renewing annual contract, finishing annual leave process, and flight booking, which ultimately affects the quality of service because the internal customers (staff) are not satisfied and unhappy and a lot of doctor's time is lost, so they are unable to provide the	One of the active ER administration staff assigned to perform these responsibilities.

		patients with a quality service.	
12	Lack of strategic plan for ER	Each manager, supervisor, new hospital director, or even general director will apply his/her own individual stamp as no strategic plans available, so staff may not receive appropriate guidance and coordination.	5 years written strategic plan was created describing all aspects of present and future ER work (Appendix K).
13	Lack of doctors/nurses rooms	Doctors and nurses work for 8 hours continuously without any break for even 5 minutes to have a cup of tea or to eat snacks, which in turn affects the internal customer (ER staff) badly and patients are also affected.	Two un-used rooms in ER (small stores) are converted both to doctor's room and nurse's room.
14	Shortage of staff (doctors &nurses)	High workload on the staff as the staff numbers are less than the standards of MOH and also it has been found that staff numbers are insufficient to cover both entrance of ER (walk-in patients entrance, ambulance and critical area entrance)	Ideal staff numbers included in the strategic plan, and also a written request is forwarded to a higher authority. Beside the coverage of walk-in patients entrance by the triage unit, a digital video camera was put in the ambulance and critical area to monitor any new case(s) coming, then critical area staff will go out to handle the case(s) as some of these cases come to the hospital with friends or family members, not by ambulance.

4.5.1.4. Emergency department quality officers

They are a combination of doctors, nurses, and administrative people formulated as a result of the intervention. They are those staff responsible for all fieldwork related to quality application and improvement. They are used to be the link between the quality team and the rest of the ER staff. They feed back to the quality team regarding any service quality issues.

4.5.1.5. Quality education program for concerned personnel

For effective implementation of quality, staff and decision makers should be oriented about theoretical basis of quality and what benefits an organisation gets from the implementation of quality. Presentations given by the author to different groups of professions regarding different quality subjects to obtain commitment and raise awareness about quality to gain a greater acceptance of quality assurance by the staff and to train them on how to implement quality as follows:

- Presentation given to emergency staff in KFH (medical and non medical staff) in the following subjects:
 - 1) Introduction to quality in health care.
 - 2) Quality tools and intervention steps.
 - 3) Quality strategies and how to formulate them.

- Presentation to KFH nursing committee including supervisors, area nurse manager and charge nurses on the impact of effective health care on quality.

- Presentation to Madinah hospitals directors and other departments' directors (medical & non-medical departments) in Madinah General Directorate of Health about the conceptual framework to introduce quality in hospitals emergency departments and its effective use.

4.5.1.6. KFH Emergency Centre Mission Statement

The emergency department Quality Improvement Team, Executive Director, Medical Director, Hospital General Director, General Director of Health in Madinah Region were all involved in developing and formulating the mission statement as part of their management commitment and as this is the first time within Madinah General Directorate of Health to set a mission statement for a service, frequent meetings took place to set this statement and approve it.

The mission statement was formulated in English and Arabic, and posted in a big wall chart at both entrances of ER, also in the nurse station, and doctor's room (Appendices I& J).

It was noticed that it had a great impact on patients, guardians, visitors, ER staff, and other departments' staff in KFH as they became proud of this work in the department and the patients respected the staff. Service provided was received very favourably.

4.5.1.7. KFH Emergency Centre Strategic Plan (5 years plan)

The emergency department quality improvement team, Chiefs of Departments, Hospital Management Board, and Director, General for Health in Madinah were all involved in the development of the emergency centre strategic plan as they realized the importance of having a strategy for the whole service provided, and it has been noticed that there are very deep gaps between; the management board in the general

directorate of health, the hospital management board, and the chief of ER department and his staff members which all lead to a common agreement for the need for a strategic plan to have a common vision for the current services provided and determine what is needed in the future for the service to improve quality. The team has been trained in formulating a strategic plan after receiving a presentation about quality strategy and how to formulate it.

This strategic plan is used as a guide for anybody wanting to know how the services from ER are presented and what is planned for the future to improve the quality of the services including the scope of the present services, the future services suggested and what resources are needed to fulfil that. It was formulated to be a 5-year plan (2003-2008) (Ovretveit J. 2004).

It consists of the main constituents of the framework such as vision, goals, objectives, values, current services, plan to realise the vision, target clients, their needs, type of services to be provided, and the strategic decision to be taken (Appendix K).

It has had a great impact on staff and their performance as they have become proud of their department and the way it is managed, which indirectly leads to a more positive impact on the quality of their services.

4.5.1.8. ER, Chief of Unit

ER units in KFH are, triage unit, treatment unit, and critical unit. It has been found that no responsibilities were assigned to any doctors to manage work in these different ER units. As a result, a chief (doctor with valuable experience & knowledge) has been assigned for each unit in ER. Duties and responsibilities of each chief's of unit were developed by ER quality team and were as follows;

- Supervision and follow-up for the services quality provided from the unit,
- Supervision and follow-up for the application of all regulations which control the work in ER,
- Observe and collect all work-related problems and negative feedback and discuss it with ER Director,
- Determine staff training and education deficiencies and requirements in his unit,
- Start in-service training for his staff in all work-related issues,
- Tracking of patients flowing from his unit to another unit inside or outside the hospital,
- Selection of random samples from the ER forms for cases treated in his area to check for quality and to observe any quality improvement opportunities, and
- Submission of a written monthly report on what has been done from his unit to ER chief.

4.5.1.9. Trauma team

The major goal of creating this team is to give quality trauma care by making a quick right decision in a very short time to save the lives of traumatically ill patients (Wong K. and Petchell J. 2003). Another goal is also to support ER staff by helping in the smooth flow of patients to ER without the patient being kept waiting for a long time to be treated as a result of the trauma cases arriving in ER. The team consists of 4 doctors from related specialities;

- Specialist, general surgery (team leader)
- Specialist, neurosurgery (team member)
- Specialist, orthopaedic surgery (team member)
- Specialist, anaesthesia (team member)

4.5.1.10. Emergency department's patient information

The emergency department quality improvement team were involved in developing this by recognising its importance from the results of baseline quality level survey and the analysis of the causes of quality problems. It was approved from KFH Medical Director and Hospital General Director.

It contains all the information the patients or guardians accompanying him may need to know about what to do; where to go, to whom he /she reports any claims in their visit(s) to ER (special meetings were conducted for the selected team members to formalise the patient information). It contains all the medical and non-medical services provided from the department with the target time for the services to be provided from the time of admission until the time of discharge in English and Arabic language (Appendix L&M).

It is given to all patients / guardians coming to ER in the form of a leaflet, posted in a big wall chart at both entrances of the department, and at the head of each bed in the emergency department.

It has been noticed that it has had a great impact on the quality of service as seen from the post intervention survey, from the feedback collected from the patients or the guardians during their visits, and the service providers (professional and non-professional inside and outside the department).

4.5.2. The comparison process of quality improvements in OH

With the reference hospital (OH) where no structured intervention was applied, it is also important to mention the process used and followed to improve service quality as a result of in-formal quality approach. Before the baseline quality level survey was being done in OH, a meeting was conducted with hospital director, medical director, QAD staff, and chief of ER to explain to them the hospital rules of the project and that no specific intervention would be used and that the hospital was free to follow any necessary procedure they thought would help in improving ER services quality (no information or guideline about quality improvement was given to them). This meeting was done only for asking the hospital management board to facilitate the process and give any help if needed in OH.

This is the in-formal quality process (staff encouragement) implemented in the reference hospital. This section describes what was happening in OH (see table 4.13), where no systematic quality approach was applied. No work strategy had been decided for improvement from this hospital except some temporary attempts from the Quality Assurance Department (QAD) staff who had been sufficiently motivated to try to improve the quality of services by discussing the quality aspects with the ER chief, and other concerned chiefs of department (Laboratory, Radiology, and Nursing).

No teamwork approach was noticed during that time, despite the fact that QAD Staff do three morning rounds a week in ER. These rounds were not in all working duty shifts, only the morning, which meant that no feedback was given or collected from afternoon or night shifts, which does not help in drafting a balanced quality improvement strategy. All the steps taken in the hospital (Appendix N1) are summarized as follows;

- The aim of the project was discussed in the QAD staff meeting with the chief of the related departments (Laboratory, Radiology, Pharmacy, Nursing, Medical Director) as these departments (according to them) have to decide on how to improve their services in their respective departments.
- The chief of ER in relation to the aim of the study conducted a meeting for doctors & nurses.
- ER charge nurse & staff nurses were also given the same information as that given to doctors.
- A memo relating to the recommendations of the meetings held (Appendix N2) was issued to all ER Doctors and Nurses (separate memo to doctors & another one to nurses). It was not appropriate to send different memos to all the ER staff in order to gain a consensus of the roles and functions of each other, but to send one memo to bridge any gaps in accepting the instruction received.
- The policies and procedures of ER were drafted, written, and finalized by the chief of ER and QAD Staff, but as it is ideal for an organisation applying real quality programmes, it was not implemented (not applicable). It was also noticed that there are no work standards or any substitutes in place.

In summary, the present chapter has presented the methods of developing the framework, the assessment tool that will be used to evaluate quality improvement level, and the interventions implementation process at both study hospitals. Specific details have been provided relevant to the target population, the sample size, and sampling methodology. The following chapter will present the details and the results of the data analysis as the improvement in respondents satisfaction in both hospitals at baseline and post-intervention stages.

Chapter Five

Results

5. Chapter summary

This chapter presents the results from the analysis of the survey data that measured clients' views on quality at baseline and post-intervention. This chapter consists of four main sections. The first section (5.1) provides the overview of the survey respondents' characteristics. The second section (5.2) presents the results from clients' surveys at both the baseline and post-intervention in each hospital. The third section (5.3) presents the comparison of quality levels at the two hospitals from baseline to post-intervention. Section (5.4) looks at the associations between the respondent characteristics and client satisfaction. This uses the data from the baseline survey to identify 1) which characteristics demonstrate different distributions between the two hospitals since these may be confounding factors in the comparison between client satisfaction, 2) the associations between respondent characteristics and clients satisfaction on individual items in the survey.

To simplify the analysis of data from the clients' surveys the satisfaction score was re-coded for the baseline and post-intervention data as follows:

- 1- Very satisfied (category 5) and satisfied (category 4) respondents were merged together to form a new category of "Satisfied to some extent". This is due to the fact that the number of the very satisfied respondents was very small.
- 2- It was noticed from discussions with respondents that the response of "uncertain" (category 3) arose mainly from a sense of some slight dissatisfaction. This category was also small. Hence categories 1, 2 and 3 were re-coded into a new category of "unsatisfied to some extent".

In the questionnaire responded to in the surveys items were worded as complete sentences. Here these sentences have been abbreviated to short terms as given in the table below to facilitate the flow of the text, to help in the discussion of the results and will be used in all the results tables. Table 5.1 shows these abbreviations.

Table 5.1: Abbreviated terms used for the questionnaire items

Questionnaire item	Abbreviation term to be used
1-the treatment given appropriate to health problem	Appropriateness of treatment given
2-Receiving information that you understand regarding what is going to happen to patient at the time of visit	Information about what is going to happen to patient
3- Receiving information that you understand regarding what is wrong with the patient	Information regarding what is wrong with the patient
4- Receiving information that you understand regarding who is going to see the patient	Information regarding who is going to see the patient
5- Help given in the event of Pain / discomfort / during tests / exams / treatments	Help given during any medical procedure
6- Treatment provided within a reasonable period of time	Treatment time
7- Doctors explain the purpose examination / procedures/ /purpose of tests / results of tests	Explanation of any procedures to be done
8-Doctors explain the purpose of drugs their effective use and possible side effects	Explanation about medication
9- Sufficient work done to relieve pain and discomfort	Work done to relieve pain and discomfort
10- Care given by nurses	Nursing care
11-Amount of time to get lab results	Time to get lab results
12- Behaviour of lab staff	Behaviour of lab staff

Questionnaire item	Abbreviation term to be used
13-Amount of time to get X-ray results	Time to get X-ray results
14-Behaviour of X-ray staff	Behaviour of X-ray staff
15-Amount of time to get medicine from pharmacy	Time to get medicine
16-Behaviour of pharmacy staff	Behaviour of pharmacy staff
17-The way staff did the initial assessment	Initial medical assessment
18-Waiting time to see the doctor	Waiting time
19-The way information is given about medical diagnosis before discharge from emergency	Information about medical diagnosis before discharge
20- The way information is given about follow up treatment patient may need after discharge from emergency	Information about follow up treatment after discharge
21-Overall treatment received in A&E department	Overall treatment received

5. 1. Characteristics of the respondents

5. 1.1. Characteristics of the respondents at baseline survey

The following respondent characteristics were included in the questionnaire: gender, age category, educational level, type of respondent (whether patient or guardian), and whether they had previously visited the hospital A&E department as patients or guardians. The median age was 30 years, so age categories were selected as:

- aged from 19 to 30
- aged more than 30

Educational level was re-coded as follows:

- educational level less than high school
- educational level from high school and further

This will more easily allow comparisons of satisfaction between the literate and illiterate respondents.

The total number of respondents at baseline was 800 (400 in each hospital) (see table 5.2). In each hospital they were equally divided between male and females (200 of each). Overall just over half of the respondents were aged 30 or less, with slightly more younger respondents at KFH than at OH but fewer well-educated respondents. Most respondents were attending as guardians and this was more true of KFH than of OH. Approximately 4 out of 5 respondents had attended the hospital before.

Table 5.2: Characteristics of respondents at baseline

Character		% at KFH (N=400)	% at OH (N=400)
Gender	Male	50	50
	Female	50	50
Age category	Aged from 19-30 years	59	52.24
	Aged more than 30 years	41	47.76
Educational level	Less than high school	39.47	28.74
	From high school and further	60.53	71.26
Nature of the respondents	Patient	39.24	45
	Guardian	60.74	55
Have you been as a patient before	Yes	73	75.5
	No	27	24.5
Have you been as a guardian before	Yes	74.24	80
	No	25.74	20

5.1.2. Characteristics of the respondents at post-intervention

The number of respondents at post-intervention study stage was also 800, 400 in each hospital composed of equal numbers of male and females (200) (see table 5.3).

The distribution of respondent characteristics at the post-intervention survey was similar to that of the baseline survey. The main difference was on age - there were slightly more respondents over 30. As with the baseline, there were fewer well-educated respondents at KFH than at OH. Most respondents were attending as guardians and three-quarters had been to the hospital before.

Table 5.3: Characteristics of respondents at post-intervention

Character		% KFH (N=400)	% OH (N=400)
Gender	Male	50	50
	Female	50	50
Age category	Aged from 19-30 years	46	48.5
	Aged more than 30 years	54	51.5
Educational level	Less than high school	47.74	36.24
	From high school and further	52.24	63.74
Nature of respondent	Patient	46.74	42.5
	Guardian	53.2	57.5
Have you been as a patient before?	Yes	70.74	74.74
	No	29.24	25.24
Have you been as a guardian before?	Yes	75.24	77.5
	No	24.74	22.5

5.2. Results from the baseline and post-intervention surveys

The raw results of the baseline and post-intervention surveys in the two hospitals are presented in Table 5.4. For all items, there were substantial improvements in client satisfaction both in the structured intervention hospital (KFH) and in the reference hospital (OH).

Table 5. 4: Outcome of respondents surveys at the target hospitals at baseline and post- intervention stages

Questionnaire Item	% Satisfied in KFH		% Satisfied in OH	
	Before	After	Before	After
1-Appropriateness of treatment given	58	79.8	64.5	80
2-Information about what is going to happen to patient	38.3	72.8	50.5	73.5
3-Information regarding what is wrong with the patient	44.5	69	50.3	70.5
4-Information regarding who is going to see the patient	37	64.3	37.8	65.3
5-Help given during any medical procedure	50	76.5	53.75	71.25
6-Treatment time	27.25	64.25	38.75	59.5
7-Explanation of any procedures to be done	39	72	41	63.75
8-Explanation about medication	38.75	72.25	41.25	62.25
9-Work done to relieve pain and discomfort	49.5	76	53.5	69.5
10-Nursing care	51	81.5	55.25	76.25
11-Time to get lab results	30.25	60.25	35.25	56
12-Behaviour of lab staff	36.5	64	38.25	39.75
13-Time to get X-ray results	58	73.75	45	62.25
14-Behaviour of X-ray staff	57.25	75.75	42.25	61.75
15-Time to get medicine	60.5	75.5	54.75	73.25
16-Behaviour of pharmacy staff	58.75	77.5	51	73
17-Initial medical assessment	41.5	69.25	38.25	66.75
18-Waiting time	25.5	59.5	39.25	63.25
19-Information about medical diagnosis before discharge	37.25	70.25	41.5	63.75
20-Information about follow up treatment after discharge	39.25	72.5	42	65.75
21-Overall treatment received	44.75	79.25	51.5	70.75

Before = the baseline survey

After = the post-intervention survey

Overall, across all the items, KFH improved by around 30 percentage points whilst OH improved by around 20 percentage points. One might suggest therefore that the structured intervention at KFH added around 10 percent more improvement than the informal approach employed at OH. This represents about one-third of the improvement obtained at KFH. We might conclude therefore that one third of the improvements at KFH are due to the structured intervention and that can be attributed to influences which did not apply at OH.

5.3. The comparison of changes in client satisfaction from baseline to post-intervention in the two hospitals

The central issue of this study is “Is a systematic approach to quality improvement better than management exhortation of hospital staff?” The main analysis to address this question is the comparison of changes in client satisfaction in the two hospitals.

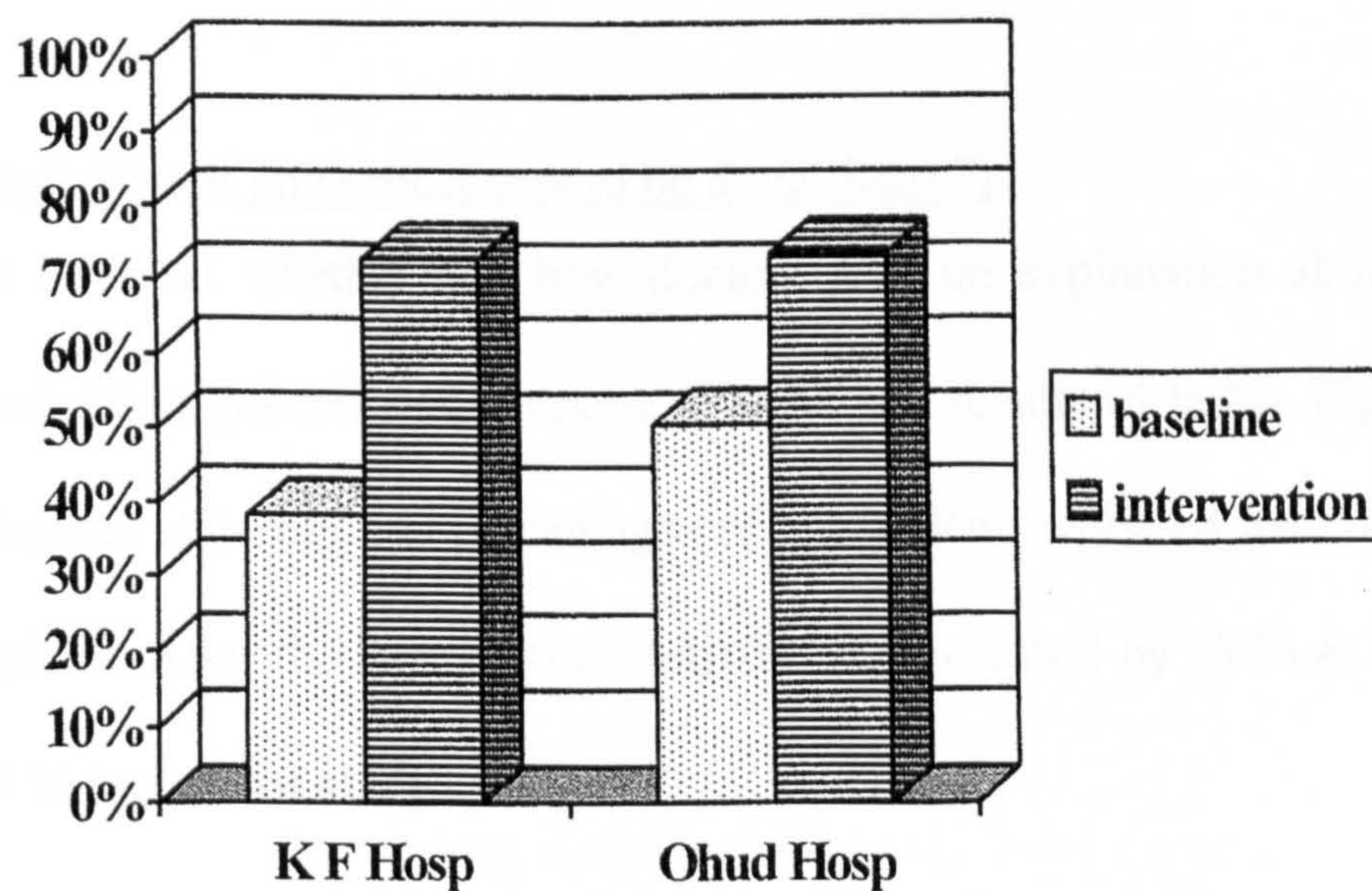
The presentation of the results describes the change in quality level as an increase in percentages of satisfied respondents with the various aspects of quality covered in the questionnaire items. Here we compare these changes between the two hospitals. The results show only those items (quality aspects) where significantly (statistical significance) greater improvements in quality were found in the intervention hospital compared to improvements found in the reference hospital.

It was found that in ten aspects of quality there were significantly greater improvements in quality level in the intervention hospital compared to those improvements in the reference hospital. With the remaining items, OH reached a higher final score than KFH on items 1,2,3,4,18; and showed a greater percentage improvement on 4, 13 14,15,16, 17 than KFH (Appendix O).

