

Doyle, Victoria Carey Felicitas (1998). TQM : fad or fixture? Implementing total quality management in health care setting through the development and use of customer-supplier models. (Unpublished Doctoral thesis, City University, London)



**CITY UNIVERSITY
LONDON**

[City Research Online](#)

Original citation: Doyle, Victoria Carey Felicitas (1998). TQM : fad or fixture? Implementing total quality management in health care setting through the development and use of customer-supplier models. (Unpublished Doctoral thesis, City University, London)

Permanent City Research Online URL: <http://openaccess.city.ac.uk/17422/>

Copyright & reuse

City University London has developed City Research Online so that its users may access the research outputs of City University London's staff. Copyright © and Moral Rights for this paper are retained by the individual author(s) and/ or other copyright holders. All material in City Research Online is checked for eligibility for copyright before being made available in the live archive. URLs from City Research Online may be freely distributed and linked to from other web pages.

Versions of research

The version in City Research Online may differ from the final published version. Users are advised to check the Permanent City Research Online URL above for the status of the paper.

Enquiries

If you have any enquiries about any aspect of City Research Online, or if you wish to make contact with the author(s) of this paper, please email the team at publications@city.ac.uk.

TQM: FAD OR FIXTURE?

Implementing Total Quality Management in a Health Care Setting Through the Development and Use of Customer-Supplier Models.

Thesis submitted in accordance with the requirements of
City University, London for the degree of Doctor of Philosophy by

Victoria Carey Felicitas Doyle

August 1998

DEDICATION

This work is dedicated to those I treasure most:

my parents

my grandparents

and the rest of my dear family

ACKNOWLEDGEMENTS

Although it has taken a long-time to complete this thesis - and some may say too long - there are many people I need to thank for believing that one day they would see the final product!

Firstly I must thank Mum, Dad and the rest of the family for their continuous support, especially in the 2 month writing up period when I descended on the family house. Special thanks to Mum for helping me maintain a healthy body, mind and soul during this period by creating such a nice work environment, for the delicious meals she prepared, for going to keep-fit classes with me and for her positive words of encouragement throughout.

To Chris Ellis (the best secretary in the World) for persistently reminding me to get on with the PhD and for her excellent support in the final production and formatting of the thesis.

To Dave Haran - my boss - for giving me study leave and having the confidence in me that I would use this time wisely!

My sincere gratitude also goes to my supervisor, Ewart Carson for making time to see me throughout my PhD years and for his valuable comments and contributions.

To the rest of my research mates from City University - Abdul, Paul, Howard, Jes, Sîan and many others - for being there and making it fun.....

To all the staff at St Thomas' Hospital who participated in the design and implementation of this research study, especially Peter Sönksen and the rest of the day centre staff.

Special thanks to Rory O' Callaghan for proof reading the PhD at super-sonic speed!

To all my friends (Liverpool, London, Southampton and far away climes).

And finally thank you to Jimmy Cliff, who inspired me with his famous reggae song to keep going.....

“you can get it if you really want, you can get it if you really want, you can get it if you really want, but you must try, try and try, to succeed at all.....”

(Jimmy Cliff, London:Island Records,1972).

ABSTRACT

This research study reviews the global advances made in health care quality assurance, tracing its origins from the manufacturing and service industries through to the context of the health care industry. The Total Quality Management (TQM) model, originally adopted by the industrial sector is investigated as a possible paradigm for the health sector. Customer-supplier modelling, a novel methodology founded on the TQM philosophy is developed and applied to a hospital setting to test whether it can provide the framework for inter-disciplinary quality improvement. In essence this thesis examines whether it is possible to implement a quality assurance system in a large London teaching hospital based on the TQM philosophy, and whether the development of customer-supplier models can provide the framework for coherent, interdisciplinary, continuous quality improvement.

Application of the models is found to be particularly relevant and beneficial to the clinical directorate - the front end of health care delivery - and examples are given at both macro and micro level. In particular, practical application issues are highlighted which include the importance of leadership from the clinical director, support from medical doctors and the role of the quality facilitator. But tantamount to all these requirements is team working, without which Total Quality Management can never be achieved. The benefits of customer-supplier modelling are shown to promote inter-disciplinarity, genuine dialogue, co-operation and an holistic approach to health service provision.

This research has shown that an inter-disciplinary, systems approach to quality improvement, based on the use of customer-supplier modelling and the quality assurance cycle, provides a frame-work for the identification, analysis and solution of quality problems which involves both internal and external customers and suppliers. The results from this research have contributed towards the goal of inter-professionalism and genuine dialogue with the customer. This thesis concludes by recommending that there is a real requirement to look towards developing more participative ways of involving clients in the definition, evaluation, monitoring, supervision, production and reformation of health care quality and health care delivery systems.

CONTENTS

Dedication	ii
Acknowledgements	iii
Abstract	iv
Contents	v
List of Appendices	x
List of Tables	xi
List of Figures	xii
Glossary	xiv
Chapter 1: Introduction	1
1.0 Background	1
1.1 Hypothesis	2
1.2 Objectives of Research	2
1.3 Thesis Structure	3
Chapter 2: The Evolution of Quality Assurance - A Review	6
2.0 Introduction	6
2.1 Industrial Quality Movement	6
2.1.1 <i>Quality control (1900 - 1920)</i>	7
2.1.2 <i>Statistical process control (SPC, 1920s)</i>	7
2.1.3 <i>Published standards (1930s and onwards)</i>	8
2.1.4 <i>Industrial quality assurance in Japan (1940s - 1990s)</i>	8
2.1.5 <i>Quality circles (1960s)</i>	9
2.1.6 <i>Zero defects approach (1960s)</i>	10
2.1.7 <i>Industrial QA in UK (1960s & 1970s)</i>	10
2.1.8 <i>Total quality management (1980s and 1990s)</i>	10
2.2 Service Quality	12
2.3 Public/Private Sector Comparison	20
2.3.1 <i>Demand-supply - resource problem</i>	20
2.3.2 <i>Client attitudes</i>	22
2.3.3 <i>Customer range</i>	23
2.3.4 <i>Intangibles</i>	23
2.3.5 <i>Professional component</i>	23
2.3.6 <i>Lessons from the commercial sector</i>	24
2.4 Quality in the Health Sector	25
2.4.1 <i>Quality assurance in health care pre 1980</i>	25
2.4.2 <i>Health care quality assurance post 1980</i>	26
2.5 Definitions of Quality in Health Care	27