Information about what is going to happen to patient (item 2)

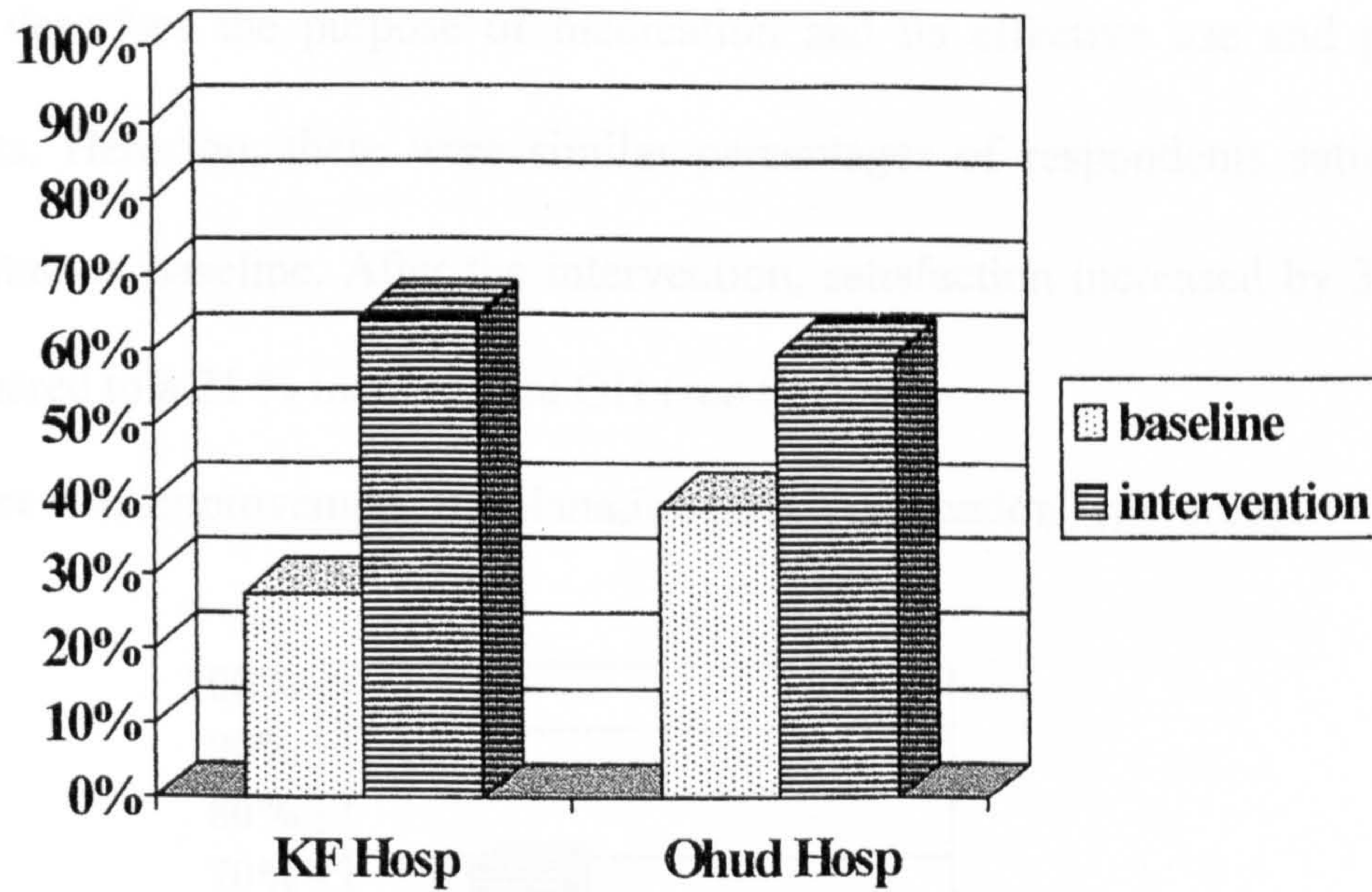
This is about whether and how information is given to patients /guardian about what is going to happen to patient at the time of visit to ER. Fewer respondents were satisfied at KFH than at OH. After the intervention, satisfaction increased by 34% at KFH compared to 23% at OH (see fig.5.1).

Figure 5.1: Improvement in satisfaction on “Information about what is going to happen to patient” (statistical significance of difference in improvements $p < 0.05$)

Treatment time (Item 6)

This refers to the time the patient spent during his/her visit to ER until he/she is discharged or admitted to the hospital. Again fewer respondents were satisfied at KFH than at OH (see fig 5.2). After the intervention, satisfaction increased by 37 % at KFH compared to a 21 % increment at OH.

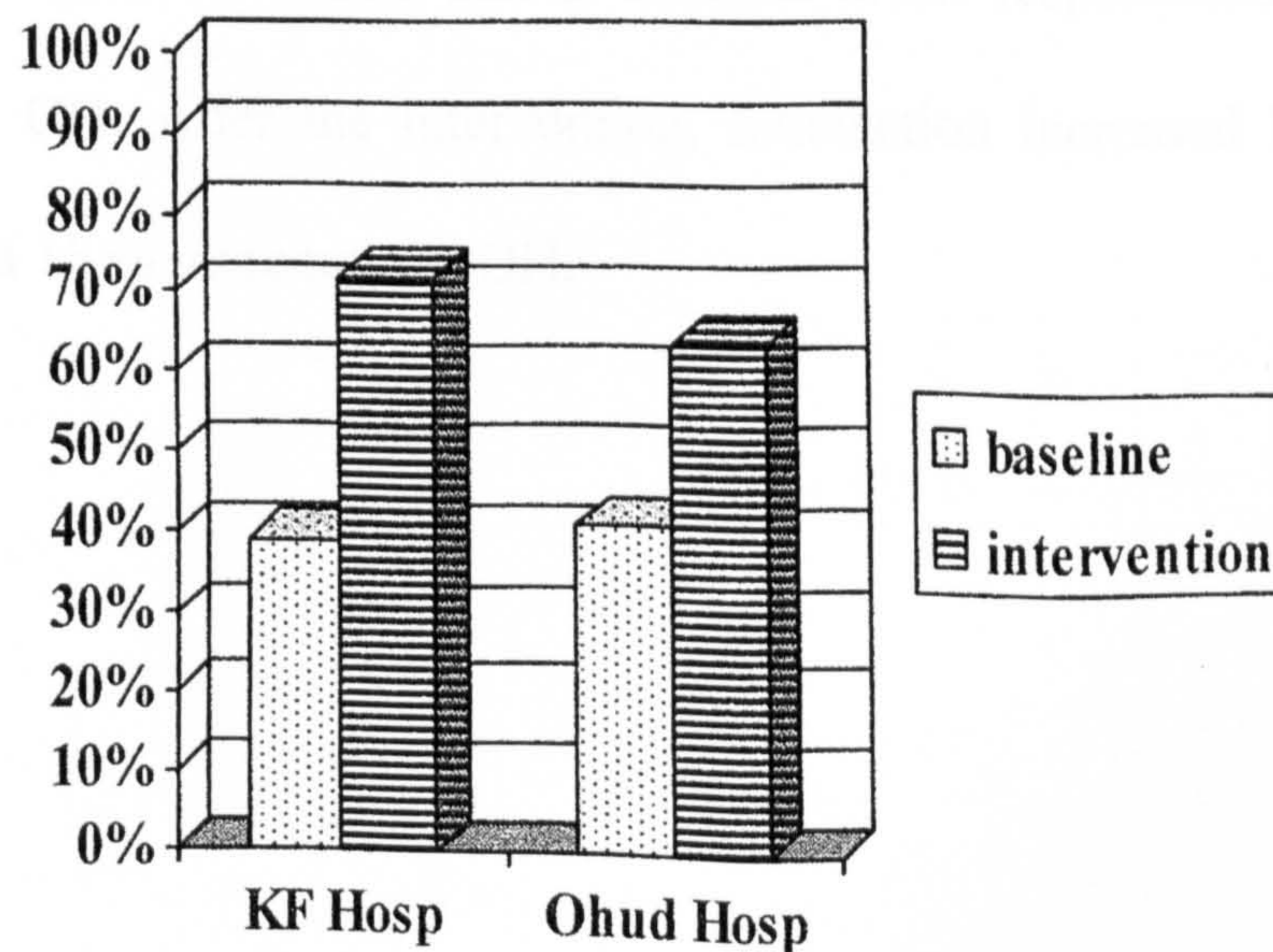
Figure 5. 2: Comparison of improvements on “Treatment time” ($p < 0.01$)



Explanation of any procedures to be done (item 7)

This is about whether and how doctors give an explanation about the purpose of examination, procedures, purpose of tests, and results of tests). Figure 5.3 shows no difference at baseline in percentages of respondents satisfied with this item at the two hospitals. After the intervention, satisfaction increased by 33 % at KFH compared to a 24 % increment at OH.

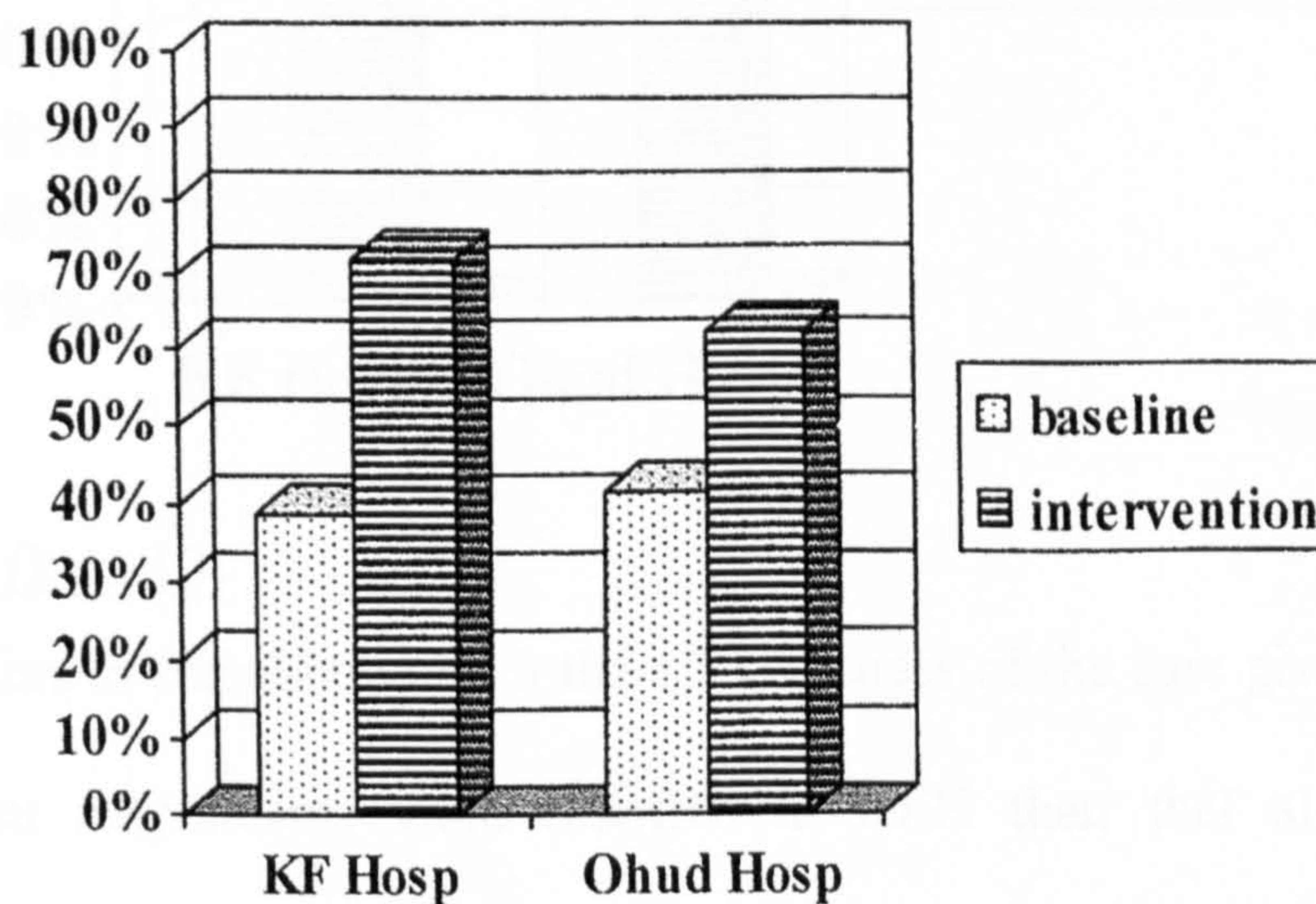
Figure 5.3: Improvement on “Explanation of procedures” ($p < 0.05$)



Explanation about medication (Item 8)

This describes the purpose of medication and its effective use and possible side effects. Here too, there were similar percentages of respondents satisfied at both hospitals at baseline. After the intervention, satisfaction increased by 34 % at KFH compared to a 21 % increment at OH (see fig 5.4).

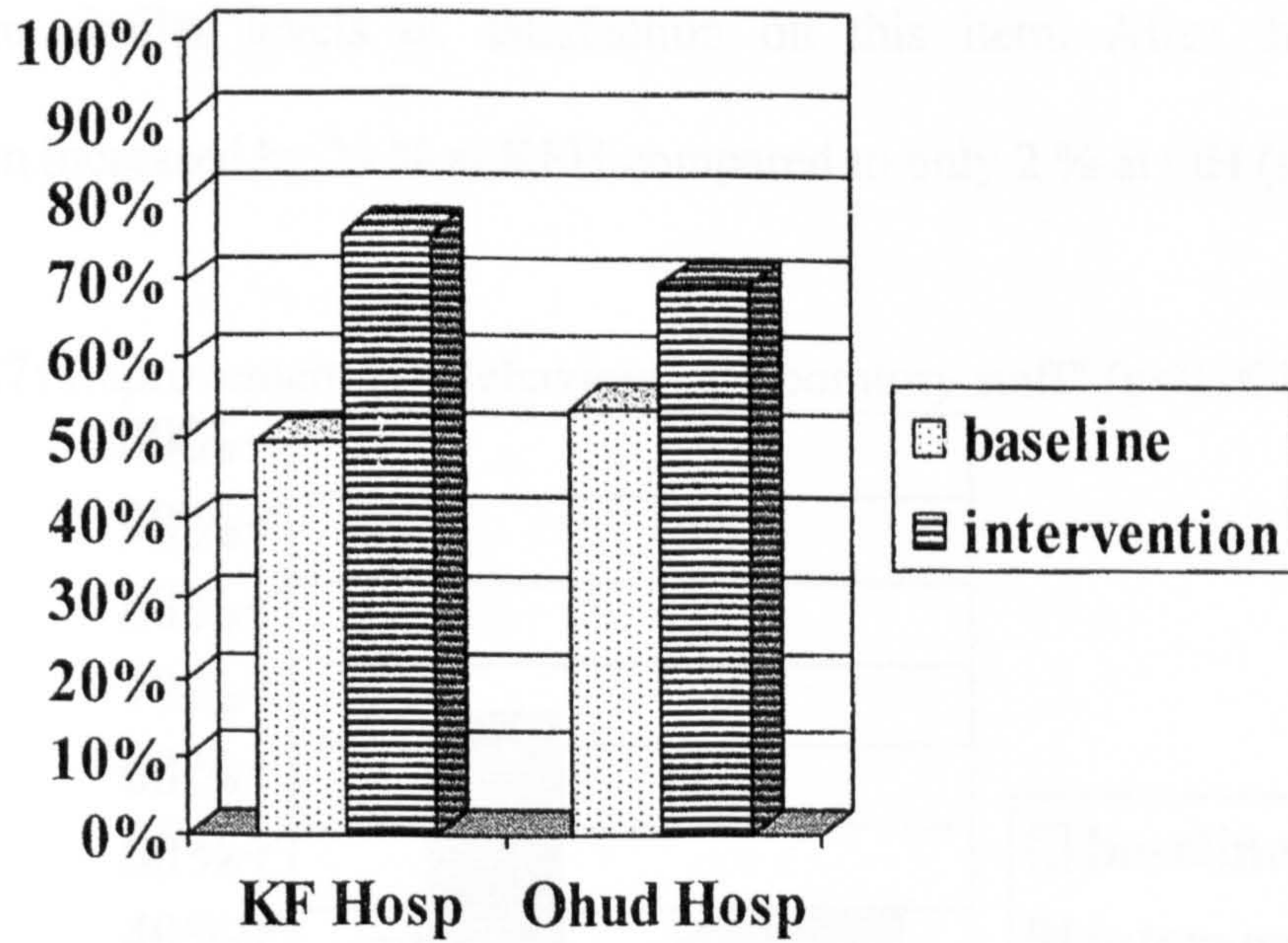
Figure 5.4: Improvement “Explanation about medication” ($p < 0.05$)

Work done to relieve Pain and discomfort (item 9)

This is an important aspect that ER staff should consider when dealing with patient. It is about whether attention is being given by ER staff to the relief of pain and discomfort. Figure 5.5 shows that at baseline fewer respondents were satisfied at KFH than at OH. After the intervention, satisfaction increased by 26 % at KFH compared to a 16 % increment at OH.

Figure 5.5: Improvement on “Work done to relieve Pain and discomfort”

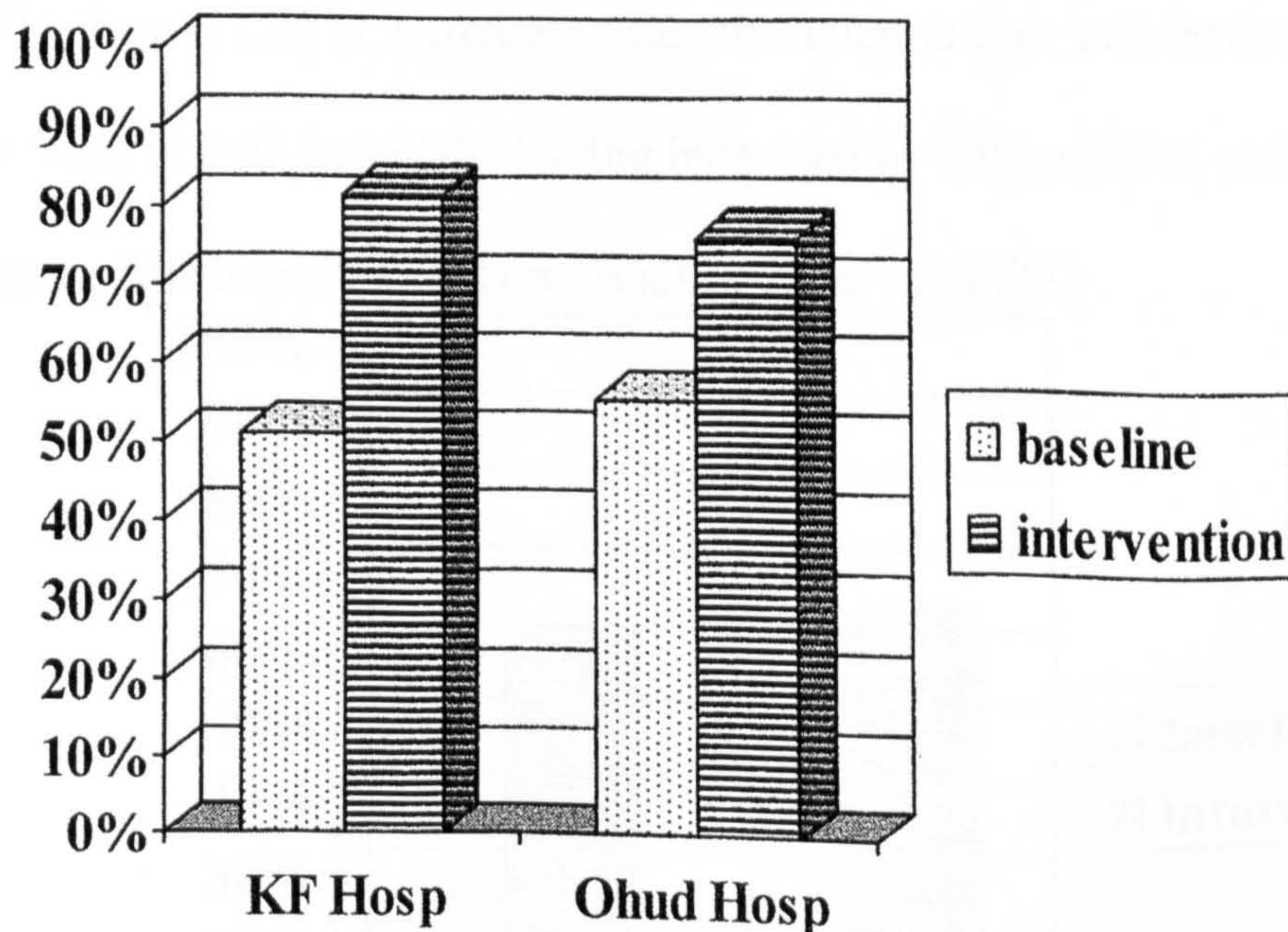
($P < 0.05$)



Nursing care (Item 10)

This item refers to satisfaction with the effectiveness of the care given to patients by nurses. Fewer respondents were satisfied at KFH than that at OH. After the intervention, satisfaction increased by 30 % at KFH compared to a 20 % increment at OH (see fig 5.6).

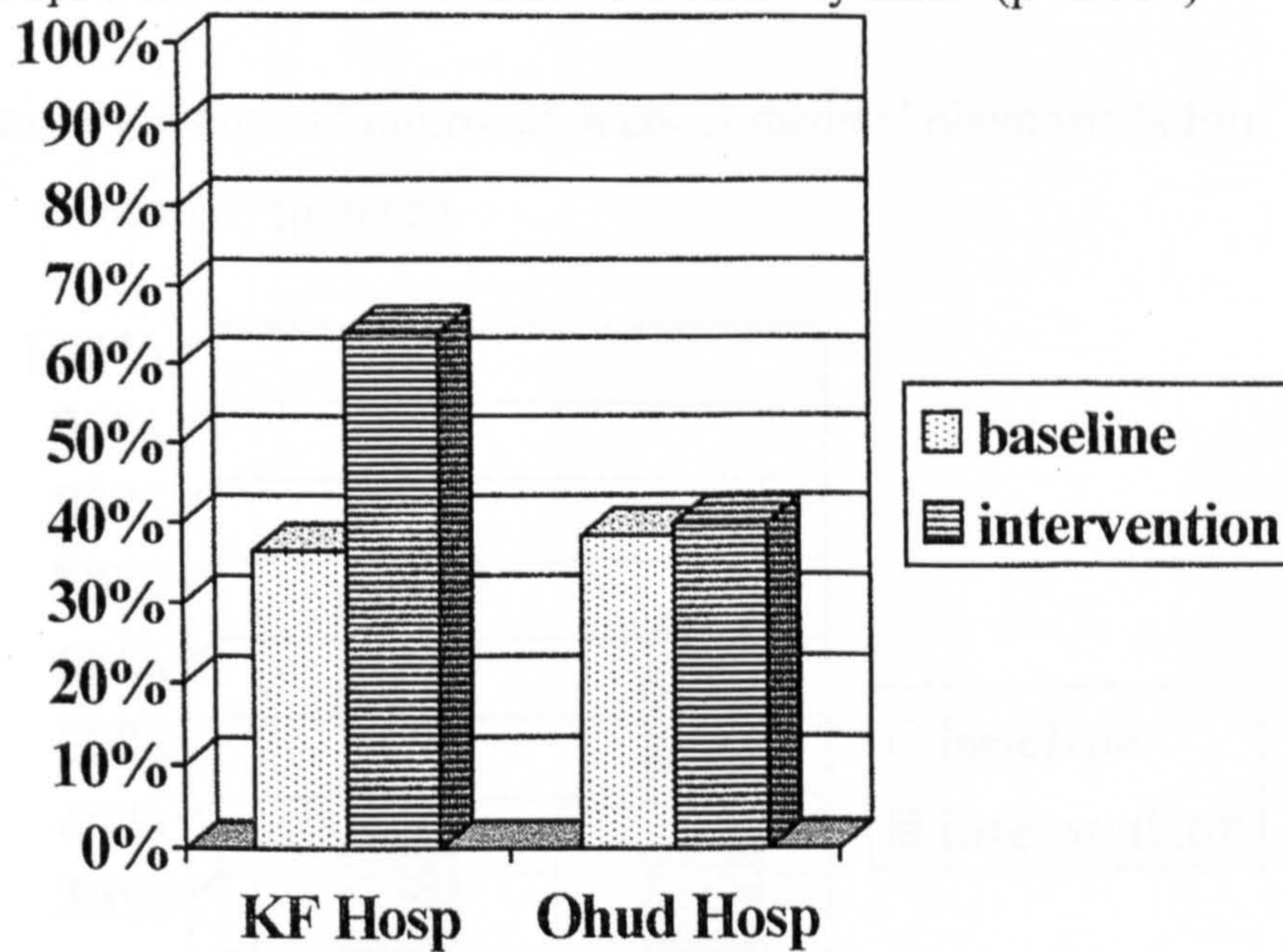
Figure 5.6: Improvement “Nursing care” ($p < 0.05$)



Behaviour of laboratory staff (Item 12)

This refers to how the laboratory staff behave with patients /guardians. At baseline there were similar levels of satisfaction on this item. After the intervention, satisfaction increased by 24 % at KFH compared to only 2 % at OH (see fig 5.7).

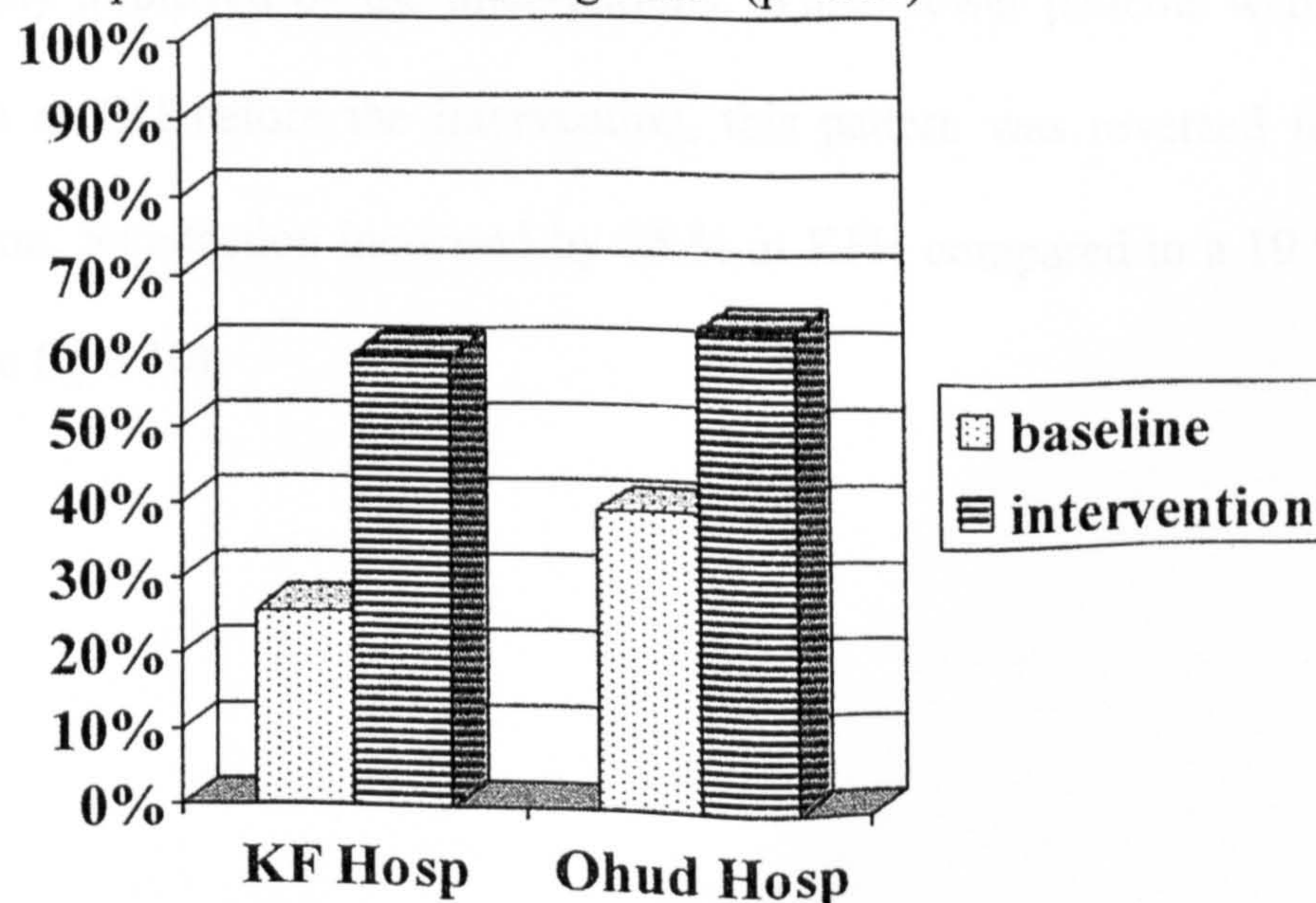
Figure 5.7: Improvement in " Behaviour of laboratory staff" (p<0.001)



Waiting time (Item 18)

This refers to satisfaction with the time that patients wait until they are seen by the doctor. From Fig. 5.8, it is clear that considerably fewer patients were satisfied at KFH than at OH at baseline. After the intervention satisfaction levels were almost the same at both hospitals, having increased by 34% at KFH and 24% at OH.

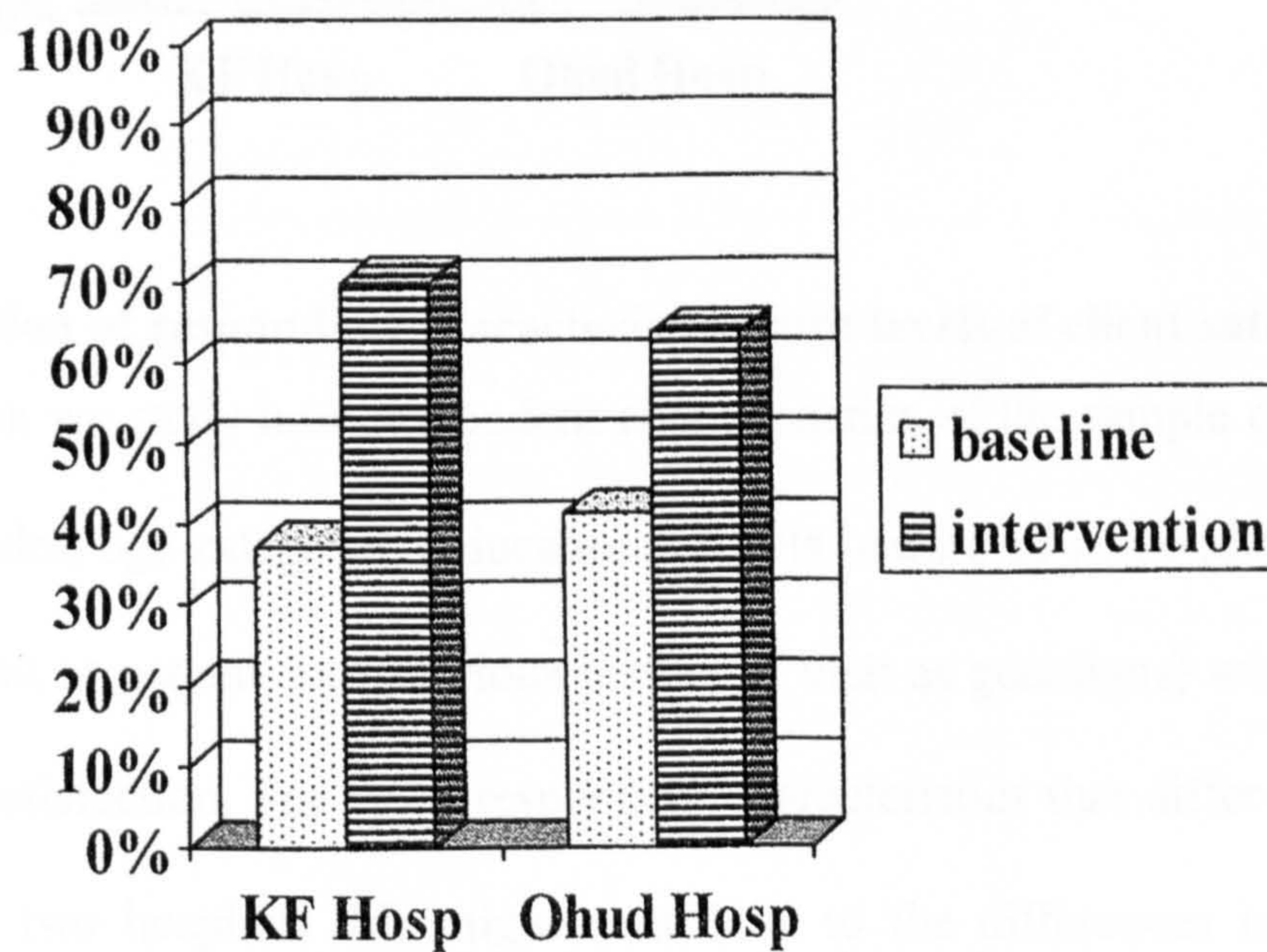
Figure 5.8: Improvement on "Waiting time" (p<0.05)



Information about medical diagnosis before discharge (Item 19)

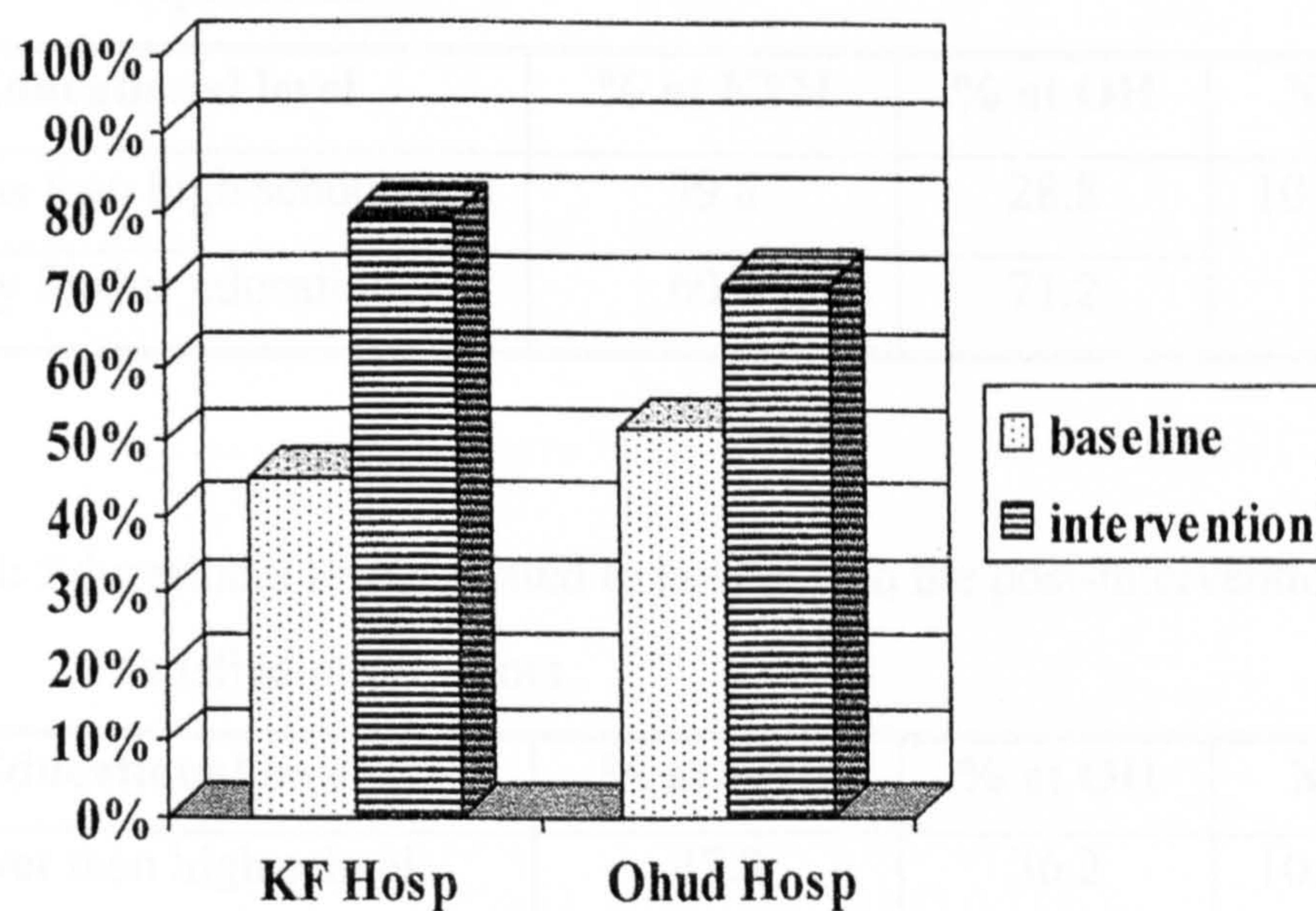
Levels of satisfaction with the information that doctors gave concerning the medical diagnosis to patient/guardians were slightly less at KFH (Figure 5.9). After the intervention, satisfaction at KFH exceeded that at OH, having increased by 33 % at KFH compared to 22 % at OH.

Figure 5.9: Improvement on “Information about medical diagnosis before discharge” ($p < 0.05$)



Overall treatment received (Item 21)

Levels of client satisfaction with overall treatment received at A&E were substantially improved by the interventions. Whilst fewer patients were satisfied at KFH than at OH before the intervention, this pattern was reversed following the intervention. Satisfaction increased by 35 % at KFH compared to a 19 % increment at OH (see fig 5.10).

Figure 5.10: Improvement on “Overall treatment received” ($p < 0.05$)

5.4. Association of respondent characteristics with levels of client satisfaction

In this section we study how respondent characteristics of the sample of responders (such as gender, age categories, educational levels, nature of respondents, previous history of visit as patient, and previous history of visit as guardians) were associated with client satisfaction. For those respondent characteristics that differ significantly between the two hospitals this might contribute to the differences in satisfaction improvement between the intervention hospital (KFH) and the reference hospital (OH). Within both the baseline and post-intervention surveys, the only respondent characteristic that differed significantly between the two hospitals was educational level (Tables 5.5 and 5.6). There were fewer respondents with further education in KFH than in OH. This might be an important difference for the results of this study if educational level is associated with client satisfaction.

Table 5.5: Educational levels related to hospitals in the baseline sample of satisfied respondents

Educational level	% at KFH	% at OH	X ²	P.value
Less than high school	39.8	28.8	10.74	.001
Any further education	60.2	71.2		

Table 5.6: Educational levels related to hospitals in the post-intervention sample of satisfied respondents

Educational level	% at KFH	% at OH	X ²	P.value
Lower than high school	47.8	36.2	10.86	.001
Any further education	52.2	63.8		

As the analysis below (Table 5.7) indicates, clients' satisfaction was associated with their educational levels for three items. Association will be considered with P values less than 0.1. This is to include only those items that are seen as important to the respondents, have an effect in determining the pattern of satisfaction, and to see their influence on the level of satisfaction.

Those respondents with less than high school education are less satisfied than better educated respondents with the "Amount of time to get medicine from pharmacy" and "Behaviour of pharmacy staff". However they are more satisfied with "Treatment time".

Table 5.7: Items related to educational levels at baseline.

Questionnaire item	% Satisfied in group A	% Satisfied in group B	X ²	P.value
6-Treatment time	38.7	30	6.09	.014
15-Time to get medicine	51.1	61	7.27	.008
16-Behaviour of pharmacy staff	48.2	58.4	7.55	.007

Group A= respondents with educational level less than high school

Group B= respondents with educational level from high school and further

Other respondent characteristics demonstrated significant associations with client satisfaction but were not significantly different between the two hospitals

Gender

This is to show the effect of gender on satisfaction with the questionnaire items. Table 5.8 shows association between items 1, 6, 7, 14, 15, and 16, and the satisfaction of respondents.

Female respondents are more satisfied than male respondents with the "Treatment time" and "Explanation of any procedures to be done". However female respondents are less satisfied than male respondents with "Appropriateness of treatment given", "Behaviour of X-ray staff", "Time to get medicine" and "Behaviour of pharmacy staff"

Table 5.8: Items related to gender in the baseline

Questionnaire item	% Satisfied in group A	% Satisfied in group B	X ²	p.value
1- Appropriateness of treatment given	64.8	57.8	4.12	.05
6-Treatment time	29.3	36.8	5.08	.029
7-Explanation of any procedures to be done	36.5	43.5	4.08	.051
14-Behaviour of X-ray staff	54.3	45.3	6.48	.013
15-Time to get medicine	64.8	50.5	16.6	.000
16-Behaviour of pharmacy staff	63.8	46	25.4	.000

Group A= % of males satisfied

Group B= % of females satisfied

Age category

Table 5.9 shows association between item no.7, and the satisfaction of respondents.

Where young ages (from 19-30) are more satisfied with "Explanation of any procedures to be done" than the older ages (more than 30 years).

Table 5.9: Items related to age categories in the baseline

Questionnaire item	% Satisfied in group A	% Satisfied in group B	X ²	p. value
7-Explanation of any procedures to be done	43.6	35.5	5.4	.02

Group A= respondents of ages from 19-30

Group B= respondents of ages more than 30

Nature of respondents

Table 5.10 shows association between items 15, 16, and the satisfaction of respondents, where Respondents' guardians were more satisfied with "Time to get medicine" and "Behaviour of pharmacy staff" than those patients' respondents.

Table 5.10: Items related to nature of respondents in the baseline

Questionnaire item	% Satisfied in group A	% Satisfied in group B	X ²	P.value
15-Time to get medicine	53.4	60.7	4.23	.043
16-Behaviour of pharmacy staff	51	57.7	3.46	.072

Group A= patient respondents

Group B= guardian respondents

Previous history of visit to ER as patients

Table 5.11 shows association between items 1, 11,13,14,16,and the satisfaction of respondents. Respondents who had visited ER as patients in the past were more satisfied with "Appropriateness of treatment given", "Time to get lab results" "Time to get X-ray results", "Behaviour of X-ray staff " and "Behaviour of pharmacy staff" than respondents who had not attended ER as a patient before.

Table 5.11: Items related to previous visit as patient in the baseline

Questionnaire item	% Satisfied in group A	% Satisfied in group B	X ²	P.value
1-Appropriateness of treatment given	63	56.3	2.85	.097
11-Time to get lab results	34.7	27.2	3.9	.058
13-Time to get X-ray results	53.4	46.1	3.21	.076
14-Behaviour of X-ray staff	51.9	43.7	4.07	.052
16-Behaviour of pharmacy staff	57.9	46.1	8.59	.004

Group A= respondents, who had been as a patients before this visit

Group B= respondents, who had not been a as patient before this visit

Previous history of visit to ER as guardian

Table 5.12 shows association between items 14, 16, and the satisfaction of respondents. Respondents who had visited ER as a guardian in the past were more satisfied with "Behaviour of X-ray staff" and "Behaviour of pharmacy staff" than respondents who had not.

Table 5.12: Items related to previous visit as guardian in the baseline

Questionnaire item	% Satisfied in group A	% Satisfied in group B	X ²	P.value
14-Behaviour of X-ray staff	51.4	44.3	2.85	.093
16-Behaviour of pharmacy staff	57.7	45.4	8.68	.004

Group A=respondents who had been as a guardian before this visit

Group B= respondents who had not been as a guardian before this visit

Hence those respondents who had attended the hospital before, whether as patient or guardian were more satisfied with the behaviour of both X-ray staff and pharmacy staff. This may indicate that any kind of previous experience with such staff has some influence on current feelings of satisfaction.