2.6	Models of Quality	29
2.6.1	<i>Different perspectives on quality</i>	30
2.6.2	<i>Different dimensions of quality</i>	30
2.6.3	<i>Different dimensions of the health system</i>	31
2.6.4	<i>Composite model for evaluating quality of health care</i>	32
2.6.5	<i>Quality of health care for an individual patient encounter</i>	33
2.7	Quality Assurance Approaches	36
2.8	Quality and Health Sector Reform	38
2.8.1	<i>Reasons for the introduction of QA in the NHS</i>	39
2.8.2	<i>Public accountability and consumerism</i>	39
2.8.3	<i>Value for money</i>	40
2.8.4	<i>Concern for excellence and health gain</i>	41
2.8.5	<i>Inter-professional development</i>	42
2.9	Summary	43
 Chapter 3: Research Design and Methods		45
3.0	Introduction	45
3.1	Objectives of Research	46
3.2	Study Design	46
3.2.1	<i>Research paradigm</i>	47
3.2.2	<i>Research options</i>	47
3.2.3	<i>Justification for approach</i>	50
3.2.3.1	Action Research	50
3.2.3.2	Case-Studies	51
3.3	Key Stages of the Study	51
3.3.1	<i>Study Population</i>	52
3.3.2	<i>Variables</i>	53
3.3.3	<i>Tools and data collection and analysis</i>	53
3.3.3.1	Situation analysis of St Thomas' Hospital	53
3.3.3.2	Customer-supplier modelling	53
3.3.3.3	Application of models using case-studies	54
3.3.4	<i>Limitations and constraints</i>	54
3.4	Summary	55
 Chapter 4 Customer- Supplier Modelling		56
4.0	Introduction	56
4.1	Factors involved in Establishing QA Systems	56
4.1.1	<i>Technical factors</i>	57
4.1.2	<i>Political factors</i>	58
4.1.3	<i>Cultural factors</i>	59

4.2	TQM Model in Health Care	60
	4.2.1 <i>The system</i>	62
	4.2.2 <i>Tools and techniques</i>	63
	4.2.3 <i>People and team work</i>	63
	4.2.4 <i>Management</i>	64
4.3	Customer Sensitivity	65
	4.3.1 <i>The role of the consumer</i>	66
4.4	Customer-Supplier Relationships	69
4.5	Values and Group Culture	75
4.6	Customer-Supplier Modelling	77
	4.6.1 <i>Stages in the modelling process</i>	77
	4.6.2 <i>External adaptation modelling</i>	77
	4.6.3 <i>Internal integration modelling</i>	80
	4.6.4 <i>Macro level modelling</i>	81
	4.6.5 <i>Micro level modelling</i>	82
	4.6.6 <i>Interactions types</i>	83
	4.6.7 <i>Potential benefits of customer-supplier modelling</i>	84
4.7	Implementation Strategies	85
	4.7.1 <i>Clinical directorate approach</i>	86
	4.7.2 <i>Stages of a QA implementation strategy</i>	87
4.8	Summary	89
Chapter 5: St Thomas' Hospital		90
5.0	Introduction	90
5.1	Organisational Structure and Background to St Thomas' Hospital	90
5.2	Significance of NHS Reforms to the Management and Organisation of Hospitals	91
	5.2.1 <i>Reforms and QA</i>	95
	5.2.2 <i>The Emergent health market and the importance of customer-supplier relationships</i>	96
5.3	Organisational Readiness to Take on QA at St Thomas' Hospital	100
	5.3.1 <i>St Thomas' Hospital policy on quality</i>	102
5.4	Summary	104
Chapter 6: The Clinical Directorate Approach - A Pilot Study in Using Customer-Supplier Modelling as a Framework for Quality Improvement		105
6.0	Introduction	105

6.1	Rationale for Selection of Pilot Sites	105
	6.1.1 <i>Limitations of pilot sites and the research study</i>	107
6.2	Introducing QA into a Clinical Directorate	107
6.3	STAGE 1: Assessment of Current Situation	107
	6.3.1 <i>Directorate services and skill mix</i>	108
	6.3.2 <i>Physical layout</i>	109
	6.3.3 <i>Flow-charting a typical patient visit</i>	110
	6.3.4 <i>Organisational and management structure of directorate</i>	110
	6.3.5 <i>Directorate information system</i>	112
	6.3.6 <i>Status of QA</i>	113
	6.3.7 <i>Understanding group culture</i>	114
6.4	STAGE 2: Sensitisation Towards Quality	116
6.5	STAGE 3: Developing Customer-Supplier Models	117
	6.5.1 <i>External adaptation modelling</i>	119
	6.5.2 <i>Internal integration modelling</i>	123
6.6	STAGE 4: Quality Action - Using Customer-Supplier Macro Modelling for Problem Identification and Analysis	129
6.7	"Let Us Know" Patient Comment Scheme	135
6.8	Investigating Access to Diabetes Care for Afro-Caribbean Patients; A Micro Level C-S Model Case Study	138
	6.8.1 <i>Selection of patients</i>	141
	6.8.2 <i>Questionnaire design and distribution</i>	141
	6.8.3 <i>Focus groups and open meeting</i>	142
	6.8.4 <i>Knowledge questionnaires</i>	142
	6.8.5 <i>Results</i>	142
	6.8.5.1 <i>Patient access questionnaire</i>	142
	6.8.5.2 <i>Focus groups / open meeting</i>	143
	6.8.5.3 <i>Knowledge questionnaires</i>	143
	6.8.6 <i>Summary of findings</i>	144
	6.8.7 <i>Worth of micro-level modelling</i>	144
6.9	Beatrice Ward	144
6.10	Role of the Quality Facilitator	146
6.11	Summary	146
	Chapter 7: Discussion	148
7.0	Introduction	148