Previous data analysis for the quantitative findings shown by the study in this chapter and the qualitative findings resulting from the interventions implementation (systemic or informal) from the methodology chapter will be discussed in the next chapter. How far these results will be discussed with regard to the study objectives will be used to proceed with the next chapter.

Chapter Six

Discussion

6. Chapter summary

This chapter presents the discussions of the findings shown by the study. The chapter is made up of nine sections. The first section discusses how successful a structured quality intervention compares to an informal initiative. The second section discusses the attempts to control possible biases. The third section discusses the Generalisability of the findings. The remaining sections discuss the findings with regard to each study objective.

6.1 How successful is the quality framework as an intervention compared to an informal quality approach?

The most important objective of this study was to evaluate a Quality Improvement intervention for improving A&E services by comparing how successful such a structured quality intervention compared to an informal initiative in which management exhorted staff to try to improve quality.

As judged by scores on the patient satisfaction surveys, there are substantial quality improvements in both the structured intervention approach, and in the informal quality improvement approach. For ten aspects of quality there were significantly greater improvements in the systematic intervention hospital than in the reference hospital. However in comparison with the size of the overall improvements at both the intervention and the reference hospitals these differences, though statistically significant, were small (see section 5.3). Hence, one might conclude there is a substantial improvement on quality due to both approaches adopted for quality

improvement, with the structured intervention approach at KFH providing some small additional advantage over the non-structured approach employed at OH. There is reason for caution in this conclusion. One reason for caution is the difference in pre-existing levels of satisfaction measured at the two hospitals before the interventions took place. At the baseline survey the quality levels on sixteen items were lower at KFH than those at OH (see table 5.4). There is obviously a greater opportunity therefore for improvement at KFH than OH on these items, such as "appropriateness of treatment", "waiting time", "overall treatment received", with the same amount of effort. One plausible reason for the lower levels of satisfaction at KFH at baseline is the greater proportion of visits at KFH that are classed as urgent, and in which any delay can lead to increasing client dissatisfaction. If this is the case, then one might reasonably advocate that a structured approach to quality improvement is indeed a more effective approach to overcoming quality problems arising from high throughput and workload in A& E departments, especially on aspects such as "treatment time" and "overall treatment received. Other possible biases are now discussed and how the study attempted to reduce their influence.

6. 2. Attempts to control possible biases

The timing of the baseline survey in relation to the commencement of the structured or informal quality improvement activities was the same at both hospitals. This should overcome the possibility that staff in either hospital benefited from the preparatory process in raising the quality of their services. Similarly, the follow-up survey was undertaken at the same time at both hospitals.

There were no changes in the organisation or working practices of the two hospitals between the baseline and follow-up surveys, other than the quality improvement

activities under study. Both hospital teams were involved in developing the quality framework and hence both sites received some intervention prior to the baseline.

Therefore some of the improvement in both study hospitals may have been due to this involvement of both hospital teams in developing the quality framework. However, at the reference hospital (OH) the specific activities that were undertaken to improve quality were decided by the hospital staff with no advice from the researcher. So, whilst the researcher was an active participant in developing the quality improvement plan at KFH, at OH the researcher was much more of a passive observer. However, the fact that the quality levels at the reference hospital improved substantially leads us to speculate about a possible "Hawthorne effect" taking place since it is well known that people's performance sometimes improves simply as a result of being studied (Bowling A. 2002). It would be interesting to revisit these two hospitals at some future date after the study to assess whether the improvements had been maintained.

FGDs with community groups of mixed socio-economic status may have meant that those with little education would not have spoken out. FGDs group leaders were instructed to provide opportunities for those with little education to participate and give opinions.

The structure provided to FGDS may have played a part in the views expressed about the important dimensions of quality. A list of indicators was given to FGD participants to guide their discussions. This structured approach to identification of indicators may have led to important indicators being left out of consideration. In fact, the main aim of giving the list was to guide the participants and help in brain

storming but it may have influenced the discussion and hence the final list of the key dimensions identified by the participants.

An English-Arabic translator completed the initial translation of the questionnaire into Arabic. Another translator who had not seen the original English version of the questionnaire was then asked to translate from Arabic to English. Comparing this later translation with the original English copy showed no differences (Appendixes E& F).

The questionnaire was discussed with; Hospital Administration Affairs Staff in Madinah General Directorate of Health as they supervise the health care services of all hospitals and are aware of any issues important enough to be considered in the questionnaire; the Madinah A&E departments directors of all Madinah hospitals as the nature of their work in the A&E will facilitate their ability to give valuable comments; selected groups of the public who use the hospital emergency services to comment on the applicability of the instrument and raise any aspects significant to them not included in the questionnaire, and to comment on which place to conduct the survey. It was found that some issues were important and needed to be added to the questionnaire so were subsequently included before the start of the study.

The questionnaire was pre-tested by the researcher in a hospital A & E department in a different but similar hospital from the study hospitals. (Al-ansar Hospital). The pre-testing allowed for assessment of whether the wording of the questionnaire was appropriate and understandable and whether the questionnaire covered all the important aspects of A&E services. It also allowed the logistics of the survey to be tested. The pilot was undertaken in order to:

1. Do a final check for the content of the questionnaire so that it was understandable by individuals of different characters to allow for variations in educational levels and age groups.
2. Assess the feasibility of the sampling and questionnaire introduction procedure.
3. Check for the best place to conduct the survey, which was found to be before discharge from A&E so as to overcome any bias that may arise (Trout A., Magnusson A. et al. 2000).

The same questionnaire was used to evaluate quality of services at baseline and at post-intervention stage to obtain the level of satisfaction at different stages before and after the intervention was applied, in relation to the same quality features identified. The reliability of the questionnaire was calculated using a test of internal consistency, Cronbach's alpha. Coefficient alpha is usually positive, taking on values from 0 to 1.0. The larger the value of Coefficient alpha, the higher the level of internal consistency. Reliability of the questionnaire was judged by the internal consistency coefficient (Cronbach's alpha) with the questionnaire items, which was 0.95, which indicates a high degree of internal consistency.

6.3. Generalisability of the findings

There is no reason to suspect that the hospitals selected for the study are substantially different from other public MOH hospitals. They are two general hospitals, with similar equipment and staffing levels to other hospitals and provide similar services within the Accident & Emergency departments. They provide services free to the whole population of Madinah, and they act as referral hospitals for patients from other hospitals and primary care centers of Madinah similar to the same general

hospitals under MOH, and there are no compelling reasons to believe that they are not representative of other public hospitals within the MOH facilities. However there are some limitations on the generalisability of the findings from this study. The study did not directly ask clients under the age of 19 for their views. Respondents aged less than 19 are not legally able to take decisions about lives, so the idea of informed consent was problematic. For such clients of the A&E services it was decided to ask the guardians accompanying him / her to participate.

Respondents needed approximately 10 minutes to fill the questionnaire. Some respondents were unwilling to spend this time to participate, hence the sample was not a consecutive series as originally planned. However, non-participation was low at 2.9 %. Such a low non-response was the result of the researcher's efforts to motivate participation. There were many respondents who needed the research team members to read to them the questions and write the answers.

The study used MOH staff as research team members, as those members are usually the staff who deal with patient surveys in Madinah General Directorate of Health. Their influence on respondents' replies may well have been significant if they were identifiable as hospital staff, hence they were asked to wear the national Saudi Dressing of "Thoub" for male and "Abbayiah" for female.

In Saudi Arabia seasonal variations in hospital attendance are influenced by religious festivals. The baseline survey was carried out in March and the post-intervention survey carried out in August when there were no festivals taking place, therefore these influences were kept to a minimum. However, there may have still been some slight difference in the cases attending for A&E services.

To the extent that these efforts were successful in controlling the possible biases, the evidence supports the argument that the structured intervention based on the Quality Framework is more effective than the informal approach represented by “staff encouragement” but there are some caveats to this conclusion:

1. For some items OH was already providing a “better” service than KFH. Therefore there was more opportunity for improvements on these items at KFH which in itself could account for the apparent greater achievement on these items at KFH
2. For other items, similar levels of improvement were achieved at OH with much less intervention than at KFH, which may be an indication that the informal approach is more cost-effective than the structured intervention in making quality improvements on these issues.
3. In general, the effect of the intervention at KFH was to bring it up to similar levels of client satisfaction to those achieved at OH.

The importance of this study comes from the assessment of the effectiveness of alternative approaches to quality improvement. (Ovretveit J. 2002; Ruiz U. and Simon J. 2004) amongst others, have highlighted the paucity of evidence comparing effectiveness of alternative approaches. Reviews of the literature (Bigelow B. and Arndt M. 1995; Motwani J., Sower V. et al. 1996) come to similar conclusions that despite a considerable body of literature, very little data existed confirming the claims made on behalf of different quality improvement, all claiming theoretical effectiveness and superiority to other approaches.

6.4. Assessment of the quality framework in integrating quality with organisational strategy

Another objective of this study was to develop a framework for quality improvement in hospital A&E departments in Madinah MOH Hospitals (Saudi Arabia) that would support the design of the structured intervention and integrate quality with the strategies of services to be the choice for organizational success

The framework was developed and modified as a result of:

- Study into a number of existing frameworks, models, and aspects of quality assurance and total quality management and continuous quality improvement (see section 4.3).
- Consultation with a quality expert in the Liverpool School of Tropical Medicine.
- The feedback and comments on the suggested quality framework were made by those involved with the provision of hospital emergency services such as staff in emergency departments, staff in those units with interaction with A&E departments, management board of the target hospitals, and public representative groups in a position to comment on the feature of quality framework (discussed in section 4.3).

The final framework was influenced by the feedback obtained from health professionals, hospitals management board, and the selected members of public (section 4.3). For the consultation process on the Quality Framework, the researcher conducted 5 group discussions; 2 group of health professionals of the target hospitals, 2 groups of target hospitals management board, 1 group of people in

Emarah Council¹ (these were exclusively male). These groups were selected on the basis of the researcher's judgement of their ability to comment on the features of the framework. All of these groups were involved in the provision of emergency services and they have a direct concern for the quality of A&E services. The researcher judged them to have a useful ability to comment usefully on the features of the framework. They included different speciality groups representing health professionals, management board, and a public body who have opinions about the quality of A&E services. They have the additional advantage for FGDs of having a good educational level that helps them to comment and give feedback.

Findings resulting from quantitative data analysis of the improvement in quality level at post-intervention stage mentioned in chapter five (section 5.3) support the applicability of the framework to introduce and improve quality. These results also suggest to us to look more closely at what happened in OH to make so much improvement with little outside input. It may be that the initial higher levels of satisfaction at OH made it easier for them to make further quality improvements. Also, the involvement of the OH team in the development of the quality framework may have contributed to their success in quality improvements. Of course it might be that the encouragement provided by the management had a large impact on motivating the staff to improve their services.

The applicability of the framework to introduce and improve quality in KFH is also supported by quality issues implemented in the intervention hospital as a result of the

¹ The Emarah Council is a group of highly educated members supervised by the governor of Madinah, consisting of directors of each Ministry branch in the region plus assigned key members of the community of Madinah. They mainly supervise and support decisions regarding health and social services in the region.

implementation of the structured intervention design based on the developed framework (section 4.5.1), which are:

- 1-ER quality improvement team.
- 2-ER standards formulation.
- 3-Identification of ER quality problems.
- 4-Assigning ER quality officers.
- 5-Quality education program.
- 6-Formulation of ER mission statement.
- 7-Formulation of ER strategic plan.
- 8-Assigning chief of units in ER.
- 9-Formulation of trauma team.
- 10-ER patient information.

These results showed how important the structured approach was as a systematic approach to integrate quality with service delivery strategies. The implementation of the previous quality issues is a result of a quality program, which means that the framework gave the organization the tool and the guide to better management and improvement of ER services. This supports the issue that quality framework, when implemented successfully, will integrate quality with service strategies to be the way of organizational success. In addition, in the reference hospital (section 4.5.2 and appendix O), staff encouragement improves quality but there are no quality issues developed or implemented to constitute a management art or philosophy to ensure applicability, success, and continuity. So it is difficult to conclude that encouragement is a successful tool to introduce quality in emergency services.

The constituents of the framework are very important connecting quality with organizational strategy. Figure 4.2 shows the important parts of the framework; general strategy, services strategy, and operational quality. These are rather new issues in management of A&E in Saudi Arabia that help managers to improve the service quality and reduce dissatisfaction. They also give the staff an opportunity to work within a quality culture that supports continuous improvement and good provision of services, aiming to satisfy those who benefit from these services, and of equal importance, incorporate the views and opinions of the services users as an integral value for organizational success.

The framework reveals the simplicity of applying a structured approach rather than a descriptive non-structured one. The framework has become a reference point for the current and future quality improvement initiatives. It guides quality improvement in a structured manner. The simplicity of applying the structured approach was evidenced by (Ovretveit J . 1992; Ellis R. and Whittington D. 1993; Joint Commission on Accreditation of Healthcare Organizations 1993; AL-Assaf A. 1998; Reinke J. 1998) when they stressed the point that a structured approach to quality implementation is effective. Also (Doyle V . and Haran D . 2001) raise the question “Is there a model QA programme that will secure quality improvement in all countries and settings?” Their view is that QA systems developed by facility-based staff are more likely to respond to local priorities and are far more likely to bring about the kind of quality improvement that service users themselves will appreciate. Previous discussions led also to a very important point that governments, when applying frameworks successfully, would have experience of implementing quality. This experience has meant less need for external expensive consultation and with the

simplicity of applying those frameworks, governments can start different QA projects in different settings and locations at the same time.

The applicability of the framework in other hospitals in Saudi Arabia or other hospitals in Middle East depends mainly on how similar the services are. The problem with many Middle East countries is that some quality frameworks are designed to work in special situations or to work in solving identified problems only, or sometimes need a high level of external consultation using senior staff knowledge and skills which are not available in the Middle East countries. Health organisations should bear in mind that prior to quality implementation, there is no global formula for quality management organisation. What works well in one health care organisation might not work in another. Each health care organisation has to recreate a quality management structure in its own image and likeness. Some recognised frameworks will be of little help to those organisations just starting a quality assurance programme e.g. the European Quality Model (Berwick D., Godfrey A. et al. 1992)

The framework helped the organizations to introduce QA and gave it the means to continuously improve the services they provide (section 4.5.1). In practice, the framework helps the organization to check for opportunities for quality improvement and to solve problems regarding service quality. This should be carefully considered when implementing any quality improvement approach as (Batalden P. and Stoltz P. 1993) declared that we are limited if we think that the continual improvement of health care is about writing a vision statement, or using a prescribed set of tools, or forming a certain number of teams. Improvement then becomes an organizational

program, something people do at various times and various ways alongside their regular work.

The qualitative evidence (section 4.5.1) resulting from the implementation process support issues, such as the way in which the framework (structured intervention) helped the staff to implement QA properly by identifying quality problems and resolving them by means of scientific methodology by selecting the appropriate staff to formulate a quality team, in contrast to the reference hospital where this issue was not found with staff encouragement alone. This successful implementation was helped in an indirect way by training staff about quality improvement in a systemic way in their departments.

When compared to an informal approach (table 4.13) where the staff were exhorted to improve their services, the systematic framework approach guided service providers to greater quality improvements through its systematic steps. Informal approaches of quality improvement may find it difficult to save time, resources, and to check for quality problems as they lack the formula for success (Dale B. and Boaden R. 1993a; Ovretveit J. 2002).

The development and the implementation of the framework in the intervention hospital (KFH) raises the awareness of quality in health care and its implications as a practical philosophy that helps an organization to improve the quality of its services (section 4.5.1). Beside the structured quality improvement process implemented, the quality education delivered by the author in the form of lectures as a part of the structured intervention at KFH, imparted to all the concerned personnel had a role in raising awareness of quality at KFH which in turn stimulated the creation of a quality

culture amongst the staff. This helps to guide them in their efforts to improve client satisfaction. It is not known whether any sense of quality culture was developed at OH, but the improvements in patient satisfaction indicate that something was happening to guide staff efforts at quality improvement.

Staff were involved in giving feedback and evaluating of the framework (section 4.3.2), and this process provided them with an indication of how quality is an important issue for the success of services provided. This helped to motivate the staff to use this knowledge efficiently when implementing quality. (Doyle V . and Haran D . 2001) in supporting this issue stated that “implementing QA systems is as much a 'people' issue as a 'technical' one. For long-term sustainability QA must be integrated into the existing roles and responsibilities of all staff”.

The results showed (section 4.3.2.2) that the feedback from health professionals, management board and representative public groups revealed some changes to be applied in the framework. The customization of the quality framework to suit the individual organization is a very crucial factor in the process of framework development and implementation. This illustrates two important points; first, that the framework is not a solid matter that cannot respond to changes needed to better applicability of the quality framework. The quality framework should respond to service improvement priorities in a way that makes it easy for the personnel who apply it. A second point raised is the importance of involving service providers and service users in the provision of any quality programs. It looks familiar for involving the service providers, but with service users it looks different and may be rare. Quality of health care in developing countries is usually defined and expressed by

health professionals from a technical perspective, i.e. the delivery of quality health care is a major challenge that faces health care providers. In this study, the role of service users was clearly recognized. The success of any organization's quality program depends on its attempts to meet the needs of its customers. This is supported by the argument mentioned by (Torres E. and Guo K. 2004) that the view and perception of these customer have an impact on the overall successes of health care organizations, and have recently come more into prominence, since it is used as an indicator recognized by managers for making organizational changes and improvements.

6.5. Identification of quality dimensions related to A&E services

This is to identify which dimensions of service quality were seen as important by the A& E staff, managers, and the public using the services in the hospitals concerned. Those issues that had greatest importance were the ones that received attention within the quality framework intervention. The 21 “standards” were developed based on the dimensions identified in the FGDs all relating to elements which can be experienced and assessed by patients, in line with the aim of the study, which is to assess elements that can be assessed by patient satisfaction. This doesn't mean that other A&E standards, relating to management, equipment, clinical guidelines, internal audit etc are not important. As mentioned before, these might not have been discussed by the focus groups since these kinds of issues were not on the list of options given to the FGDs (appendix C).

The identification of important quality dimensions relating to A&E services was done through the analysis of the feedback collected from health professionals, hospitals management board, and service users.

The identification of the quality features (dimensions of quality) was done by the same groups as used in the feedback on the quality framework plus 3 groups of the general public (1 male group, 2 female groups). These public groups were of mixed socio-economic status and reasonably representative of Madinah population from which they were drawn in terms of age groups, educational level, marital status, and occupational state. Thus, all the identification of quality issues was contributed to by 8 separate groups of clients and providers who had useful experience on which to identify important features that may affect the quality of A&E services provided at the two target hospitals. To guide their discussions, the participants were given explanatory notes on the quality features (see appendix C) and the discussion was recorded by tape-recorder and by notes taken by the researcher at each group meeting. Quality dimensions were identified and listed according to their importance as perceived by individuals in these important stakeholder groups. Obviously the relative ranking of key quality dimensions is context specific, and particular to the A&E services and population of Madinah. Quality dimensions will vary from country to country in their importance to the stakeholder groups. For example, Saudi Arabia differs from other developing countries in transition in that A&E services are provided free and there is no tax to be paid, which means that a concern for efficiency will be less than in other countries.

In the particular context of this study the dimensions perceived to have a high priority are:

- 1- Effectiveness
- 2- Accessibility
- 3- Interpersonal relations
- 4- Technical competence

These dimensions of service quality identified in this study are commonly reported as being amongst the most important quality dimensions (Ellis R. and Whittington D. 1993; AL-Assaf A. 1998; Brown L. , Franco L . et al. 2001; Croskerry P. , Chisholm C. et al. 2002).

6.6. Assessment of the applicability of the questionnaire developed

The questionnaire was developed to evaluate quality at different stages. Evaluation was done by considering the satisfaction expressed by patients (or guardians) as an indicator for the success of both the structured intervention and the informal approach. Satisfaction was measured in regard to identified quality dimensions (quality aspects of service).

The questionnaire was developed to measure the degree of satisfaction of patients and guardians accompanying the patients visiting ER departments. (Donabedian A. 1994) brought to light the contributions of consumers to promote the quality of health care by assigning the consumer as a definer of quality, evaluator of quality, informant about quality, co producer of care, target of quality assurance, controller of practitioner behaviour, and reformer of health care. This strongly indicates that the role of the patient is the most basic and vital role in monitoring how successful the quality program is. (Ovretveit J . 1992) mentioned that service performance is measured by a questionnaire which asks clients to rate the service on features known to be important to them. Nonetheless, it can be revealed that surveys in the form of questionnaires tend to be the most common methods to assess patient satisfaction (Wensing M., Grol R. et al. 1994; Williams B. 1994). The advantages of a questionnaire approach, regardless of the administration methods, are that they are quick and easy to carry out and cost relatively little to conduct, they are less subject

to researcher bias than interviews, less staff training is required, and anonymity is more easily guaranteed (Lewis J. 1994).

The tool developed could be used to guide the development of other tools to assess quality. Also, it could be modified to fit the purpose of the organisation to assess quality. Within this study the tool was developed to be used to assess quality from a client perspective, however other tools need to be developed to assess quality from technical and management perspectives.

The survey site was chosen to be at ER after discharge. There may have been less dissatisfaction expressed by respondents in this setting. The survey setting is a crucial factor. Patients interviewed at home tend to be less satisfied than those interviewed at a health care facility (Carr-Hill R. 1992). The patient feels more comfortable in giving their opinion at home than at the health facility as they might think that their response will affect their treatment. Evaluating satisfaction at home tends to give a lower rate of satisfaction as the time interval between the visit and the survey is too long (not more than two days after the visit) so the patient may have forgotten some aspects of service that could constitute a small detail needed to assess satisfaction (Carr-Hill R. 1992; Trout A., Magnusson A. et al. 2000). However doing the survey in the A&E department was the most convenient method of collecting the data in the time available, and also doing the survey several days after emergency department release may have had a negative impact on the response rate and introduces study bias.

The questionnaire used was a close-ended questionnaire that was self completed by the respondents, questionnaires were read out to non-literate respondents and the answers chosen by them were filled in by the research team member. The patients or

guardians felt it was time-consuming to fill in answers to open-end questions. Another reason is that patients were in a hurry to leave the hospital ER after discharge to have a rest so the close-ended questions were found to be a better choice (see section 4.4.2 in methodology chapter). (Trout A., Magnusson A. et al. 2000) suggest the use of self-administered, in-department, confidential questionnaires where possible, to limit acquiescence and sampling biases.

The scale used in the questionnaire was the Likert scale as this scale is highly relevant and sensitive, giving the respondent the chance to choose the best answer to match their responses. Likert responses of different grades are more sensitive than "yes / no" responses since the latter may conceal any grievances if respondent options are limited. Researchers prefer to use the Likert scale because patients have a greater opportunity to express their views (Carr-Hill R., Humphreys K. et al. 1987; Ross C., Steward C. et al. 1995). In this study the scales were recoded from five scales to two scales (satisfied & unsatisfied) but this depends mainly on the results obtained and has nothing to do with the usefulness of Likert responses of different grades

The results of the piloting (section 4.4.2.5) showed that the design of the questionnaire was very effective in measuring what was planned to be measured. The validity and reliability sections in this chapter (sections 6.1 & 6.2) also show how reliable and valid the questionnaires used in this study were.

To summarize, the designed questionnaire has many features of a valid and reliable tool to measure quality level of ER hospital departments at different stages.

6.7. Assessment of the quality level at the target hospitals at baseline and post-intervention stages

Substantial improvements in quality levels were observed at both hospitals. The levels of improvement were detected as an increase in percentages of satisfied respondents with regard to quality aspects measured by a well-structured questionnaire employed in a controlled manner at baseline and follow-up surveys, and so we can be reasonably confident that the measured improvements reflect real changes in the performance of the hospitals on the dimensions mentioned above.

At baseline, quality level was lower at KFH than at OH on the majority of the items in the questionnaire (sixteen items, see table 5.4). Quality levels at KFH were higher than those at OH with items such as "time to get X-ray results", "behaviour of X-ray staff", "time to get medicine", "behaviour of pharmacy staff". This mainly related to aspects of services present in KFH not found or not performed in OH properly (see table 4.2 for the comparability of the two study hospitals).

At post-intervention stage, quality levels at both KFH and OH improved substantially. OH reached a higher final score than KFH on items 1,2,3,4,18; and showed a greater percentage improvement on items 4, 13 14,15,16, 17, but these differences were not statistically significant. Improvements in Quality were significantly higher at KFH in ten aspects of quality (section 5.3 & appendix O). The greatest improvements in quality came about in "treatment time", "information on what is going to happen to the patient" and "explanation about medication", "waiting time". With the remaining items, the improvements at the intervention hospital were always greater than improvements at the reference hospital (section 5.3 & appendix O). Thus the major advantage in using this structured approach is in relation to these aspects of service.

With item no. 2; "*Information about what is going to happen to patient.*" This is a major concern for the patients or the guardian accompanying the patients, and is consistently found amongst the top ten issues relating to satisfaction with hospital emergency departments in America (Gesell S. 2000). This issue affects good delivery of services. During the study, it was found that the doctors felt it is not important to tell the patient or the guardian about what is going to happen to the patient during the visit to ER, this is also aggravated by some language barrier between the patient and the doctors as some of them come from non-Arabic speaking countries. McGuire et al. (1986)² found that 63-90 % of physicians made no attempt to discover the patient's views and expectations, encourage questions, check understanding, categorize information, or negotiate a treatment plan. In this item, satisfaction increased by 34 % in KFH as compared to a 23 % increment at OH (figure 5.1 and Appendix 0).

At KFH the improvement was due to a number of standards by the quality action team and the efforts being made by the ER quality Officers. For example, using Arabic-speaking doctors and nurses to help the non-Arabic speaking doctors and nurses in explaining what was going to happen to the patient during his visit, and the use of the ER patient information as a component of the structured intervention (see section 4.5.1).

With the informal quality approach, the sustainability of the improved satisfaction could not be guaranteed. For example, if the chief of ER changed, a member of staff failed to attend the meeting or new staff from other wards or from outside the hospital were assigned to ER later and did not receive instruction regarding this point of service provided.

² Cited from Hobgood C., Riviello R., et al. (2002). "Assessment of Communication and Interpersonal Skills Competencies." *Academic Emergency Medicine* 9(NO.11): 1257-1269.

With item no. 6; "Treatment time". This is the time the patient spends during his visit to ER until he is discharged from ER, or admitted into a regular ward in the hospital. Some patients may be left waiting in ER without starting treatment, due to a decision about the treatment in ER or admission to hospital not being taken as the specialist has been delayed since being called from ER staff, or a conflict in the treatment plan arising between doctors due to a disparity of skills.

In this item the satisfaction increased by 37 % in KFH compared to a 21 % increment at OH (figure 5.2 and Appendix O).

At KFH, standards for "treatment time" were set, with an indicative time spent in ED of 2 hours. Naturally when the ED is busy, delays may have been longer but the patient or his guardian will be notified of the reason for the delay when this occurs (see Appendixes G&H). The creation of an ER Chief Unit helps a lot in solving delays if they occur as a component of the structured intervention (see section 4.5.1).

At OH they used only encouragement of staff by conducting meetings with ER staff to discuss the need to consider this issue when dealing with patients. This produced an improvement in the short-term period of this study but this improvement may fade if not regularly and routinely reinforced.

With item no.7; "Explanation of medical procedures". This refers to both whether doctors explain the purpose of examination, procedures, purpose of tests, and results of tests and how they give an explanation. This is also one of ten top issues relating to satisfaction with hospital emergency departments in America(Gesell S. 2000). At baseline it wasn't present as part of a doctors duty. This point was found to be one of the more important issues mentioned as a quality feature affecting the delivery of

effective quality services. In this item, the satisfaction increased by 33 % at KFH compared to a 24 % increment at OH (figure 5.3 and Appendix O).

At KFH this issue was improved by the presence of a Quality Officer on each shift to solve and report any work problems to the ER quality action team for further study and advice, ER patient information informing patients and relatives about everything they wanted to know during their visit to ER, and the creation of an ER chief unit. These elements all contributed to improving the quality of services delivered as essential components of the structured intervention.

Even though these components were missing from OH, the staff managed a considerable satisfaction improvement through the use of meetings with ER staff to discuss the need to consider this issue when dealing with patients.

With item no. 8; “*Explanation about medication*”. This concerns whether and how the doctors give an explanation about the purpose of the medication prescribed, its effective use and possible side effects. In Saudi Arabia, the majority of the population are unlikely to ask detailed information about the use of their medicine without some effort on the part of the providers. This point was identified within the FGDs as one of the important quality features affecting the delivery of effective quality services. Formerly, doctors didn’t see this issue as something that was part of their duties, but with the introduction of the formal intervention for quality they have taken this issue on board as something they should address with their patients. Consequently, satisfaction with this aspect of care has increased by more than 34 % at KFH. Again, the encouragement approach adopted at OH provided unexpected benefits in this item, which could have been due to the initial involvement of the staff

at OH in developing the framework for quality improvements (figure 5.4 and Appendix O).

With item no.9; “*The relief of pain and discomfort*”. This is an issue that staff were already aware of before the study. When someone asks any member of staff in ER, Do you do sufficient work to relieve a patient’s pain and discomfort? He or she will immediately answer “yes”. So the poor levels of satisfaction on this item might have been due to several reasons such as:

1. Staff not taking into account the views of patients and guardians views in judging the effectiveness of service they were providing.
2. The way staff worked alone and the lack of teamwork and skilful leadership that guided and taught other staff
3. Staff thinking that they could not improve the way they deal with pain and discomfort.
4. The lack of any improvement programme and the lack of staff participation in an improvement team.
5. The way the service was organised due to huge numbers of patient visiting ER, the majority of them not urgently requiring emergency services.

In this item, the satisfaction increased by more than 26 % at KFH compared to a 16 % increment at OH (figure 5.5 and Appendix O).

The application of standards mentioning this issue at KFH is probably the main reason for the greater improvement achieved there, combined with the continuous work of the quality action team to follow and guide other staff through effective ways of attaining that standard and the efforts made by the ER quality Officer’s on

each shift to solve and report any work problem to the ER quality action team. This item is the responsibility of all the medical and non medical staff in ER and is obtained as a result of all the above appearing in the form of team work initiatives, because it deals with the psychological and physical concerns of patients or his/her guardians, all as components of the structured intervention (section 4.5.1).

With item no.10; "Nursing care" is about the effectiveness of care given by nurses. Nurses are one of the most important key players in ER. The success of any medical services will mainly depend on how effective and skilled they are. In departments like ER, in almost the majority of Saudi Arabian hospitals, nurses tend to be the first point of contact with patients and guardians visiting ER. Nurses deal with the psychological and physical concerns of patients or his/her guardians. The problem of the nurses is that they handle so many jobs; some of it is administrative when finishing the admission papers of patients, or pertaining to other aspects such as acting as messengers, sending samples, or transportation of patients to X-ray. Nurses are considered as the main issue in the entire process and treatment plan in ER. Nurses care in emergency department was found to be one of the top ten issues relating to satisfaction of A&E in America (Gesell S. 2000). In a culture where there is no quality program, an absence of work standards and little involvement of nurses in making decisions on subjects relating to their work, one might expect to find a high degree of dissatisfaction from service users. The nationality mix (Saudi Arabia, some Arabic countries, India, Pakistan, and Philippines) of ER nurses is one of the critical factors here. The systematic implementation of a quality program to obtain uniformity of work standards can greatly help to overcome this diversity of training and backgrounds in how nurses carry out their jobs.

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In this item, the satisfaction increased by 30 % at KFH compared to a 20 % increment at OH (figure 5.6 and Appendix O).

With item no. 12; “Behaviour of laboratory staff” Patients and their guardians thought that the lab. staff should be capable of interpretation of the results and relaying the doctor’s comments, thus usurping the doctor’s role in explaining these results. It is a main role of the treating doctor to make an interpretation and decide on a treatment plan or discharge a patient, according to the results. In KFH, the lab. was located in ER, whereas in OH the lab. was located far from ER and they assigned messengers to send samples and collect the results from lab. This, in turn, tended to decrease the direct contact with laboratory staff (when there was a delay or a further time-consuming test was requested) in OH and increased the time needed for the results to come back to ER. In this item, the satisfaction increased by 24 % at KFH compared to only 2 % increment at OH (figure 5.7 and Appendix O).

The greater direct contact that patients had with the lab staff in KFH provided better opportunities for improvements to be recognized by patients. In addition, KFH created an ER Patient Information Board explaining the necessary information that patients needed to know about the laboratory results, which was not present in OH. The standards developed at KFH stressed the importance of performing a laboratory investigation in a time not more than 40 minutes (Appendixes G&H) and the doctor’s role in explaining to the patients and guardians about the results of these investigations.

With item no 18; “Waiting time”. This is about the waiting time to see the doctor. In this aspect, the satisfaction increased by 34 % at KFH as compared to a 24 % increment at OH (figure 5.8 and Appendix O).

At KFH the introduction of the quality framework provided opportunities for the staff to go through the steps and procedures needed for effective triage systems and to improve the effectiveness and efficiency of these steps which probably reduced waiting time but certainly improved satisfaction with waiting time. The coordination with primary health care providers to refer urgent cases only, and the coordination with other hospitals for getting approval from the recipient hospital (KFH) before referring their patients made a big difference. The formulation of a trauma team helped ER staff in the event of mass accidents to save time for treating other patients in ER. Also standards were created and applied, such as:

- ER should have an initial assessment plan performed by each doctor
- The patient should be seen by an ER doctor within 15-20 minutes from his/her arrival to ER
- ER patient information should explain the purpose of triage

(see Appendixes G&H)

However, in the reference hospital, whilst they encouraged the staff to perform triage this was left to staff experience, with no unified reference for all of them to follow. This may lead to variations in the definition of case urgency or negligence of urgent cases not being triaged well because of lack of skills and knowledge of some doctors.

With item no.19; “Information about medical diagnosis before discharge”. This is about whether and how information is given about medical diagnosis before discharge from emergency department. Satisfaction increased by more than 33 % at KFH as compared to a 22 % increment at OH (figure 5.9 and Appendix O).

Patients and guardians accompanying them always want to know the cause of the patient’s problem before leaving ER. At the baseline, doctors thought that it was not important to tell the patient or his guardians about the diagnosis before they discharged the patient from ER, unless the patient or his/her guardians asked for that. This was one of the reasons for taking feedback from service users on how satisfied they were with the services provided to them and what their needs were regarding this service.

Obviously, the structured intervention resulted in a greater improvement in satisfaction on this item than with the informal approach. The structured approach offered a systematic way for staff to improve the process of providing patients with medical information. With the informal approach, staff were left to their own devices as to how this matter could be better addressed.

With item no.21; “Overall treatment received”. This is about how satisfied the respondents were regarding overall treatment received in A&E department. To ask questions about the overall satisfaction is important, especially for those managers with no medical background where the important thing for them is to find service users satisfied with the service provided. With medical staff or service providers it is also important beside the detailed aspects of services covered by the questionnaire of the study or any relevant study. This aspect, when the structured intervention applied based on the framework designed in this study resulted in changes to the percentages

of satisfaction suggesting how effective the structured intervention in improving ER quality was.

In this aspect, satisfaction increased by 35 % at KFH compared to a 19 % increment at OH (figure 5.10 and Appendix O).

The structured intervention provided many standard processes for improving the quality of the services provided in ER as viewed by the patients. The implementation of these processes by staff was reinforced by the work of the quality action team to follow and guide staff in quality improvements activities. This was further backed up by the provision of the ER Quality Officer on each shift to solve and report any work problem to the ER quality action team for further study and advice, the ER patient information that tells the ER users about every single piece of detailed information they need to know during their visit to ER, and the creation of an ER chief unit helped a lot in improving the quality of services delivered (Section 5.2).

With the informal quality approach, satisfaction in OH also increased by 19 %, because they used staff encouragement by conducting meetings with ER staff to discuss with them the need to consider this issue when dealing with patients, but the problem with this informal approach was that you could gain some improvement but you could not guarantee sustainability or continuity, for example if the chief of ER changed, or a member of staff failed to attend the meeting or new staff from other wards or from outside the hospital were assigned to ER later after a period of time when they would not know about this instruction.

6.8. The influence of respondent's characteristics on the level of satisfaction

Studies have shown that client satisfaction is often associated with patient characteristics (Cleary P. and McNeil B. 1988; Williams S. and Calnan M. 1991; Minnick A., Roberts M. et al. 1997). This can be important for the comparison of the structured intervention and the informal approach in this study, if the samples at the two hospitals differ substantially on the characteristics associated with client satisfaction. The only significant difference in the two hospital samples was on educational level so we will first look at that association with satisfaction.

The effect of educational levels:

Educational level might influence satisfaction (Fitzpatrick R. 1991). The influence might be positive or negative (Ware J., Synder M. et al. 1983). At baseline survey the effect of educational level on satisfaction showed that respondents with educational level from high school and further were more satisfied than respondents with educational level lower than high school with aspects such as; time to get medicine, behaviour of pharmacy staff. Respondents with educational level lower than high school were found to be more satisfied than those respondents of educational level from high school and further with aspects such as; treatment time (table 5.7). At baseline, where no quality issues are applied, the educational levels will influence the respondents opinion. The more the level of education, the more the respondent has of knowledge and experience to evaluate the aspects of services provided. With aspects such as treatment time, it was expected that respondents with higher educational levels would be less satisfied than those with lower educational levels because patients with greater levels of education may apply higher standards in their valuation of the services provided. This would apply also to other aspects of service

delivery such as the behavior of pharmacy staff and time to get medicine from the pharmacy.

The effect of gender:

Consumer satisfaction is a complex issue to be explained from respondents gender factor (Fox J. and Storms D. 1981). (Fox J. and Storms D. 1981; Al - Mandhari A. 2002) suggested two explanations for that. First, is that studies did not widely consider users concepts of orientation towards health, illness, and health care. This is because people differ in their beliefs concerning the cause of illness as well as their socially patterned response to illness. This, in turn, may lead to the assumption that people differ in terms of both their readiness to express negative comments in response to questionnaires and their expectation of health care. The second explanation argues that these studies did not reflect the diversity of the population or the health care settings. Gender is associated with the following aspects of quality at baseline; appropriateness of treatment given, treatment time, explanation of any procedures to be done, behaviour of X-ray staff, time to get medicine, behaviour of pharmacy staff (table 5.8). Female respondents were more satisfied than male respondents with aspects such as treatment time and the explanation given about any procedure to be done. In Saudi Arabia females are more reactive and sensitive than males to any explanation or procedure performed. Also, in the majority of Saudi Arabian hospitals, females are treated by female staff which makes them more relaxed. Male respondents were more satisfied than females with those quality aspects involving direct personal contact in ER such as X-ray, pharmacy and other quality aspects such as the appropriateness of treatment provided. In Saudi culture the man is the one who is the normal contact point with the health providers, which may explain why males are more satisfied than females on these particular aspects

The effect of age categories:

Age has been reported to correlate significantly with many different aspects of satisfaction with health care (Hall J. and Dorman M. 1990; Williams S. and Calnan M. 1991; Al - Mandhari A. 2002).

At baseline survey, the effect of age categories showed that the younger age groups (19-30) were more satisfied than the older ones (more than 30 years) see table 5.9.

This was explained as the majority of the ER doctors were not Arabic language speakers and the majority of the young respondents knew enough English to help them to understand at different levels the explanation given by doctors, better than the older age groups. This influenced the result that the older age groups were not as satisfied as the younger age groups, as they were treated by a majority of non-Arabic speaking health providers.

The effect of nature of respondents:

The effect of respondent's nature (patients / guardians) showed with two quality issues; time to get medicine, and behaviour of pharmacy staff. It was found that the respondents who were visiting the ER as guardians were more satisfied than those who were visiting ER as patients (table 5.10). It may well be that because guardians are not suffering like the patient, they are less concerned about waiting for the medicines. This finding is inconsistent with the findings of the study by (Magaret N., Clark T. et al. 2002) in which guardians were found to be more dissatisfied than patients.

The effect of previous history of a visit to the hospital

Respondents who had visited ER as patients or guardians in the past were more satisfied than first time attenders especially with staff behaviour (two items in

particular:-Behaviour of X-ray staff, Behaviour of pharmacy staff (tables 5.11 & 5.12)). It seems likely that this experience has made them less likely to be critical of the way in which staff behave. They may have already experienced poor behaviour from staff and thus become more immune to reactions of dissatisfaction. Hence feedback from first time attenders might be more useful for identifying problems with the quality associated with staff behaviour, especially on the two items identified here.

6.9. Issues for further Research

What about the cost-effectiveness of the interventions? On eleven items, almost similar levels of improvement were achieved at OH compared with KFH (table 5.4 & Appendix O). This indicates that the informal approach can be very successful at quality improvements with much less external support than was given to KFH. The question arises as to which type of approach is more cost-effective. This study was not designed to answer this question but some discussion seems appropriate. Though no information was gathered on the funds and resources invested at both study hospitals as it may well be that in OH their informal approach to quality improvement was more cost effective than the structured intervention at KFH or maybe OH put in more time and effort than was declared. Further study on this point would be extremely valuable to measure more precisely the resources invested in both staff time and finance employed in both study hospitals.

Another issue for further study relates to the sustainability of the quality improvements. What are the medium to long term improvements achievable by these two approaches. One might hypothesise that due to its very nature, implanting a

framework and systematic approach to quality improvements, the structured approach would show more sustainable results (and potentially greater improvements) than the informal approach. We might use the example of improvements on giving information about what is going to happen to patient (item 2) to illustrate. This issue is one of major concern for clients in this study, a finding consistent with studies of hospital emergency departments in America (Gesell S. 2000). Satisfaction on this item increased by 34 % in KFH compared to a 23 % increment at OH (figure 5.1 and Appendix 0). In the longer term, the structured intervention imposes a standard for all staff to follow on this issue, which will achieve a degree of continuity if staff change or move hospitals. But it is difficult to guarantee this kind of continuity under the informal approach, for example, if the chief of ER changed, a member of staff failed to attend the meeting or new staff from other wards or from outside the hospital were assigned to ER later and did not receive instruction regarding this point of service provided. A further survey twelve months after the follow-up assessment will prove extremely useful in testing this hypothesis and will be attempted if funding can be achieved. Such an extension to this study would be of enormous value to future publications stemming from this thesis.

This study has concentrated on patient satisfaction indicators. There are of course many other ways to measure quality improvement. In particular, the use of clinical indicators and indicators of cost-effectiveness would be a valuable addition to a study like this that attempts to compare different approaches to bringing about quality improvements.

Chapter seven

Conclusions

7. Chapter summary

Here we summarize the main conclusions of the study, and make comment on the specific objectives with which this study began. The main objectives of this study were to assess the value of using a structured QA framework for improving quality of care in A&E services in Saudi Arabia and to compare a structured approach to quality improvement with an informal approach. In section 7.1 we provide the main conclusions on these two objectives and make appropriate recommendations. Section 7.2 summarizes the conclusions that can be drawn from a number of secondary objectives and section 7.3 sets out some themes for further research.

7.1. The major objectives of the research

A conceptual framework and intervention plan was developed with stakeholders, applied and evaluated in two hospitals. The main question of the thesis is “Does a systematic approach to quality improvement in Hospitals Accident & Emergency departments increase patient satisfaction more than management exhortation alone?”. Based on the results presented, the answer is “*YES, but not a lot*”. The informal approach of getting managers to encourage staff to try to improve quality in the same areas of work seemed remarkably effective.