7.1	Methodological Issues	148
7.1.1	<i>Justification for customer-supplier modelling</i>	148
7.1.2	<i>Utility of customer-supplier modelling</i>	151
7.1.3	<i>Benefits of customer-supplier modelling</i>	151
7.1.4	<i>Limitations of modelling methodology</i>	152
7.1.4.1	Staff commitment and time	153
7.1.4.2	Feedback from different customers and suppliers	154
7.1.4.3	Systematic use of models	154
7.1.4.4	Eloquence and accuracy of the models	154
7.1.4.5	Integrating the voice of patient / local population	156
7.1.5	<i>Terminology</i>	156
7.2	Systems Complexity and TQM	158
7.3	Implementation Issues	159
7.3.1	<i>Role of the quality facilitator</i>	159
7.3.2	<i>Expert facilitator model</i>	160
7.3.3	<i>Team work</i>	163
7.3.4	<i>Enabling factors for successful application of TQM</i>	164
7.4	Health System Reform Issues	166
7.5	Further Developments	167
7.5.1	<i>Construction of models</i>	167
7.5.2	<i>Quality specifications</i>	168
7.5.3	<i>Setting</i>	168
7.5.4	<i>Application of models to activities other than domain of QA</i>	169
7.6	Summary	169
Chapter 8: Conclusions		172
8.0	Introduction	172
8.1	Extent to Which Objectives Were Met	172
8.2	Contribution to Knowledge	174
8.2.1	<i>Systems thinking</i>	174
8.2.2	<i>Health care delivery</i>	174
8.3	Future Directions	175
	References	177
	Appendices	187

LIST OF APPENDICES

- Appendix I External Adaptation Modelling
- Appendix II Rating System for External Adaption Modelling
- Appendix III Internal Integration Modelling
- Appendix IV Internal Integration Models for the Diabetic and Endocrine Day Centre
- Appendix V "Let Us Know" Patient Comment Scheme
- Appendix VI Improving Access to Diabetes Care for the Afro-Caribbean Community
- Appendix VII Questionnaire Assessing Problems with Access to Diabetes Services
- Appendix VIII Knowledge Questionnaire for Insulin Dependent Diabetics
- Appendix IX Knowledge Questionnaire for Non-Insulin Dependent Diabetics
- Appendix X Knowledge Questionnaire for the General Population
- Appendix XI Beatrice Ward Pilot Study

LIST OF TABLES

Chapter 2: The Evolution of Quality Assurance - A Review

2.1	Differences Between Product Based Companies and Service Organisations	14
2.2	Service Quality Gaps	17
2.3	Determinants of Service Quality	18
2.4	Levels of Quality	19
2.5	Composite Model	33
2.6	Classification of Approaches to Health Service Quality	37

Chapter 3: Research Design and Methods

3.1	Key Issues and Constraining Factors	48
3.2	Key Stages of Research	52

Chapter 4: Customer-Supplier Modelling

		64
4.1	Constructs of TQM System	65
4.2	Professional vs TQM Model	70
4.3	Translation of Parasuraman Model to a Health Care Setting	72
4.4	Definition of Terms	72
4.5	Stages of External Adaptation Modelling	78
4.6	Stages of Internal Integration Modelling	81

Chapter 5: St Thomas' Hospital

5.1	The 1989 Reforms	93
5.2	The Role of Purchasers and Providers Post 1989 Reform	94

Chapter 6: The Clinical Directorate Approach - A Pilot Study in Using Customer-Supplier Modelling as a Framework for Quality Improvement

6.1	Staff Skill Mix	109
6.2	Customer-Supplier Modelling Process	118
6.3	External Adaptation Modelling	120
6.4	Internal Integration Modelling	124
6.5	Interaction Types	126

Chapter 7: Discussion

7.1	Quality Improvement Tools	150
7.2	Quality Improvement Techniques	150
7.3	Enabling Factors	165

LIST OF FIGURES

Chapter 2: The Evolution of Quality Assurance - A Review

2.1	Parasuraman Service Quality Model	16
2.2	Service Level Expectations and Perceptions of Service Performance	19
2.3	Flow Chart of Cost Recovery	21
2.4	Model of Health Care for an Individual Patient Encounter	35
2.5	Quality Costs	41

Chapter 4: Customer-Supplier Modelling

4.1	Stakeholders	57
4.2	TQM Health Care model	62
4.3	Simple Process Diagram	63
4.4	A Unit of a Supply Chain	71
4.5	The Changing Role of Process Owner	71
4.6	Simple Customer-Supplier Relationships	73
4.7	Customer-Supplier Chain	75
4.8	Micro level Model of a Procedure	83
4.9	Stages of the QA Implementation Strategy	88

Chapter 5: St Thomas' Hospital

5.1	Organisational Structure of St Thomas' Hospital	92
5.2	Competing Priorities	95
5.3	Customer-Supplier Map	99
5.4	Emergent Key Players	100

Chapter 6: The Clinical Directorate Approach - A Pilot Study in Using Customer-Supplier Modelling as a Framework for Quality Improvement

6.1	Patient Flow Chart of a Diabetes Out-Patient Encounter	111
6.2	External Adaptation Model for Clinical Support Services	122
6.3	External Adaptation Model for Non-Clinical Support Services	122
6.4	External Adaptation Model for External Services	123
6.5	Internal Integration Model; Doctor ↔ DEDC	128
6.6	Results from Clinical Audit Brainstorming Session	131
6.7	The QA Cycle	132
6.8	Overall Patient Satisfaction	136
6.9	Patient Suggestions	137
6.10	Positive Comments	137
6.11	Customer-Supplier Model of Micro Link with Afro-Caribbean Community	140