7.1.1. Development of a framework for quality improvement in hospital A&E departments in Madinah MOH Hospitals that would support the design of the structured intervention and integrates quality with the strategies of services to be the choice for organizational success

A potentially useful quality framework has been developed through literature review and expert opinion. The usefulness of the framework has been enhanced by the use of feedback from key stakeholders including health professionals, hospitals managers and public representatives who have discussed the applicability and appropriateness of the framework from their particular perspectives. This process highlights the value of:

- The importance of consulting experts and staff dealing with the service regarding quality aspects to be implemented.
- The simplicity of using a structured diagrammatic quality framework that follows a logical rather than a descriptive non-diagrammatic one, as this is an important factor in the success of application, especially with those organizations with a low level of knowledge and experience regarding quality.
- Starting from a framework that helps the organizations to introduce QA efficiently and continuously improve the services provided from the organization compared to improvement obtained from simple encouragement of staff to do better.
- The applicability of the framework in other A&E hospitals departments in Middle East will depend on their similarities with the hospitals employed in

this study. The study hospitals were large general hospitals typical of other such hospitals in Saudi Arabia

It is recommended that this framework be considered as a useful starting point for other hospital A&E departments in Saudi Arabia and Middle East when they are implementing quality improvements, particularly for those hospitals with no previous experience in this field. The participation of health staff and the public in adapting this framework to a hospital's particular needs can be stressed highly.

7.1.2. To evaluate a Quality Improvement intervention for improving A&E services by comparing how successful such a structured quality intervention is to an informal initiative in which management exhorts staff to try to improve quality.

The quality framework was used to develop an intervention in KFH, and data on quality improvements were compared between this hospital and a reference hospital.

Results indicate that:

- Both the structured intervention based on the framework and the informal approaches were effective in producing substantial quality improvements.
- The structured approach produced significantly greater improvements on a number of key issues for quality such as satisfaction with treatment time, nursing care, and overall treatment received.

There are substantial improvements in quality to be gained from both structured and informal approaches. However it is recommended that where a hospital is

particularly concerned about those aspects of quality where the structured approach provided a significantly greater impact than the informal approach, then the hospital should develop a structured approach to quality improvements along the lines of that described in this study. The issue of the cost-effectiveness and sustainability of the two approaches should form the focus of further research (see later in this chapter).

7.2. Summary of conclusions on the secondary objectives

7.2.1. To identify which dimensions of service quality were seen as important by the A& E staff, managers, and the public using the services in the hospitals concerned.

Qualitative data from key stakeholders was analyzed to identify the main dimensions of quality related to A&E services. Feedback was collected from health professionals (2 groups), hospital management board (2 groups), and from public groups of mixed socio-economic status (4 groups). Dimensions of patient-perceived quality were defined and expressed as a survey tool which was applied in a pre- and post-intervention approach in the two hospitals.

The priorities for service users, health professionals, and hospitals management board (ranked according to the frequency with which each group mentioned the particular feature) were:

- 1- Effectiveness
- 2- Accessibility
- 3- Interpersonal relations
- 4- Technical competence

The 21 “standards” were developed based on the dimensions identified in the FGDs all relate to elements which can be experienced and assessed by patients, in line with the aim of the study which is to assess elements that can be assessed by patient satisfaction. This doesn't mean that other A&E standards, relating to management, equipment, clinical guidelines, internal audit etc are not important. As mentioned before, these might not have been discussed by the focus groups since these kinds of issues were not on the list of options given to the FGDs (appendix C).

It may be that in different hospitals and for different client groups, other dimensions are more important. Hence it is recommended that the process of identifying the quality dimensions be undertaken before setting out on quality improvement programmes.

7.2.2. To develop an instrument for measuring levels of service quality at baseline, before the intervention was applied, and at post- intervention, six months after the intervention was undertaken.

The instrument developed was a questionnaire to be used with clients at different time points in order to monitor improvements in quality. The questionnaire developed in this study proved to be an appropriate and robust tool for measuring the quality levels of A&E services at both baseline and follow-up surveys. The assessment of the questionnaire for reliability and validity highlighted the fact that whilst close-ended questions could be efficiently used with literate respondents it is necessary to make special arrangements for non-literate respondents, such as reading the questionnaire to them and ensuring that their response is captured accurately in the response category recorded by the interviewer. Nonetheless, the questionnaire

was well accepted by the respondents as demonstrated by the low non-response rate, and proved easy to analyze – an important factor in the implementation of quality improvement programmes rather than in research studies.

It is recommended that such quality improvement programmes give careful thought to the issue of developing a robust monitoring tool, and that the questionnaire used in this study could be used as a useful starting point

7.2.3. To evaluate the quality improvements within the intervention and reference hospitals.

This objective is really an extension of 7.1.2 above, by looking within each hospital at quality improvements from baseline to follow-up surveys. At baseline, quality levels were lower at KFH than at OH on the majority of the items in the questionnaire. At post-intervention stage, quality levels at both KFH and OH improved substantially. In many instances, the levels at KFH matched or exceeded those at OH. The issue of the Hawthorne effect has been discussed in chapter 6 as a possible influence on these improvements, but cannot account for the whole of the improvements obtained. A clear resolution of the issue must await further assessment of the sustainability of these improvements outside the study setting (see later in section 7.3).

7.2.4. To assess the influence of respondent characteristics on the levels of satisfaction.

The respondent characteristics were associated with levels of satisfaction in interesting ways. For example, educational level was associated with “treatment time”, in that lower educated clients were more satisfied with treatment time than higher educated clients, therefore since the educational level of respondents differed significantly between the two hospitals, we considered the implication of this difference on the impact of the structured intervention on quality improvements. There were more respondents in the lower educational level at KFH than at OH. Hence one might anticipate that satisfaction with this item should be higher at KFH than at OH but the baseline data indicate that satisfaction with this item was lower at KFH than at OH. Thus it appears that the difference in educational level at baseline could not account for the difference in satisfaction levels in this item between KFH and OH. After the intervention, levels of satisfaction with this item increased more at KFH than at OH. There may have been some confounding of the influence of education and the influence of the structured intervention in this differential increase in quality levels. Further analysis stratifying by educational level would help to explore this possible confounding but the sample sizes in this study did not lend themselves to such an analysis.

Gender was associated with levels of satisfaction on items such as “appropriateness of treatment given”, “Treatment time”, “explanation of procedures to be done”, and “behaviour of X-ray staff”. Age was related to levels of satisfaction on “Explanation of any procedures to be done” with younger clients being more satisfied than older ones on this issue. Those clients who had a history of a previous visit to the hospital were more satisfied on the issues of “behaviour of X-ray staff” and “Behaviour of

pharmacy staff'. Therefore, it is evident that any efforts taken to improve quality are influenced by respondent characteristics. The influences are, in most cases, small, but knowledge of those aspects of quality that are influenced by respondent characteristics can assist the drive for greater impact of quality improvement programmes. Hence, in designing quality improvement programmes, information on the associations between levels of satisfaction and client characteristics in the local population should be carefully considered in order to maximize the impact of such quality improvement programs.

7.3. Issues which require further research

The present study was not designed to assess the cost-effectiveness of the two approaches to quality improvement. Though no information was gathered on the funds and resources invested at each target hospitals, at the OH it may well be that their informal approach to quality improvement was more cost effective than the structured intervention at KFH or maybe OH put in more time and effort than was declared. Further study on this point would be extremely valuable to measure more precisely the resources invested in both staff time and finance employed in both study hospitals.

Another issue for further study relates to the sustainability of the quality improvements. What are the medium-to-long term improvements achievable by these two approaches? One hypothesis is that, due to its very nature, the use of a quality framework and a systematic approach to quality improvements would show more sustainable results (and potentially greater improvements) than an informal approach. A further survey twelve months after the follow-up assessment would prove extremely useful in testing this hypothesis.

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Appendix A

Invitation letter to health professionals and hospitals management board

Dear colleague:

I am a PhD Research student in the School Of Tropical Medicine at the University of Liverpool, working in the field of quality in health care.

Quality in health care means all the steps, activities and effort created and planned to be implemented and revised continuously to obtain and meet client needs and expectations as well as the organization .

The major objectives of the research:

- To develop a framework for introducing quality assurance in hospital A&E departments in Madinah M.O.H. Hospitals (Saudi Arabia).
- To evaluate a QA intervention for improving A&E services.

Your views are important to help create and conceptualize a quality framework to introduce and improve quality in A&E dep., which positively reflect an improved service quality?

Attached is the conceptual framework to introduce quality in hospitals A&E services

I would like to invite you to participate with us in the discussion that will be held at hospital lecture room in.....

Could you please study the framework carefully before you come as you are invited to:

A-) Comment on:

- The feature(s) of the framework which is(are) important to you,
- The feature(s) of the framework which is(are) not important to you,
- The feature(s) of the framework which is (are) important to you not included here and need to be considered in the framework.

B-) List quality features that you think affect the work in A&E and rank it according to its priority to you;

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

- Your comments and feedback will be used for the purpose of research.
- You are free to participate or not.

Appendix B

Invitation letter to public (Madinah Health Council)

Dear Sirs

I am a PhD Research student in the School Of Tropical Medicine at the University of Liverpool, working in the field of quality in health care.

Quality in health care means all the steps, activities and effort created and planned to be implemented and revised continuously to obtain and meet client needs and expectations as well as the organization .

The major objectives of the research:

1.to develop a framework for introducing quality assurance in hospital A&E departments in Madinah M.O.H. Hospitals (Saudi Arabia)

2.to evaluate a QA intervention for improving A&E services

Your views are important to help create and conceptualize a quality framework to introduce and improve quality in A&E dep. which positively reflect an improved service quality?

Attached is the conceptual framework to introduce quality in hospitals A&E services

I would like to invite you to participate with us in the discussion that will be held at the council meeting room in.....

Could you please study the framework carefully before you come as you are invited to:

A-) Comment on:

- The feature(s) of the framework which is(are) important to you,

- The feature(s) of the framework which is(are) not important to you,

- The feature(s) of the framework which is(are) important to you not included here and need to be considered in the framework

B-) List quality features that you think it affecting the work in A&E and rank it according to its priority to you;

1)

2)

3)

4)

5)

6)

7)

- Your comments and feedback will be used for the purpose of research
- You are free to participate or not.

Appendix C

Explanatory notes to help brain storm quality dimensions within A&E services

A-) Effectiveness such as;

- Receiving appropriate care / services
- Receiving appropriate medical treatment
- Receiving information that you understand regarding medical diagnosis and treatment
- Given clear plan for their care at the time of visit
- Receiving help in the event of Pain / discomfort / during tests / exams / treatments
- Receiving treatment within a reasonable period of time
- Doctors explain the examination / procedures/ purpose of drugs and possible side effects /purpose of tests / results of tests
- Receiving appropriate medical care / assistive devices
- Everything possible was done to relieve my Pain
- Nurses were too overworked to take care of me
- Improvement with treatment and medication given
- Receiving information that you understand regarding treatment after discharge
- Overall treatment received in A&E department

B-) Accessibility such as;

- Location of service facility
- Adequacy of parking spaces
- Finding your way around the hospital
- Waiting times to receive services
- Staff keeping customers informed about delay
- Staff keeping customers informed in a language they can understand and interpret.
- Staff willingness to serve clients at any time of the day or night
- A large number of staff available
- Access to toilets
- Comfort / disabled accessibility

C-) Interpersonal relations such as;

- Showing respect and treating clients as human beings
- staff caring about you as a person
- Amount of attention paid to you by nurses
- Amount of attention paid to you by doctors
- Staff taking your problem seriously
- Doctors concerned for your comfort
- Doctors spending more time listening to your problem
- Participation in decision about their care
- Emotional needs are met
- Politeness / respect / consideration /and friendliness of contact medical personnel
- Politeness / respect / consideration /and friendliness of contact non-medical personnel
- Staff concern to inform your family and friends
- Given warm welcome
- Sympathy
- Humility
- Communication in a language the client understands
- Assurance to clients of confidentiality
- Respect for patient privacy / dignity
- Encouragement to ask questions
- Understanding of what doctor is saying
- Given time to ask questions or be involved
- Staff consider cultural sensitivity
- Courtesy of staff

D-) Continuity such as;

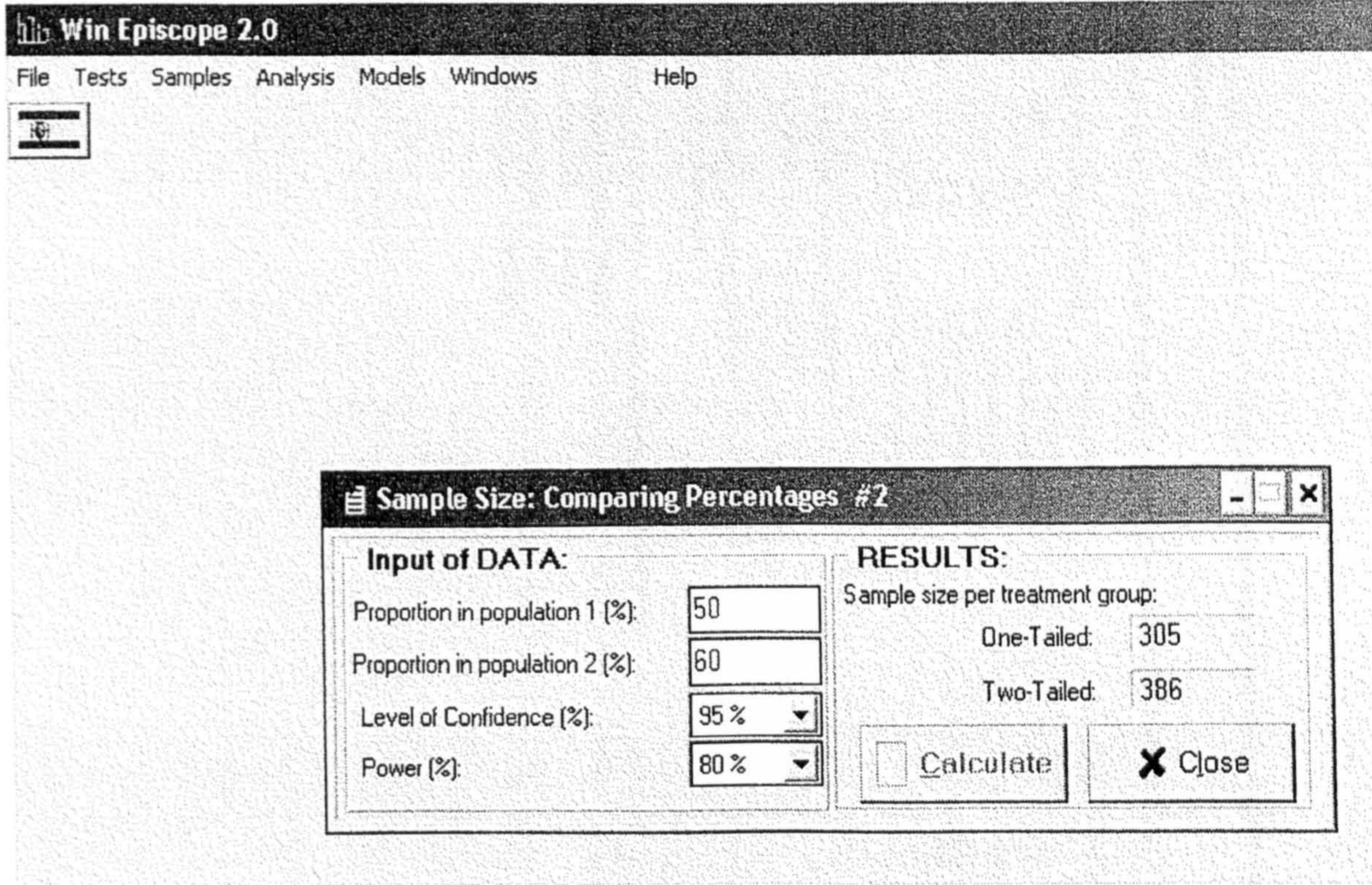
- Continuous Services provided and whenever you need
- Timely access to health services
- Provide a referral if necessary
- Information about services after discharge

E-) Amenities such as;

- Building in good repair (general condition)
- Clean and neat appearance of personnel
- Waiting area
- Availability of health education material
- Running water / electricity available
- Cleanliness / sanitation (examination room, toilets , latrines)
- Temperature (heat & cold)
- Air quality (dry air, odours)
- Comfort / disabled facilities
- General set up of the department

Appendix D1

Sample size calculation



Appendix D2

Excel test developed to obtain significant difference in improvement between the hospitals

This is to investigate whether the improvement in proportion responding 'yes' differ significantly following intervention in Hospital A with Hospital B as control with no intervention
 Follows logic in Bland section 8.6

This only works if you have a large sample size so that there are at least 30 in each cell of the table

JUST CHANGE THE YES/NO SCORES		DON'T ALTER THESE			
yes	no	total	prop. 'yes' var		
Hospital A, before	157	243	400	0.3925	0.000596
Hospital A, after	290	110	400	0.725	0.000498
Hospital B, before	168	232	400	0.42	0.000609
Hospital B, after	263	137	400	0.6575	0.000563

0.3325 improvement in hospital A
 0.2375 improvement in hospital b

0.095 difference in improvement
 0.047608101 s.e. difference

1.995458728 TEST SCORE i.e. improvement divided by its se
 if test score is less than 2, not significant
 if test score greater than 2.0....p< 0.05
 if test score greater than 2.6....p<0.01
 if test score greater than 3.3..... P<0.001

Appendix E
English version of the questionnaire used in the study

Dear respondent:

I am a PhD Research student in the School Of Tropical Medicine at the University of Liverpool, working in the field of quality in health care.

Quality in health care means all the steps , activities and effort created and planned to be implemented and revised continuously to achieve and meet client needs and expectations as well as the organization .

The major objectives of the research:

1. To develop a framework for introducing quality assurance in hospital A&E departments in Madinah M.O.H. Hospitals (Saudi Arabia)
2. To evaluate a QA intervention for improving A&E services

As your participation and views are very important to help in improving the health services provided to you and the whole community (family, friends,) from hospital emergency department.

Here are some questions concerning your perception of the quality services provided in the(king Fahad Hosp./ Ohud Hosp.) emergency department.

Would you kindly take some time to answer each of these questions. For those questions please tick the response, which best matches your perception about (King Fahd Hosp/ Ohud Hosp.) emergency department as a patient visiting an emergency department or a family member or friend coming to ER with a patient.

- Very satisfied
- Satisfied
- Uncertain
- Unsatisfied
- Very unsatisfied

- Your comments and feedback will be used for the purpose of research
- your responses will be treated with complete confidentiality
- You are free to decline to participate which will not affect your right to treatment

Yours truly,

Mohamed S. Mahrous

1- Personal information:

A-) what is your age?

() years

B-) what is your sex?

() male

() female

C-) what is your education level?

• High school () yes no ()

• university degree () yes no ()

• Other further educations () yes no ()

D)- Are you?

() patient

() someone who is accompanying a patient

E-) have you been to this hospital as a patient?

Yes () no ()

F-) have you been to this hospital as an observer accompanying a patient?

Yes () no ()

2-How satisfied are you with?

- Effectiveness of services:

	Very satisfied	Satisfied	Uncertain	Unsatisfied	Very unsatisfied
1-The treatment given appropriate to your health problem					
2-Receiving information that you understand regarding what is going to happen to patient at the time of visit					
3-Receiving information that you understand regarding what is wrong with the patient					
4-Receiving information that you understand regarding who is going to see the patient					
5-Help given in the event of Pain , discomfort , during tests , exams ,and treatments					

Appendices

	Very satisfied	Satisfied	Uncertain	unsatisfied	Very unsatisfied
6-Treatment provided within a reasonable period of time					
7-Doctors explain the purpose of examination, procedures, purpose of tests, and results of tests					
8-Doctors explain the purpose of drugs and their effective use and possible side effects					
9-Sufficient work done to relieve Paine and discomfort					
10-Care given to you by nurses					
11-Amount of time to get lab results					
12-Behaviour of lab staff					
13-Amount of time to get X-ray results					
14-Behaviour of X-ray staff					
15-Amount of time to get medicine from pharmacy					
16-Behaviour of pharmacy staff					
17-The way staff did the initial assessment					
18-Waiting time to see the doctor					
19- The way information was given about medical diagnosis before discharge from emergency					
20-The way information was given about follow up treatment patient may need after discharge from emergency					
21-Overall treatment received in A&E department					

Any other comments about services received from emergency department (optional):

.....
.....
.....
.....
.....
.....
.....
.....
.....

Appendix F

The Arabic version of the questionnaire used

أخي الفاضل / أختي الفاضلة, المستفيدين من الخدمات الصحية بمنطقة المدينة المنورة المحترمين

السلام عليكم ورحمة الله وبركاتهوبعد:

أفيد سعادتكم بأنني أحد منسوبي وزارة الصحة المبتعثين لدراسة الدكتوراه في مجال الجودة في الرعاية الصحية من كلية الطب بجامعة ليفربول بالمملكة المتحدة.

الجودة في الرعاية الصحية تعني أساسا العمل المستمر والمتواصل وفق أساليب وطرق تتماشى مع احتياجات ومتطلبات المستفيدين من هذه الخدمات ضمن معايير محدده ومتفق عليها تخضع هذه المعايير وباستمرار للمراجعة بغرض التحسين والتطوير وفق مايخدم المستفيدين من هذه الخدمات وضمن ماهو متاح من إمكانيات.

الهدف الرئيسي من الدراسة هو اقتراح طريقه أو أسلوب عمل لتطبيق الجودة لتطوير مستوى الخدمات المقدمة من أقسام الطوارئ بالمستشفيات وفق أسلوب يتماشى مع الإمكانيات البشرية والمادية المتوفرة.

وهي دراسة علميه متخصصة لها أبعاد وانعكاسات إيجابية إن شاء الله على تطوير الخدمات الصحية وضمان الالتزام باستمرارية هذا التطوير حسب الطريقة المقترحة من خلال الدراسة.

وكون مرئيات ومقترحات المستفيدين من خدمات أقسام الطوارئ بالمستشفيات هي الأساس ونقطة الإنطلاق لتطوير وتحسين خدمات الطوارئ.

مرفق إستبانة تختص أساسا بتقييم جودة و فعالية الخدمات الصحية المقدمة من قسم الطوارئ بمستشفى (الملك فهد/أحد) بالمدينة المنورة.