Chapter 7: Discussion

7.1	Expert Facilitator Model	161
7.2	Facilitator Role	162

GLOSSARY

A/C	Afro-Caribbean
BNCA	Brixton Neighbourhood Community Association
BSI	British Standards Institute
CHC	Community Health Council
C-S	Customer-Supplier
CWQC	Company-Wide Quality Control
DECS	Diabetic Eye Complication Screening
DEDC	Diabetes and Endocrine Day Centre
DHA	District Health Authority
DNA	Did Not Attend
DoH	Department of Health
EMT	Executive Management Team
FHSA	Family Health Service Authority
GP	General Practitioner
GPFH	General Practitioner Fund Holder
HBA1	Haemoglobin A1
IDDM	Insulin Dependent Diabetes Mellitus
MLSO	Medical Laboratory Scientific Officer
MoH	Ministry of Health
NHS	National Health Service
NHSME	National Health Service Management Executive
NIDDM	Non-Insulin Dependent Diabetes Mellitus
QA	Quality Assurance
QC	Quality Control
RMI	Resource Management Initiative
SELCA	South East London Commissioning Authority
SPC	Statistical Process Control
TQM	Total Quality Management
UPA	Under Privileged Area

Chapter One

Introduction

“Unsuccessful Quality Assurance programmes produce either systems without spirit or passion without a system”

Leigh, 1989

1.0 Background

In Britain the 1990 government National Health Service (NHS) reforms (DoH, 1989a) explicitly put 'quality' on the agenda for the first time and the pressure on NHS staff to implement more formalised audit and quality improvement programmes became a mandatory part of service provision.

Although concern about providing quality health care is as old as medicine itself, for a long time it has been confined to the development of clinical guidelines, protocols and standards of care by professional groups for specific problems. Comprehensive guidelines covering several levels of care and several provider groups are rare (Vuori, 1992), although much good quality care is dependent on collaboration and communication between these provider groups.

The rationale of quality improvement in health care is to create an environment whereby it is possible to anticipate, understand and be responsive to patient needs. For this to happen regular, critical and systematic analysis and evaluation of health services is required. This must include the contributions to care given by all professional groups and take into account both the clinical and non-clinical aspects of health care delivery (Moss, 1992a).

A widely accepted general definition of quality is 'meeting client needs'. In health care meeting client needs may not only mean the patient, but can also include potential users of health services, the population in general, other health care professionals and supporting staff. By expanding the word client to include all those involved with health care provision, whether giving or receiving services, we find that we cannot talk about quality of care alone but instead shift the emphasis to quality of health service provision. This encompasses all people, processes and systems involved with delivering health care.

What is required is to give health care providers an appropriate framework for assuring quality health services which anticipate, understand and respond to patient and population needs, whilst also allowing for organisational and staff development on a continuous basis. This framework must recognise that quality is as much a people issue

as it is a technical issue, and that it is concerned with understanding how people, processes and systems interrelate.

Total Quality Management (TQM), an holistic management philosophy initially adopted by industry offers a possible paradigm for health services. Although there are fundamental differences between the public and private sector, and manufacturing and service based industries these do not prevent health services from using established quality systems, tools and techniques, although careful adaptation and selectivity is required (Øvretveit, 1992).

1.1 Hypothesis

Flaws in quality tend to be a property of systems, not of people and as Berwick points out (Berwick, 1992a), effective improvement depends far more on better systems of product or service delivery than on better incentives for personnel. This research study sets out to test whether industrially developed models for quality improvement can be applied to the health sector, especially in light of the NHS reforms (DoH, 1989a) and subsequent changes in organisational, managerial and clinical structures. The hypothesis for this research is that the TQM philosophy can be successfully adopted in a hospital clinical directorate through developing and establishing appropriate quality assurance systems that take into account the changes of the reforming NHS.

1.2 Objectives of Research

The overall aim of this research is to demonstrate that TQM is applicable to a health care setting in the context of the National Health Service.

The specific objectives of this study are to:

1. Critically review Quality Assurance (QA) approaches in order to identify which have potential for application in the health sector
2. Examine whether TQM is applicable and appropriate in relation to a health care delivery system
3. Develop a customer-supplier modelling methodology for understanding how people, processes and systems interrelate
4. Construct customer-supplier models of a clinical directorate

5. Establish a directorate quality assurance system, using customer-supplier models to provide the basic framework for interdisciplinary quality improvement

In essence this thesis is examining whether it is possible to implement a directorate QA system based on the TQM philosophy, through the development of customer-supplier models and whether such models can provide the framework for coherent, interdisciplinary, continuous quality improvement.

1.3 Thesis Structure

The structure of the thesis is as follows:

Chapter 2 follows the evolution of quality assurance theories and techniques from the industrial sector through to the context of health care delivery. It discusses what quality means in terms of health service delivery and critically reviews the different international models and approaches currently being adopted. An analysis of the impetus for the introduction of QA and reasons for why different models have been implemented is given. This chapter argues for the importance of having formal QA systems in place in terms of public accountability, concern for excellence, value for money and inter-professional development.

Chapter 3 deals with the research approach and methods used in this study. It reviews the various research options available and argues that the most appropriate research strategy is an action research approach using case studies in select pilot-sites. Whilst the limitations of such an approach are recognised, it is concluded that due to the participative nature of this research the study does not lend itself to more traditional experimental approaches.

Chapter 4 describes the methodological issues in relation to the rationale and development of 'customer-supplier' modelling. In this chapter it highlights the technical, political and cultural issues involved in establishing QA systems in a clinical environment and the significant role of the clinical directorate for the institutionalisation and acceptance of QA. It details the relevance of customer-supplier modelling and how

it can be used at micro and macro level as a tool to aid interdisciplinary QA. Finally the relative merits of different implementation strategies are assessed and a framework for QA implementation is proposed.

Chapter 5 focuses on St Thomas' Hospital, the site for testing out this research. It describes its organisational structure and readiness to take quality assurance approaches on board in light of the NHS reforms and their particular relevance to London hospitals. It develops a customer-supplier model at hospital level and analyses the importance of the hospital's different external customers and suppliers. Finally the hospital's policy on quality is reviewed in relation to the proposed QA implementation strategy described in Chapter 3.

Chapter 6 describes the pilot site selected for testing the hypothesis and focuses on the construction and application of customer-supplier models for quality improvement. Firstly the rationale and criteria for selection of pilot sites are discussed. The customer-supplier modelling process is described in relation to the Diabetes and Endocrine Directorate and internal integration and external adaptation models are presented. Case studies are given of how the customer-supplier modelling process was used to identify internal quality problems and also to highlight a particularly weak link with the local Afro-Caribbean community. The importance of interdisciplinary team working, strong leadership and the role of the expert facilitator are discussed in relation to the construction and use of these models. Difficulties with the modelling process are briefly described.