أمل إعطائي دقائق من وقتكم للإجابة على جميع الأسئلة الموجودة بهذه الإستبانة من واقع مراجعتك لقسم الطوارئ بمستشفى الملك فهد كمريض أو مرافق لمريض , حيث تتطلب الإجابة وضع إشارة (صح) داخل المربع الذي يناسب إختيارك ويتوافق مع تقييمك للخدمة من واقع ملاحظاتك ومشاهداتك.

علما بأن:

- الإجابات ستعامل بسريه.
- الإجابات ستستخدم لأغراض البحث العلمي فقط.
- لك كامل الحرية في عدم المشاركة في الإجابة على الإستبانة.
- عدم المشاركة في تعبئة الاستبانة لن تؤثر على حقك في الحصول على أخدمه الصحية التي تحتاج لها.

والله يحفظكم ويرعاكم

1- المعلومات الشخصية:-

أ- العمر () سنة

ب- الجنس:-

* ذكر ()

* أنثى ()

ج- المستوى التعليمي:-

* تعليم اقل من الشهادة الثانوية ()

* تعليم ثانوي ()

* تعليم جامعي ()

* دراسات عليا أخرى ()

د- هل أنت ؟

المريض () مرافق للمريض ()

هـ- هل سبق وأن راجعت الطوارئ (بمستشفى الملك فهد) كمريض ؟
نعم () لا ()

و- هل سبق وأن راجعت الطوارئ (بمستشفى الملك فهد) كمرافق لمريض ؟
نعم () لا ()

2- مدى الرضاء عن فعالية خدمات الطوارئ بمستشفى الملك فهد بالمدينة:

سوء	غير مرضي	لا أدري	مرضي	مرضي جدا	
					1- مدى تحسن حالة المريض الصحية بعد تلقي العلاج الطبي بالطوارئ.
					2- تلقي معلومات عن الإجراءات العلاجية التي سوف تتخذ للمريض أثناء التواجد في قسم الطوارئ بطريقة مفهومة وواضحة.
					3- تلقي معلومات عن الوضع الصحي للمريض أثناء التواجد في قسم الطوارئ بطريقة مفهومة وواضحة.
					4- تلقي معلومات عن الطبيب الذي سيقوم بالكشف على المريض أثناء التواجد في قسم الطوارئ.

سواء	غير مُرضي	لا أدري	مُرضي	مُرضي جدا	
					5- تلقي المساعدة في حالة الألم ، عدم الراحة ، اخذ عينات للتحليل ، الفحص ، وأثناء المعالجة بالقسم.
					6- الفترة الزمنية للمعالجة بالطوارئ.
					7- الطبيب يشرح لك خطوات الفحص والهدف منها وطبيعة التحاليل المخبرية ويشرح نتائج هذه التحاليل والفحوصات التي تم عملها.
					8- الطبيب يشرح الغرض من إعطاء الأدوية وطريقة استخدامها والآثار الجانبية التي يمكن أن تحدث.
					9- الجهود المبذولة من قبل طاقم الطوارئ لتخفيف الألم والمعاناة.
					10- الجهود المبذولة من طاقم التمريض بالطوارئ.
					11- الوقت حتى استلام نتائج التحاليل من المختبر.
					12- تعامل منسوبي المختبر بالطوارئ
					13- الوقت حتى استلام نتائج الأشعة.
					14- تعامل منسوبي الأشعة بالطوارئ
					15- الوقت حتى استلام العلاج من الصيدلية بالطوارئ.
					16- تعامل منسوبي الصيدلية بالطوارئ
					17- أسلوب الفرز والتقييم المبني للمريض من قبل الطاقم الطبي بالطوارئ من حيث الحاجة للعلاج بالطوارئ من عدمه.
					18- وقت الانتظار حتى رؤية طبيب الطوارئ
					19- أسلوب إعطاء معلومات عن التشخيص النهائي للحالة قبل مغادرة الطوارئ.
					20- طريقة إعطاء معلومات عن متابعة الحالة المرضية بعد مغادرة الطوارئ.
					21- مستوى الخدمات الصحية المقدمة من قسم الطوارئ بشكل عام.

أي إضافات ترغب في إضافتها فيما يخص الخدمات المقدمة من قسم الطوارئ (الإجابة اختيارية):

.....

.....

.....

.....

.....

.....

.....

Appendix G

Services standards in emergency department in English

- 1) Emergency department provides services according to a strategic written and defined plan, which includes:
 - a) Goal setting.
 - b) Scope of services offered / planned.
 - c) Monitoring the needs of the patients' population.
 - d) Resource allocation.
 - e) Referral services.
- 2) Emergency department provides care appropriate to patient's health problem(s) in response to his or her needs, so long as that care is within the hospital capacity, its stated mission and philosophy, and relevant regulations. When the hospital cannot provide the care patient requests, staff fully inform the patient and / or his family of his or her needs and the alternatives for care. If it is necessary and medically advisable, the hospital transfers the patient to another organisation accepting the patient.
- 3) The doctor should explain to the patient and / or his family during the visit to the emergency department;
 - a) Proposed treatment plan or procedures to be carried out.
 - b) Possibilities of serious risks and significant and common complications, and probability of success.
 - c) The major alternative for care or treatment.
- 4) The doctor should explain to the patient and / or his family during the visit to the emergency department the patient health condition (what is wrong with the patient) and / or patient illness.
- 5) Staff member should inform the patient and / or his family;
 - a) The name of the physician or other practitioner who has primary responsibility for the patient care.
 - b) The identity and the professional status of individuals responsible for authorizing and performing procedure or treatments.
- 6) Emergency staff should help and give support to the patient during tests, exams, and treatments.
- 7) The emergency department should provide services in a timely manner to meet patient's needs; Staff should inform the patient and / or his family about any delay in the services (total time patient spent in ER to be approximately 2 hours).
- 8) The doctor should explain to the patient and / or his family the purpose of the examination, procedures, purpose of tests, and the results of tests.
- 9) The doctor should explain to the patient and / or his family the purpose of the drugs and their effective use, and possible side effects.

- 10) Doctors should do every thing possible to relieve patient's pain and discomfort during their visit to emergency department.
- 11) Nursing staff should take care of the patients, nurses should assess the patients need for nursing care in all emergency department setting where nursing care is provided.
- 12) The emergency department laboratory staff should give the results of the tests requested in a reasonable period of time (total time expected to get the lab results 40 minutes).
- 13) The emergency department staff and emergency lab staff should inform the patient and / or his family about the time and the results of the tests, and any possible delay.
- 14) The emergency department X-ray staff should give the results of the tests requested in a reasonable period of time (total time expected for patient to spend in X-ray to be 18 minutes).
- 15) The emergency department X-ray staff should inform the patient and / or his family about the time, and any possible delay.
- 16) The emergency department pharmacy staff should dispense the medication requested in a reasonable period of time (total time expected to dispense medications from ER pharmacy 9 minutes).
- 17) The emergency department pharmacy staff should inform the patient and / or his family about the purpose of the drugs and their effective use, possible side effects, and about where to find the medication(s) if not available in their emergency pharmacy.
- 18) The emergency department has a defined initial patient assessment plan completed by each doctor, staff member should base care decision on the identified patients needs and care priorities.
- 19) Emergency doctors should see the patients in a timely manner to meet his/ or her medical needs and give satisfactory pain treatment within a reasonable period of time (Waiting time to see the ED doctor expected to be from 15- 20 minutes)
- 20) Emergency doctors should explain the final diagnosis to the patient and / or his family before discharge, and a discharge plan should be explained as well (post hospital care).
- 21) Emergency doctors should inform the patient and / or his family about; when, from where, and how to obtain further treatment (follow up treatment) the patient may need after discharge from emergency.

Appendix H

Services standards in emergency department in Arabic

<p>تأخير وإصحاء النتائج في أسرع وقت ممكن (الوقت المتوقع لمل التحاليل واستلام النتائج هو 40 دقيقة).</p> <p>13- على الطاقم الطبي وكذلك العاملين بقسم مختبر الطوارئ الإمتحان واختبار المرض أو عائلته عن الوقت الذي تستغرقه التحاليل بالمختبر ونتائج التحاليل وأي تأخير قد يحدث في عمل هذه التحاليل.</p> <p>14- على العاملين بقسم الأشعة بالطوارئ عمل الأشعة المطلوبة في أسرع وقت ممكن ودون تأخير (الوقت المتوقع لمل الأشعة واستلام النتائج هو 18 دقيقة).</p> <p>15- على العاملين بقسم الأشعة بالطوارئ الإمتحان واختبار المرض أو عائلته عن الوقت الذي تستغرقه الفحوصات الشعاعية ونتائج الفحوصات وأي تأخير ربما يحدث.</p> <p>16- على العاملين بصيدلية الطوارئ العمل على صرف الأدوية المطلوبة لمرضى الطوارئ (في وقت مناسب) دون تأخير المرض أو مراقبه (الوقت المتوقع لسرف الرصعة للمريض 9 دقائق).</p> <p>17- على العاملين بصيدلية الطوارئ الإمتحان واختبار المرض أو عائلته عن النرض من الأدوية وفاليتها الدوائية وأي أعراض جانبية متوقع من إستخدامها وكذلك مكان توفرها في حالة عدم وجودها في صيدلية الطوارئ.</p> <p>18- لابد من وجود طريقة وضطة لمل الترز والتقييم المبني للمرضى بالطوارئ تكون سرورية لدى جميع أطباء القسم ويكون هي المراجع الأساسي واتخاذ القرار حول حالة المرض واحتياجه من الخدمات الطبية.</p> <p>19- أطباء الطوارئ لابد أن تكون مابيتهم وكثمتهم ومابيتهم للمرضى ضمن وقت مناسب (الوقت المتوقع من 15 إلى 20 دقيقة) .</p> <p>20- لابد أن يقوم طبيب الطوارئ باختبار المرض أو عائلته عن كيفية ومكان الحصول على سامة العلاج للمرض بعد مناداة الطوارئ .</p> <p>وأي توصيات طبية لابد أن يبينها المرض بعد مناداة الطوارئ حفاظا على وضعه الصحي.</p>	<p>4- على الطبيب المبالغ أن يشرح للمرض أو لعائلته أثناء تواجدهم في الطوارئ الوضع الصحي للمرض وماذا يعاني.</p> <p>5- لابد أن يتم الطاقم الطبي بالطوارئ باختبار المرض أو عائلته عن:- أ-إسم الطبيب الذي سيباشر المالمه أو من سيكون مسئولا عن علاجها .</p> <p>ب-عمل وتخصص الطبيب المبالغ .</p> <p>6- على الطاقم الطبي بالطوارئ تقديم الموزن والمساعدة للمرض عند أخذ عينات التحاليل أو الفحوصات أو الأشعة .</p> <p>7- لابد أن تكون الخدمات الطبية المقدمة داخل قسم الطوارئ في وقت متقبل ومناسب لإحتياجات وحالة المرضى المراجعتين، وفي حالة حصول أي تأخير لأي سبب لابد من إخطار المرض أو عائلته عن هذا التأخير وأسبابه، (الوقت المتوقع لإنتظار المرض بالطوارئ ساعتين) وفي حالة إزدحام الطوارئ لأي سبب سيكون هناك تأخير لمدة قد تمتد من ساعتين إلى ثلاثة ساعات إضافية.</p> <p>8- على الطبيب أن يشرح للمرض أو لعائلته النرض من الفحوصات التي سيتم إجراؤها والاختبارات والتحليل والمرف سها كذلك يشرح نتائج هذه الفحوصات والاختبارات والتحليل للمرض أو لعائلته.</p> <p>9- على الطبيب أن يشرح للمرض أو لعائلته النرض من الأدوية الموصوفة ومايوها والأعراض الجانبية التي قد تحدث بها .</p> <p>10- على الطبيب أن يبدل كل جهد لتخفيف الألم وسعادة المرض أثناء وجوده في قسم الطوارئ .</p> <p>11- على النرض بالطوارئ الإصحاء بالمرض، وكذلك تحديد إحتياجات كل مريض بالطوارئ من الخدمات التمريضية وتقدمها له .</p> <p>12- على العاملين بقسم مختبر الطوارئ عمل جميع الاختبارات المطلوبة دون</p>	<p>1- الخدمات الطبية داخل مركز الإسعاف والطوارئ وفق خطة إستراتيجية مكررة ومرونة تحتوي على الآتي:-</p> <p>أ- الأهداف .</p> <p>ب- نطاق الخدمات المقدمة من الطوارئ وتلك التي يتم التخطيط لها مستقبلا .</p> <p>ج- تحديد المستفيدين من الخدمة وبالتالي تحديد إحتياجاتهم من خدمات الطوارئ .</p> <p>د- الموارد المطلوبة .</p> <p>هـ- خدمات تحويل المرضى من وإلى القسم .</p> <p>2- قسم الطوارئ لابد أن يقدم خدمات طبية تتلام مع الإحتياج الصحي للمرض وحسب ما هو متاح من امكانيات بالقسم والمستشفى وفي حدود ما نقت عليه رسالة قسم الطوارئ والتعليمات والأظمة الملوم بها بالمستشفى .</p> <p>في حالة عدم تمكن قسم الطوارئ من تقديم الخدمة التي يحتاجها المرض فلا بد من إخطار المرض أو عائلته عن حالته الصحية وإحتياجات علاجه والمبارات المتاحة لذلك .</p> <p>وإذا كان من الضروري نقل المرض إلى مكان آخر للعلاج فإن المركز سيتم بتحويل المرض والتنسيق في ذلك مع جهة التحويل .</p> <p>3- على الطبيب المبالغ أن يشرح للمرض أو لعائلته أثناء وجودهم في الطوارئ الآتي:-</p> <p>أ- خطة ومراحل العلاج .</p> <p>ب- إحتياجات وجود خطورة على حياة المرض وأي مضاعفات قد تحدث لاستيعاب الله .</p> <p>ج- وكذلك نسبة نجاح المالمه أو فرص المالمه للمرض بمشيئة الله .</p>

مستشفى الملك فهد بالمدينة المنورة
معايير جودة الخدمات المقدمة من مركز الإسعاف والطوارئ

APPENDIX I

King Fahad Hospital emergency department mission statement in English

King Fahad Hospital Madinah

Emergency centre

Our mission

Is to provide high quality emergency patient care in a caring, courteous, personalized manner consistent with the King Fahad Hospital identity and humanitarian aims of the institution comply with the Islamic regulations, for all eligible patients in acute medical condition who present on a 24-hours- a-day, seven-day- a-week basis.

APPENDIX J

King Fahad Hospital emergency department mission statement in Arabic

مستشفى الملك فهد بالمدينة المنورة

مركز الإسعاف والطوارئ

رسالة المركز

تقديم خدمات طبية للمرضى مراجعي الطوارئ وفق رعاية واهتمام لكل حالة حسب أولوية وضعها الصحي ، هذه الخدمات الطبية تقدم حسب الأنظمة والتعليمات المعمول بها في مستشفى الملك فهد بالمدينة وتوافق مع طبيعة الجانب الإنساني في العمل الطبي حسب ما تنص عليه تعاليم الدين الإسلامي الحنيف ، جميع هذه الخدمات تقدم للمرضى الذين لهم أهلية العلاج بالمستشفى والذين يراجعون قسم الطوارئ وهم في وضع صحي طارئ وعاجل على مدار اليوم وخلال جميع أيام الأسبوع.

Appendix K

King Fahad Hospital Madinah

**Emergency centre
Strategic plan**

(June 2003----- June 2008)

General strategy;

Our vision:

- To be a unique continuous acute care quality provider and acute care training centre in Madinah region, satisfy the patients' and the public's acute care needs and meet their expectations.

Goals, objectives & values:

Our goals for improvement are;

- Improve patient care outcomes.
- To have patient satisfaction as one of our major concern.
- To be a specialized acute care provider.
- Improve the working environment to increase employee satisfaction.

To achieve this we have the following objectives:

- To attract and maintain personnel with the necessary skills and appropriate attitudes.
- To support the department and hospital mission and provide emergency care in an atmosphere of care and concern.
- To ensure that all emergency facilities are immediately available and ready to respond to patients medical needs.
- Establishing education and training programmes for the staff.
- Meet and exceed patient and employees expectations.
- To coordinate the functions provided by other departments and service departments that are essential to providing prompt and responsive patient care.
- To recognise that each patient is entitled to individual consideration and treatment, and should be treated in a manner that would be pleasing and reassuring to us if we were the patient.
- To ensure that an effective triage function is in place to provide priority to patients who are emergencies while not neglecting others who require medical attention.
- To recognise that it is an important responsibility of personnel in the department to keep the patient and member of the immediate family informed of the reasons for any delay in treatment.
- To ensure that no patient is transferred to another hospital or sent home without having been seen by a physician and evaluated to determine if the patient is able to leave.
- To accumulate medical record information in a way that is accommodating to patients and does not interfere with their care.
- Improve clinical decision making inside ED.
- Encourage the seeking for opportunities for improvement.

- To ensure that the facilities are not only medically ready for patients, but also clean and well maintained

Our values:

- We treat our patients and their families with dignity and respect, providing them with access to the care they require, recognising their needs and listening to their concern.
- To provide patient care consistent with the value of Islam and respectful of our patient's cultural heritage.
- We value and encourage clear and accurate communication between our patients, their families and our ED employees.
- To insure that our employees have the necessary knowledge and skills to deliver high quality patient acute care and are able to adapt to the rapidly changing health care environment.

Current services:

- All medical and surgical care including most of its subspecialties except(*):
 - Obstetric & gynaecology
 - Ophthalmology
 - ENT
 - Psychiatry
 - Paediatrics

***In some circumstances when time is a life saving factor the excluded services to be provided in acute care manner until the patient is stabilized and then to be admitted or transferred.**

Our plan to realize the vision:

- To have a new accident & emergency centre fully staffed and equipped by the year 2006.
- To keep improving the present emergency centre until establishing the new A&E centre.
- To achieve the MOH standard of staffing mentioned in its policy and procedures issued in year 2002.
- To participate in and maintain a defined role in determining hospital and ED annual budget allocation for equipment, staffing, and building.

Service strategy;

Our target clients;

- All the resident of Madinah (Saudi & non-Saudi) and the Hajj and Omrah patients who present to our emergency centre in acute medical condition, seeking medical care.

Client's needs;

- According to the availability of other specialities in other Madinah Hospitals, and according to the MOH plan of services provided from King Fahad Hospital, the clients needs are found to comply with present acute medical services provided from our ED.

Type of services to be provided;

- As King Fahad Hospital is a governmental hospital delivering services according to national & local policy concerning medical services delivered from other hospitals locally and nationally, the scope of services to be provided will be;
All medical and surgical acute care including most of its sub-specialties except (*);
 - Obstetrics & gynaecology
 - Ophthalmology
 - ENT
 - Psychiatry
 - Paediatrics

***In some circumstances when time is a life saving factor the excluded services to be provided in acute care manner until the patient is stabilized and then to be admitted or transferred.**

Strategic decision;

- Our strategic decision according to what is mentioned above will be to continue providing the medical services mentioned above, and continue working hard with the hospital board of management and Madinah General Directorate of Health to achieve our plan to realize the vision, unless the national or local plan changes.
- To keep planning to introduce some of the excluded services as a basic part of our ED services.

Staff required for accident & emergency centre

Speciality	No. Present	No. Required
1- consultant	1	4 (emergency medicine consultants)
2- specialist	1	8
3- resident	17	15
4- nurses	53	47
5-X-ray technician	3	5
6- pharmacist	4	4
7-lab. Technician	8	0
8- social workers	0	5
9- administrative staff	1	4
10- receptionist	6	4
11- patients relation staff	0	5
12- security	No fixed number	25
13- medical record tech.	1	4
14- statistician	0	1
15- secretary	2	2
16- cleaners& messenger	15	25

Appendix L

King Fahad Hospital Madinah Emergency Department Patient Information in English

The ED is a specialized department of the king Fahad Hospital.

It consists of three areas:

- 1- Screening area
- 2- Treatment area
- 3- Critical area

The ED is designed to care for patients with acute medical problems who cannot wait to be seen by PHC / OPD doctors. The mission of the ED: is to provide high quality emergency patient care in a caring, courteous, personalized manner consistent with the King Fahad Hospital identity and humanitarian aims of the institution in compliance with the Islamic regulations, for all eligible patients in acute medical condition who present on a 24- hours-a-day, seven-days- a-week basis.

To accomplish this, trained emergency physicians and nurses are available at all times.

When you arrive in the ED, you will probably be seen by the triage nurse/doctor who will ask you the reason for your visit , your medication and allergies, and then will measure your vital signs (blood pressure, pulse, and temperature). You then will be sent to registration so that we may obtain the information necessary to begin an ED record. You will then be asked to wait in the waiting room. When a room is available, a nurse will take you into the ED and perform an initial assessment. If your condition should change while waiting in the waiting room, please notify the triage nurse or registration; who will take you directly into the ED.

Patients are seen according to the seriousness of their medical problem. Critically ill trauma patients and patients requiring intensive care are always seen before patients with less acute problems. Generally, all other patients are seen in the order in which they present.

Our goal is that:

- 1-total time spent in ED to be approximately 2 hours, when the ED is busy, there may be delays of two to three hours before a patient who has a problem that is not life or limb-threatening is seen, and you will be notified of any delay that might happen.
- 2- Waiting time to see the ED doctor from 15- 20 minutes.
- 3-Total time to get the lab results 40 minutes.
- 4-Total time spent in X-ray to be 18 minutes.
- 5- Total time to dispense medications from ER pharmacy 9 minutes

Medical evaluation by the emergency physician will be directed to your primary problem. If the problem can be diagnosed and treated in the ED, the physician will do so.

Because the emergency physician is not familiar with your health history, he or she may take time to obtain and review your medical record or contact and speak to other physician. It may be necessary to order blood tests, radiographs, or any types of tests. If more extensive diagnostic testing or treatment is required that cannot be provided in the ED, you will either be admitted to the hospital or referred to a place where the required extensive diagnostic testing or treatment is available.

When you are discharged from ED, you will be given "after care instructions", which will include your diagnosis, the name of physician or clinic for follow up treatment, and the specific instructions you are to follow.