In *Chapter 7* the development and application of customer-supplier modelling is discussed from both systems and health care perspectives. Major issues arising from this research study are examined, including considerations of choice of methodology, systems complexity, practical implementation issues and issues arising from health sector reforms. Finally the utility of customer-supplier modelling is analysed and suggestions for further development of this work are proposed.

Chapter 8 of this thesis concludes the dissertation by reviewing the extent to which the original objectives of this research study were met and a critique is given of how this research has contributed to knowledge both in terms of systems thinking and from a

health care perspective. Finally the chapter identifies directions in which health care quality assurance might profitably develop in future years based on the experience of this research.

The Evolution of Quality Assurance - A Review

"Quality is about customer delight, customer satisfaction, it's about total staff involvement rather than hierarchical top-down quality imposition. It is about incremental quality improvement rather than total quality management. It is about being loving, patient, joyful, cherishing, meaning, struggling, crying, laughing."

Henry 1994

Chapter Two

The Evolution of Quality Assurance - A Review

“Quality is about customer delight rather than customer satisfaction. It is about total staff involvement rather than hierarchical top down system imposition. It is about incremental quality improvement rather than giant leaps. It is about living, loving, passion, fighting, cherishing, nurturing, struggling, crying, laughing”

Henry, 1994

2.0 Introduction

In this chapter the evolution of quality assurance tools and techniques is followed from their development in the industrial sector through to the context of health care delivery. The meaning of quality is discussed in terms of health service delivery and the different international models and approaches currently being adopted are critically reviewed. The impetus for the introduction of quality assurance (QA) and reasons why different models have been implemented are analysed. This chapter argues for the importance of having formal QA systems in place in terms of public accountability, health gain, inter-professional development and value for money. It attempts to identify the gaps which still exist in health care quality assurance and suggests how some of these may be overcome through the development of a coherent, interdisciplinary approach building on the tenets of Total Quality Management (TQM) and Parasuraman's (1985) model of service quality.

2.1 Industrial Quality Movement

Just as concern for quality in health care is as old as medicine itself the same is true for industry. This chapter begins with the industrial sector because especially in the UK there is substantial reference to industry as the source of quality assurance techniques. Certainly in the last 100 years there has been a continuous growth of quality assurance techniques and considerable literature has been produced by and for the manufacturing industries.

Increased profitability and competitiveness rank highly among the objectives of quality assurance programmes, indicating that it is commercial imperatives that are driving their importance. Senior managers throughout the Western World have increasingly been sensitised to the importance of quality assurance, especially since the rise of Japanese industry following the Second World War. Garvin (1988, p23.) comments that:

“With their companies’ reputation, market shares and profitability at risk, the topic could no longer be ignored. Nor could it be relegated to lower levels of the organisation, where functional loyalties might interfere with the broader strategic vision. What emerged from the environment was a new approach to quality, one strongly shaped by the concern of upper management.”

The Japanese success has been attributed to their obsessive drive for quality, not just in the sense of product quality, but of total quality; the efficiency and effectiveness of all processes carried out in the organisation.

2.1.1 Quality control (1900 - 1920)

Before the industrial revolution most goods were produced in low volumes for local markets. Individual craftsmen acted as their own 'quality controllers'. The craftsman would be personally known to his customer and would tailor his product to his customer's requirements. It was not until about 1900 that the separation of production and quality conformance began, firstly with the foremen taking more responsibility and then a separate inspector taking over. A new function called 'quality control' was introduced and this was carried out through inspection of the final product at the end of the entire process of manufacture. Poor quality goods were either rejected or were returned to an earlier process for rework. It was expected that these additional costs of quality control would be offset by the increased sales which would result if quality could be guaranteed. Little attention was paid to the causes of poor quality in the manufacturing process.

2.1.2 Statistical process control (SPC, 1920s)

By the 1920s due to the rising costs of quality control and in an effort to raise product quality, several people independently started to look afresh at production processes, to analyse and understand them and then correct them. This saw the development of statistical process control. Shewart, one of its major exponents, recognised that variability in production was inevitable and that the task of the quality control engineer was not the pursuit of invariability but the pursuit of acceptable levels of variation within agreed limits of tolerance (Shewart, 1931). Variation could come from many sources including raw materials, machine performance and human operator performance. Thus statistical process control was seen as a way by which quality control could be taken back from the inspection stage to the processes where work is done. SPC does not inevitably lead to quality but should be viewed as a tool with which high process quality can be achieved. In health care contexts the major applications of quality control methods are in areas of care involving the manipulation

or production of physical materials (Ellis and Whittington, 1993), eg clinical chemistry, pathology and radiology.

2.1.3 *Published standards (1930s and onwards)*

By the end of the Second World War product standardisation and quality control had become internationally established and accepted. Organisations such as the British Standards Institute and the American National Standards Institute were increasingly taking the lead in setting national and international standards for the production of the best achievable limits of quality on the feature in question. Most published standards only focus on one particular feature and individually make only a small and localised contribution to the quality of the final product as a whole. Criticisms cited about quality standards are that they are too rigid and do not emphasise system errors and the continuous nature of quality improvement; either the standard is met or it is not. Standards can also take considerable effort to be produced and in sectors where there is considerable innovation or rapid development, the delay in forming standards can render the subsequent standard of little practical value (Webb, 1991). However the use of standards is rising.

2.1.4 *Industrial quality assurance in Japan (1940s - 1990s)*

The next significant development in industrial quality assurance took place in Japan, almost immediately following the Second World War. Several quality control specialists were imported to help re-establish Japanese industry. Among them were Deming, Juran and Feigenbaum. Deming introduced the Japanese to statistical control techniques and encouraged them to adopt a systematic approach to problem solving, which became known as the Deming cycle of planning, doing, checking and taking action for improvement (Deming, 1986). This cycle is a recognisable version of quality assurance as opposed to the narrower quality control cycle. He also pushed top managers into becoming closely involved in all aspects of quality, introduced consumer survey techniques, and stressed the need to monitor the balance between the costs of organising the assurance of quality and the benefits of increased sales and reduced waste of labour and materials.