If the emergency physician decides to admit you to the hospital, it will be necessary to arrange for a bed in the hospital. Because these are unscheduled admissions, it may take time to make a bed available or to arrange for the necessary staff. When admission to an intensive care unit is required, this may take several hours, during which you will be cared for in the ED.

King Fahad hospital is a public governmental hospital under the Ministry of Health, run by the Madinah General Directorate of Health.

Patients are seen initially by emergency doctors at all times. There is an attending charge doctor in the ED at all times. When the department is busy, the charge doctor may not have time to see every patient. If you have questions about your care, or complaints about the way you are being treated, please ask to speak to the charge doctor/ hospital director on duty / ED director on morning duty.

We know that almost no one wants to be a patient in the ED and that patients and their families may be upset and frightened by their illness or injury. However, our staff are trained and motivated to provide the best medical care possible.

Appendix M
King Fahad Hospital Madinah
Emergency Department Patient Information in Arabic

(1)

مستشفى الملك فهد بالمدينة المنورة
تعليمات للمراجعين عن الخدمات المقدمة من مركز الإسعاف والطوارئ

<p>✘ المرضى المراجعين لقسم الطوارئ يتم الكشف عليهم من قبل أطباء الطوارئ حسب خطورة وسمية حالتهم وليس حسب أقدمية أو التسلسل الزمني لحضورهم للطوارئ، حيث تعمل الأوربية للمحالات الأكثر خطورة والمعالجة تدخل طبي فوري ورسج ويترك التي تحتاج للمعالجة مكثفة (مثل مرضى القلب والحروق وحوادث السير) وما عدا ذلك سيتم معالمتهم حسب أولوية حضورهم للطوارئ.</p> <p>✘ مدقنا في قسم الطوارئ هو أن:</p> <p>1- كامل الوقت المستغرق في الطوارئ من وقت الحضور حتى مغادرة الطوارئ خلال فترة زمنية لا تزيد عن ساعتين ، ولكن في حالة ازدحام الطوارئ مثل حالات الممرات الكبيرة فربما يتم تأخيرك لمدة تتراوح ما بين ساعتين إلى ثلاث ساعات قبل أن يتم الكشف عليك من قبل طبيب الطوارئ وسيتم إخبارك بذلك التأخير في حينه.</p> <p>2- يكون وقت الانتظار المتوقع حتى رؤية طبيب الطوارئ (16) دقيقة.</p> <p>3- الوقت المتوقع حتى استلام نتائج التحاليل من المختبر (40) دقيقة.</p>	<p>قسم الطوارئ في وضع صحي طارئ وعاجل على مدار اليوم وخلال جميع أيام الأسبوع).</p> <p>✘ للقيام بهذه الرسالة أخذ مركز الإسعاف والطوارئ طاقم عاملين على دراية وخبرة للتعامل مع مثل هذه الحالات في جميع الأوقات.</p> <p>✘ عزيري المراجع عدداً تعمل للطوارئ سوف يتم مقابلتك بواسطة طبيب أو ممرضة التفرز بعيداً حيث سيتم سؤالك أولاً عن سبب مجيئك للطوارئ والأدوية التي تستعملها وأي حساسية موجودة لديك وفي بعض الحالات سيتم أخذ المعلومات الحيوية مثل ضغط الدم - درجة الحرارة - النبض ثم يتم إرسالك لكاتبو التسجيل لأخذ نموذج الكشف بالطوارئ.</p> <p>وربم تسجيل جميع البيانات الخاصة بك في هذا النموذج.</p> <p>وبعد ذلك سوف تنتظر في الاستراحة حتى يأتي دورك وسيتم استدعاؤك بواسطة الممرضة والتي ستأخذك لكان الكشف عليك وتقوم بعمل الإجراءات الأولية حتى يتم الكشف عليك من قبل طبيب الطوارئ.</p> <p>في حالة إحساسك بتدهور وضعك الصحي أثناء جلوسك في صالة الانتظار لا تتردد في استدعاء الممرضة وشرح حالتك الصحية لما حيث مستمر بأخذ التدابير اللازمة حيال ذلك حسبما يقتضيه وضعك الصحي.</p>	<p>✘ مستشفى الملك فهد بالمدينة المنورة أحد مستشفيات وزارة الصحة وتحت إشراف المديرية العامة للشرق الصحية بمنطقة المدينة المنورة.</p> <p>✘ مركز الإسعاف والطوارئ بالمستشفى هو من أهم أقسام المستشفى المتخصصة حيث يكون من :-</p> <p>أ- منطقة التفرز والتقييم.</p> <p>ب- منطقة القمص والمعالجة.</p> <p>ت- منطقة علاج الحالات الخطيرة والمترجمة.</p> <p>والمرکز يسهل تقديم خدمات طبية للمرضى المراجعين بحالات صحية حادة وطارئة والتي لا يمكن أن تنتظر حتى يتم مقابلتها في مراكز الرعاية الصحية الأولية أو العيادات الخارجية بالمستشفيات.</p> <p>✘ رسالة قسم الطوارئ هي (تقديم خدمات طبية للمرضى مراجعي الطوارئ وفق رعاية واهتمام لكل حالة حسب أولوية وضعها الصحي ، هذه الخدمات الطبية تقدم حسب الأنظمة والتعليمات المعمول بها في مستشفى الملك فهد بالمدينة وتوافق مع طبيعة الجانب الإنساني في العمل الطبي حسب ما تعنى عليه تعاليم الدين الإسلامي الحنيف، جميع هذه الخدمات تقدم للذين لديهم أهمية العلاج بالمستشفى والذين يراجعون</p>
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مستشفى الملك فهد بالمدينة المنورة
تعليمات للمراجعين عن الخدمات المقدمة من مركز الإسعاف والطوارئ

✖ في حالة وجود أي سؤال أو استفسار أو شكوى فلا تتردد في طلب مشرف أطباء الطوارئ المنارب أو المدير المنارب خلال جميع فترات العمل وعلى مدار اليوم أو رئيس قسم الطوارئ خلال الفترة الصباحية.

✖ آتني المرض ، أخذي المريضة نحن نعلم أن لا أحد منا يرغب في أن يكون مريضاً وبالتالي مراجعة الطوارئ بالمستشفى وأن المرض والأم يسبب انزعاج وقلق لدى المرض وعائلته.

✖ العاملون في قسم الطوارئ لديهم الخبرة والدراية لتقديم خدمات جيدة حسب ما يحتاج من إمكانيات وحسب ظروف الحالة الصحية للمريض.

مع تمنيات مركز الإسعاف والطوارئ
لكم بدوام الصحة والعافية

✖ عندما يتقرر خروجك من قسم الطوارئ سيتم الطبيب بإعطائك نصائح ولراشادات تتعلق بجالك المريضة وطبيعة مرضك واسم الطبيب أو المركز أو المستشفى الذي يتم بتابعة علاجك وأي أمور خاصة حسب حالك الصحية.

✖ في حالة ما إذا تقرر تنويمك بالمستشفى فإنه من الضروري أن يتم التنسيق مع القسم الذي ستقوم به حتى يتم تجهيز سرير لك ولكون الدخول طارئ وليس بمرور مسبق فإنه من المحتمل أن يتم إيقاظك في الطوارئ لفترة ربما يتم تجهيز السرير أو استدعاه الطبيب الأخصائي أو الاستشاري لبدء مراحل العلاج داخل قسم التنويم ، وبعنا يستغرق الانتظار عدة ساعات ، وفي حالة ما إذا كان الدخول بأحد أقسام العيادات المركزة بالمستشفى حيث يتطلب التنويم عمل إجراءات مسبقة حتى يتم تجهيز السرير وإعطائه فكرة للاستشاري أو الأخصائي المنارب أو استدعاه للمرضى.

✖ المرضى المرابين والمطاجين لخدمات قسم الطوارئ تقدم لهم الخدمات في جميع الأوقات، يوجد قسم الطوارئ مشرف لأطباء الطوارئ منارب بالإضافة لرئيس قسم الطوارئ في الفترة الصباحية.

4- الوقت المتوقع حتى استلام نتائج الأشعة (18) دقيقة.

5- الوقت المتوقع حتى استلام العلاج من صيدلية الطوارئ (16) دقيقة.

✖ الكلف والعلاج في قسم الطوارئ يكون أساساً للمشكلة التي حضر بها المريض للطوارئ ولن يتردد أطباء الطوارئ في علاجها إن أمكن ذلك.

✖ طبيب الطوارئ ليس لديه علم مسبق بتاريخ المرضي لحالك الصحية أو بوضعك الصحي قبل حضورك للطوارئ وعليه فإننا يتم تأخيرك بالطوارئ حتى يتم مراجعة ملتك الطبي بالمستشفى أو استدعاه طبيب أخصائي آخر لإبداء الرأي واتخاذ القرار اللازم حيال سالك.

✖ في بعض الأحيان يكون سن الضروري لإجراء بعض الفحوصات المخبرية التي تستدعي سحب عينات من الدم أو البول أو فحوصات بالأشعة أو أي فحوصات مهمة أخرى بتغليب مزيداً من الوقت، بعض الأحيان تكون الحاجة إلى فحوصات متقدمة أخرى أو علاج تخصصي بحيث وعليه فإنه إما أن يتم دخولك للمستشفى لتابعة العلاج أو تحويلك لرفق صحي آخر تتوفر به إمكانيات علاجك.

Appendix N 1
In-formal quality improvement process applied in the reference hospital



Date: 7-5-1424H

**REPORT ON THE PATIENT'S SATISFACTION SURVEY ON THE TREATMENT
AND SERVICES IN OHUD HOSPITAL ER**
[Conducted by Dr. Mohamed S. Mahrous]

Patients' satisfaction survey is one of the methods of measurement of the standard of patients' care services. This monitoring is designated to the Social Worker in the hospital. It can also be measured through patient/family specific complaint of any care & treatment regarding the specific staff or system.

Outpatients & ER QM Clinical Indicators have been drafted since the QM Programme in Ohud Hospital was formulated. Active monitoring could not be performed due to lack of QM staff that has a complete understanding of QM process.

Point of Discussion:

- Level of patients' satisfaction varies accordingly.
- Length of waiting time of the respondents was not measured and should have been compared with the ER paper since the arrival time of all patients are being documented to make it more reliable.
- The level of education and understanding of the respondents needs to be considered.
- Patient's education and health information should be assisted by our social workers to include home visits together with nurses in primary care for health promotion & prevention of sickness and proper utilization of our health care facilities especially the dispensaries.
- Arabic Language proficiency of the health provider is a factor.
- Only the Doctor is allowed to discuss the initial health problem of a patient and the one to decide if the patient needs further management or referral to another Doctor of different specialty.
- Time of patients' & watchers visit to ER varies.

Item 11 & 12

- ***QM Indicator: Delay of reporting emergency investigations of significant results and prolonged waiting time of emergency laboratory results of more than 30 minutes.***
- Amount of time to get lab results. Due to recent upgrading of the laboratory facilities in Ohud Hospital, the results are finished within 20 minutes as mentioned by the New Chief of Laboratory. However, the delay of forwarding of the samples to the laboratory and collection of the results should be taken

into consideration because the Nurses do not collect the results by themselves instead they are just asking their messengers to sent or collect the results. The messengers are ill educated and they do not know the importance of the need of prompt delivery of samples & immediate collection of the results.

- Behaviors of Lab Staff- patients or watchers in ER are not supposed to go to the laboratory to follow up their results. Patients has no business with the laboratory department because the Nurses in ER are the ones collecting the samples and send to the laboratory.

Item 13 & 14

QM Indicator: Prolonged time in reporting X-ray /Lab results that adversely affects patient care.

- The amount of time to get X-ray results
- Behavior of X-ray Staff

Item 16 & 17 Behavior measurement needs specificity. What type of behavior the staff showed to the patient? Professional misconduct such as shouting, arrogance falls under the behavioral problem.

ACTIVITIES DONE IN THE MONTH OF R.THANI 1424H

- With only is one staff assigned for QMD, it was decided that, the results of the study was shown and discussed with the Chief of the Concerned Departments: Chief of Laboratory & Radiology, Nursing, and the Medical Director. These departments have to decide on how to improve their services and to further monitor the services in their respective departments.
- Meeting was conducted for Doctors & Nurses by the Chief of ER in relation to the result of the patient's responses on the study.
- ER Charge Nurse & Staff Nurses were also informed of the level of patients' satisfaction to the nursing care.
- A memo related to the subject was issued to all ER Doctors and Nurses.
- The policies and procedures of ER were drafted written, and finalized with the Chief of ER copy furnished to the Medical Director.
- The ideal policies and procedures in ER are not being implemented due to incomplete facilities in ER especially in Triage Area & Information. There is also shortage of Security, Medical Secretaries, Nurses and Doctors and the persons assigned in the information do not know their functions.
- QM Coordinator is conducting rounds in the morning in ER at least three times a week and no untoward behavior noted during the rounds.

QM indicators are prolonged waiting time of emergency laboratory results of more than 30 minutes should be monitored & failure of the Laboratory Staff to inform for significant abnormal results.

- The quality of the Staff in A & E is one aspect to be considered. The A & E Doctors do not have a specific specialization in A & E. Patients are referred to specific specialty to the Residents who are assigned upstairs [in the wards] according to the signs and symptoms manifested such as medical, pediatric, eye, ENT, General Surgery, Ob/Gyne etc. This will cause the dissatisfaction of the patients especially for the prolonged waiting time.

QM indicator: Time to see physician more than 60 minutes for outpatient including ER, failure to attend immediately to an acutely ill/distress patient in ER and prolonged waiting time in ER more than two hours.

- Staff are aware about the result of the study as we remind them to always write the exact time of patients arrival to ER either in Screening clinic or inside ER and the time of information to the Doctor.
- It was observed that patients coming to ER are always in a hurry to go home. Some are in a hurry to leave without the results of investigations or asking the doctor of the results. Some even abscond after receiving the initial treatment and relieved of their symptoms.
- Information to the patient about their conditions is a must for all Doctors but some of our ER Doctors are non-Arabic speakers and could not even expressed themselves. There is no social worker or interpreter assigned in ER.
- Some patients coming to Ohud ER are cold cases to compare with the number of cases seen in Screening Clinic, cases that can be treated in Dispensaries but patients prefers to go to Ohud Hospital. In tertiary hospitals in Madina, these types of cases are not entertained. Some of our patients are passers by after visiting their patients upstairs.

Prepared by:

Lilian Aggabao
LILIAN AGGABAO
QMD Coordinator

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Prepared by:


LILIAN AGGABAO
QMD Coordinator

Appendix N 2

The memo issued to OH ER staff

Emergency/Casualty Department Ohud Hospital Madina Al Munawarah	 وزارة الصحة Ministry of Health	Kingdom of Saudi Arabia Ministry of Health General Directorate of Health Affairs Madina Al Munawarah
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MEMO

Date: 8-4-1424H

To: ALL ER DOCTORS

Subject: ER POLICY

IN SCREENING CLINIC

1. Good receiving & nice deal with patient is a must.
2. Take brief history; examine the patient, clear documentation of all data including clinical data & your impression.
3. Decision either for home treatment or referral to inside ER for further evaluation and management with clear explanation to the patient or his/her relatives.
4. When giving home treatment explain the patients: aim of use the treatment, how to use it, possible side effects that could happen.

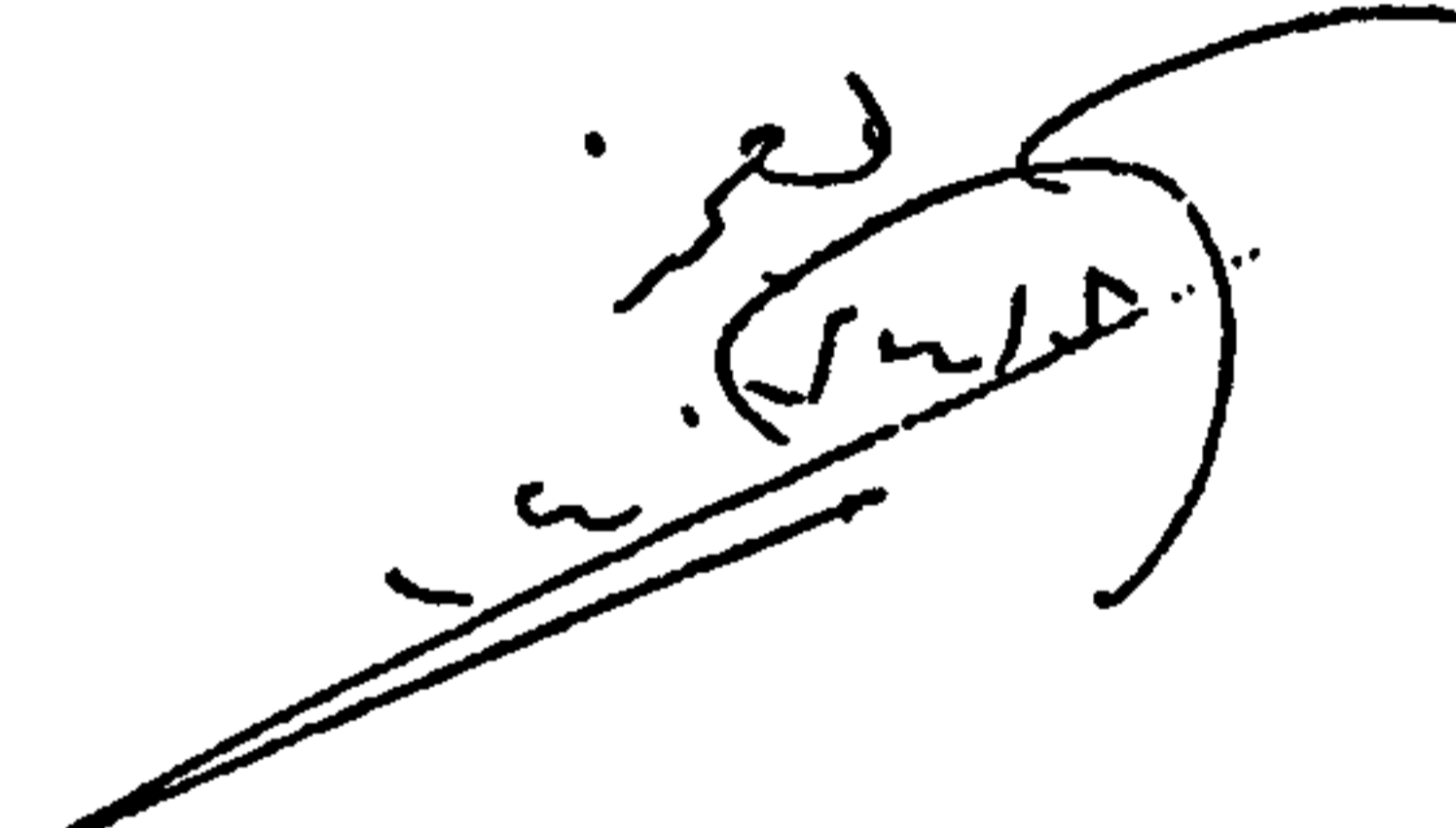
INSIDE ER

1. Once informed please go and see the case.
2. Good receiving & nice deal with the patient & his/her relative is important.
3. Take proper history
4. Explain to patient or his/her relatives steps of examination, investigations requested to the patient, results of these investigations
5. If for Discharge, tell about diagnosis of his case, the treatment he will use, how to use it, possible side effects that could happen, if there is follow up in OPD or not.
6. If for Admission, tell the patient the aim and what is the plan for management.

For strict compliance.


Dr. ABDULWAHEB ATTEYA
Chief of ER

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Appendix O

Comparison between KFH and OH in improvements obtained after the intervention applied.

Item 1; Appropriateness of treatment given

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	58	64.5	NS
At post-intervention	79.75	80	

NS (not significant)

Item 2; Information about what is going to happen to the patient

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	38.25	50.5	< 0.05
At post-intervention	72.75	73.5	

Item3; Information regarding what is wrong with the patient

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	44.5	50.25	NS
At post-intervention	69	70.5	

Item4; Information regarding who is going to see the patient

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	37	37.75	NS
At post-intervention	64.25	65.25	

Item5; Help given during any medical procedure

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	50	53.75	NS
At post-intervention	76.5	71.25	

Item6; Treatment time

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	27.25	38.75	< 0.01
At post-intervention	64.25	59.5	

Item7; Explanation of any procedures to be done

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	39	41	< 0.05
At post-intervention	72	63.75	

Item8; Explanation about medication

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	38.75	41.25	< 0.05
At post-intervention	72.25	62.25	

Item9; Work done to relieve pain and discomfort

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	49.5	53.5	< 0.05
At post-intervention	76	69.5	

Item10; Nursing care

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	51	55.25	< 0.05
At post-intervention	81.5	76.25	

Item11; Time to get lab. results

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	30.25	35.25	NS
At post-intervention	60.25	56	

Item12; Behaviour of lab. staff

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	36.5	38.25	< 0.01
At post-intervention	64	39.75	

Item13; Time to get X-ray results

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	58	45	NS
At post-intervention	73.75	62.25	

Item14; Behaviour of X-ray staff

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	57.25	42.25	NS
At post-intervention	75.75	61.75	

Item15; Time to get medicine

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	60.5	54.75	NS
At post-intervention	75.5	73.25	

Item16; Behaviour of pharmacy staff

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	58.75	51	NS
At post-intervention	77.5	73	

Item17; Initial medical assessment

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	41.5	38.25	NS
At post-intervention	69.25	66.75	

Item18; Waiting time

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	25.5	39.25	< 0.05
At post-intervention	59.5	63.25	

Item19; Information about medical diagnosis before discharge

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	37.25	41.5	< 0.05
At post-intervention	70.25	63.75	

Item20; Information about follow up treatment after discharge

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	39.25	42	NS
At post-intervention	72.5	65.75	

Item21; Overall treatment received

	HOSPITALS		P.VALUE
	% satisfied at KFH	% satisfied at OH	
At baseline	44.75	51.5	< 0.01
At post-intervention	79.25	70.75	