Juran was particularly interested in the management of quality and fostered the notion that both commitment and actual involvement from top management were prerequisites of success (Juran 1988a, b).

Feigenbaum argued for the involvement of the entire work force in quality - not just the isolated or grafted-on quality department (Feigenbaum, 1987). Quality was thus to be designed in, through a system of total quality management, committed to the idea of a quality process leading to quality products. Participation, non-directive leadership and bottom-up responsibility were also emphasised since as Feigenbaum put it, ***“quality is everyone’s job”*** (Feigenbaum, 1956). These new innovations and methodologies took root in Japanese managerial culture which spread and were consolidated throughout the 1960s and 1970s.

2.1.5 Quality circles (1960s)

Despite this, the Japanese Ministry of International Trade and Industry were able to comment on lack of contact between management and shop floor workers, lack of training for foremen and supervisors and lack of managerial receptiveness to ideas generated from the shop floor. In response to these problems Ishikawa began in 1960 to publish his ideas for quality circles (Ishikawa, 1985). The quality circle emerged as a structure whereby shop-floor workers - those closest to production processes - could study and discuss quality control problems and techniques. The first quality circle was established in 1963 and growth thereafter was phenomenal. Their main objective changed from simple study and discussion to the practical identification and solution of local quality problems. Circles would normally meet weekly in a combination of lunch breaks, paid time and unpaid time. Normally they had 5 - 10 members and were based on natural work groups. It should be recognised that quality circles are least likely to produce good results amongst methods chosen on a ‘stand-alone’ basis, but as part of an overall quality system they can be highly effective (Hill, 1991).

Along with these developments there came closer attention to the co-ordination of quality systems within companies and the use of quality co-ordinators or facilitators to ensure smooth and effective communication networks between the various parts of the system. Thus the Japanese concept of quality assurance was continually broadening

and their approach is now known as company-wide quality control (CWQC) (Kogure and Akao, 1983). Garvin (1988) notes that the 4 principal elements are:

- The involvement of functions other than manufacturing in quality activities
- The participation of employees at all levels
- The goal of continuous improvement
- Careful attention to customers' definitions of quality

2.1.6 Zero defects approach (1960s)

In the USA, Crosby (1979) developed the zero defects approach aimed initially at providing the necessarily very high levels of component quality and reliability demanded by the military for the Pershing Missile. He stressed the importance of management commitment and involvement and pointed out that quality improvement was a continuous process which should suffuse the entire organisation. The idea of zero defects spread to other corporations and apparently had some initial success. Gradually, however it was noticed that quality was largely unaffected and such drives became more akin to employee motivational techniques (Webb, 1991).

2.1.7 Industrial QA in UK (1960s & 1970s)

In the UK, throughout the 1960s and 1970s quality assurance was substantially limited to industrial quality control. The British Standards Institute (BSI) had been involved during and after the Second World War in the production of government approved utility goods and subsequently extended this notion into the British Standard 'kitemark' scheme. The major emphasis of kitemark certification for consumer products was on safety of the product. The development of systems for the management of quality assurance began to seem important to UK industry and the BSI in 1979 published a standard for quality systems (DTI, 1987) known as BS 5750 (ISO 9000). Companies who are awarded BS 5750 status are allowed to publicise themselves as 'quality' organisations, although it is important to note that BS 5750 only assures consistency of delivery (BSI, 1987a,b,c,d,e).

2.1.8 Total quality management (1980s and 1990s)

In the UK and USA, Japanese models of quality management were increasingly appealed to and the 1980s saw the establishment of quality circles and other Japanese-

influenced quality management initiatives in a wide range of organisations. A particular approach to quality assurance which has been much hailed and criticised is the QA approach referred to as Total Quality Management (TQM). Its implementation needs to be tailored to the organisation's size, structure and culture. Once introduced the quality system itself must be monitored, modified and subjected to its own quality assurance. Oakland (1989) defines TQM as:

“an approach to improving the effectiveness and flexibility of businesses as a whole. It is essentially a way of organising and involving the whole organisation; every department, every activity, every single person at every level.”

He identifies ten central features of successful TQM as follows:

1. Development of understanding through education and awareness programmes
2. Commitment and policy development
3. Organisation for quality
4. Measurement of quality costs
5. Planning of quality
6. Design for quality
7. Statistical process control
8. Quality systems documentation and control
9. Training, education and communications
10. Teamwork, involvement and problem solving

TQM is a comprehensive approach to the management of quality throughout the whole organisation. It goes beyond traditional quality assurance to strategic planning, goal setting and mobilisation of the entire work force in a constant search for quality improvement. It is described as a way of managing to improve the effectiveness, flexibility and competitiveness of a business as a whole (MacDonald and Piggot, 1990). It draws on quality techniques which were developed in their narrower contexts such as SPC or quality circles as well as other statistical and analytical tools. Systems accreditation through BS 5750 is similarly useful but not essential to TQM firms. But perhaps the most unquantifiable aspect of the QA philosophy which will largely determine the success of TQM implementation is the establishment of a quality culture,

whereby employees have internalised the value characteristics of the quality ethos. Management and staff have to be convinced of the benefits of changing their working relationships. It is a major hurdle to gain this conviction, without which lasting cultural change is not possible.

It has been estimated that 80% of TQM initiatives fail (Price F, 1992) but those companies who do succeed have achieved highly desirable end results. This high failure is attributed to lack of senior management commitment, with many companies taking on TQM as a last 'quick fix' approach rather than as part of their long term management strategy (Economist, 1995), (Mathews and Katel, 1992).

Results from Develin's (Develin & Partners, 1989) survey of 300 UK companies highlighted key factors leading to successful TQM implementation as being:

- Careful planning and execution of the process
- Middle management involvement from the outset
- Deliberate targeting of quick, tangible successes
- Constant employee communication, involvement and recognition

Four factors commonly reported as early problems in TQM schemes included:

- Finding the time
- Middle management resistance
- Project timing
- Lack of adequate communication facilities

Difficulties with identifying tangible benefits were also reported as a serious problem.

2.2 Service Quality

Efforts in defining and measuring quality have come largely from the product-based industries. Clark (1989) and Gummesson (1989) suggest that service industries have lagged behind manufacturing industries in developing quality initiatives partly because of the strong product orientation of early quality inspection and control techniques. Gummesson suggests that recent attention to quality in the service sector is a function of:

- Widespread consumer articulation of dissatisfaction

- Widespread recognition of the importance of service elements in all industries
- Increasing restriction, cost control and development of internal competition in public services

The concept of a quality culture has had particular impact in the development of quality systems for the service industries such as tourism, catering and banking. Services are essentially things that people do to, with and for other people and their products. Three well documented characteristics of service must be acknowledged for a full understanding of service quality (Parasuraman *et al*, 1985):

1. **Intangibility** - services cannot be counted, measured, inventoried, tested and verified in advance of sale to assure quality
2. **Heterogeneity** - performance varies from producer to producer, from customer to customer and from day to day
3. **Inseparability** - production and consumption of many services are inseparable

Similar difficulties are evident in health care quality assurance and it may be therefore that service industry QA is a particularly rich source of relevant ideas and techniques (Ellis and Whittington, 1993). Inseparability is particularly of relevance in the health sector where the government is actively promoting public involvement in the planning and provision of health services (DoH, 1997). Also Donabedian (1994) accurately identifies the varying roles of the consumer in health care, one of which is co-producer, which will significantly affect the final service delivered to the patient.

Certainly Sasser (1978) highlights that there are irreconcilable differences between product based companies and service organisations. Table 2.1 highlights some of the key differences between product-based and service industries which must be taken into account if QA tools and methodologies from manufacturing-based industries are to be applied to the service sector.

Table 2.1: Differences Between Product Based Companies And Service Organisations

<i>Product-Based Industry</i>	<i>Service Industry</i>
A manufactured good is a tangible, physical object - it can be created, transferred and has an existence over time	A service is intangible and perishable - it is created and used simultaneously. It cannot be retained although the effect of the service can be retained
Product can be defined in terms of cost, quality and performance characteristics which are embodied and observable in the physical product	The intangibles are an integral part of the service provided and outcomes are therefore difficult to measure
The manufacturing process is isolated from the customer	In purchasing a service, the customer interacts with the work force, equipment and physical environment that create the service
The elements of the manufacturing process are designed for the effective production of the physical good	The service delivery system must be designed with the presence of the customer in mind

Therefore in the service industries in comparison with the product-based industries far more attention has been paid to defining and understanding customer needs and expectations. Much emphasis is put on availability of information so that the customer can be kept informed and be given regular feedback on system characteristics.

Recognising the need for quality initiatives in the service sector, BSI have produced a version of BS 5750 for the service sector (BSI, 1991). It sets out that the quality system should respond to the human aspects of service provision by:

- Managing the social processes involved in the service
- Regarding human interactions as a crucial part of service quality
- Recognising the importance of customers' perceptions of the organisation's image, culture and performance
- Motivating personnel and developing their skill to meet customer expectations

It also comments that service customers can be internal to an organisation as well as external, however this is hardly a new concept when analysing TQM philosophies that propound this for both product-based and service-based industries. The structure of the proposed standard quality system is based on a model of the service organisation in

which service needs are established through a process of interaction with the customer involving market research, preparation of a service brief and service design.

Parasuraman et al (1985), recognising the lack of literature and research into service quality, propose a model of service quality in an attempt to provide something more appropriate for the phenomenally growing service industries. They concur that service quality involves a comparison of expectations with performance.

Gronroos (1982) postulates that two types of service quality exist:

1. **Technical quality:** which involves what the customer is actually receiving from the service
2. **Functional quality:** which involves the manner in which the service is delivered

This in fact relates very closely to Donabedian's definition of quality in health care (Donabedian, 1989a), where he defines quality as the goodness of:

1. **Technical care:** judged by its effectiveness
2. **The interpersonal relationship:** judged by relationship between patient and practitioner
3. **The amenities of care:** judged by creature comforts and convenience

In Parasuraman's model he picks up the discrepancies in consumer and marketer (supplier) perceptions of quality. He states that:

"A set of key discrepancies or gaps exist regarding executive perceptions of service quality and the tasks associated with service delivered to consumers. These gaps can be major hurdles in attempting to deliver a service which consumers would perceive as being of high quality" (Parasuraman et al, 1995).

Figure 2.1 summarises the key insights gained about the concept of service quality and factors affecting it.

Figure 2.1: Parasuraman Service Quality Model

(Source: Parasuraman *et al*, 1985)

It is important to note that this model could easily be applied to the health sector by simply interchanging consumer for patient and manager for health care practitioner. In Chapter 3, the use of this model for a health care setting will be analysed in further detail and its relationship to the supply chain described in BS 7850: part 1: 1992. Parasuraman *et al* (1988) also propose a tool (SERVQUAL) for measuring consumer perception of service quality. Table 2.2 describes the significance of each of the gaps identified by Parasuraman *et al*.

Table 2.2: Service Quality Gaps

(Adapted: Parasuraman *et al*, 1985)

It is important to relate this model to consumer satisfaction. Service quality as perceived by the consumer depends on the size and direction of gap 5, which in turn depends on the nature of the gaps associated with the design, marketing and delivery of services. Thus Parasuraman *et al* propose that:

$$\text{gap 5} = f(\text{gap1}, \text{gap2}, \text{gap3}, \text{gap4})$$

He also goes on to propose that consumers typically rely on experience properties when evaluating service quality and lists the ten key determinants of perceived service quality as illustrated in Table 2.3. But we still have to be cautious. Mason (1993) asserts that we cannot completely know the experience of another person; we can only understand the expressions of their experience.

Table 2.3: Determinants of Service Quality

(Adapted: Parasuraman *et al*, 1985)

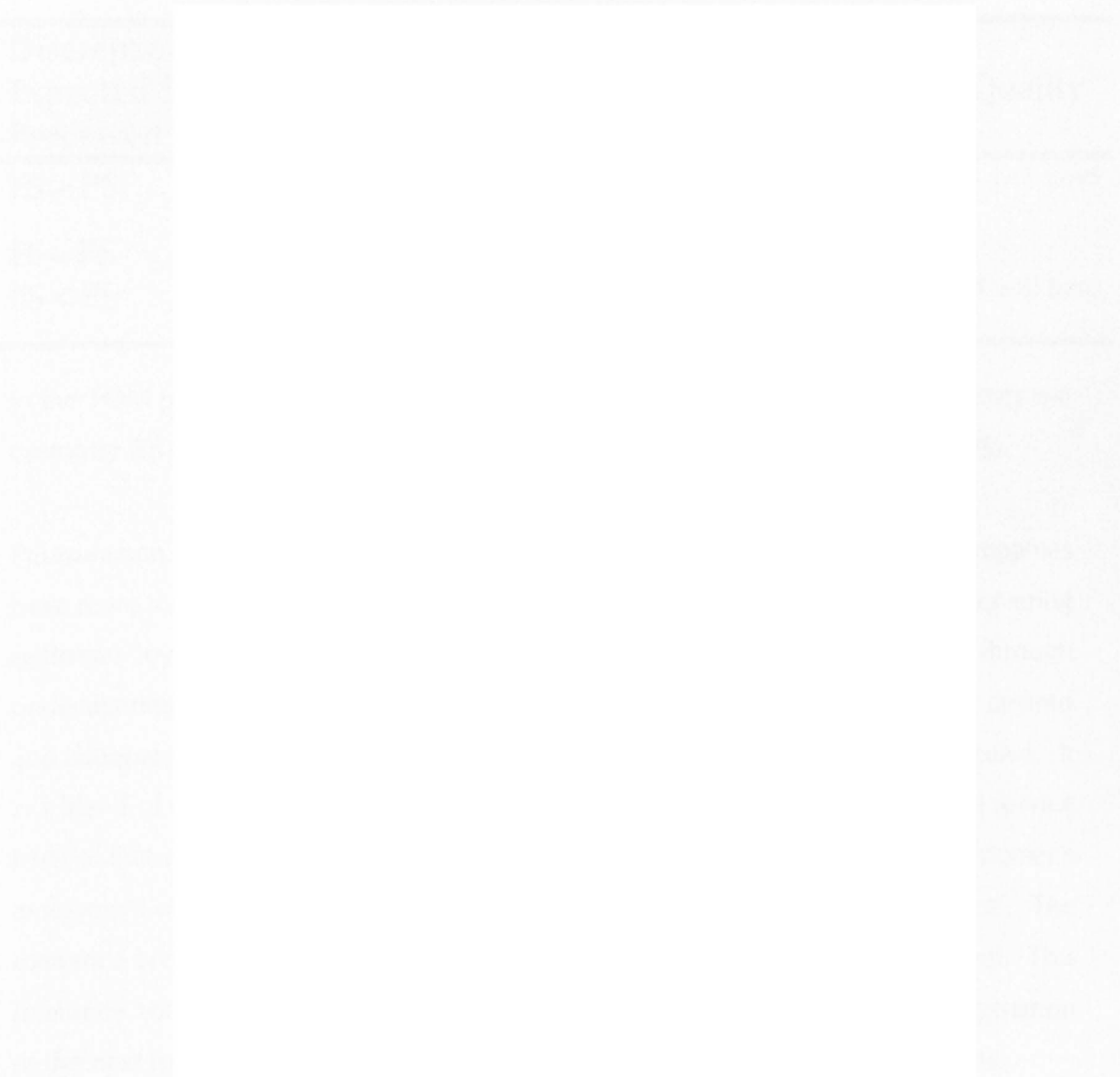


Table 2.4 indicates that perceived service quality is the result of the consumer's comparison of expected service with perceived service which is based on their experience properties when evaluating the service. The comparison of expected and perceived service is not unlike that performed by consumers when evaluating goods. What differs with service is the nature of the characteristics upon which they are evaluated. Finally to identify whether the service provides ideal quality to totally unacceptable quality, this depends upon the discrepancy between the expected service and perceived service.

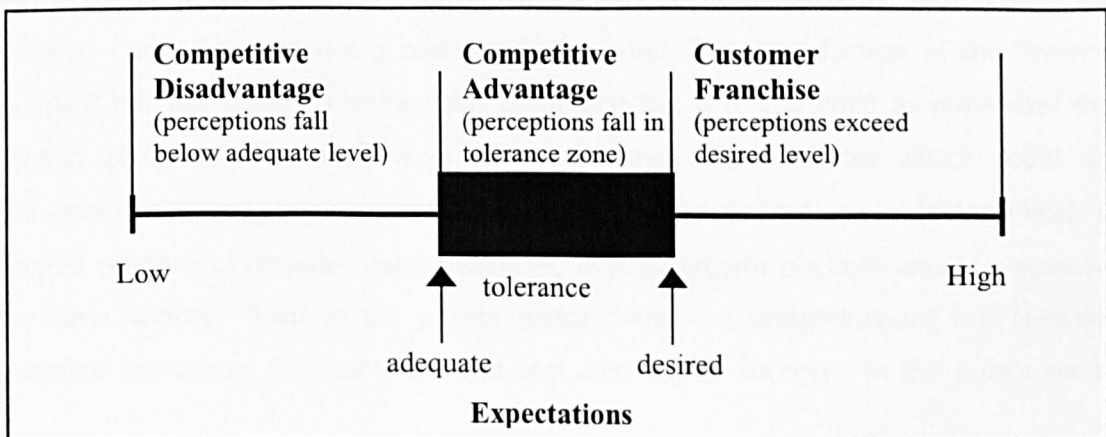
Table 2.4: Levels of Quality
(Adapted: Parasuraman et al, 1991)

Discrepancies between Expected Service (ES) & Perceived Service (PS)	Level of Quality Totally Unacceptable < ~ > Ideal Quality
ES > PS	perceived quality is less than satisfactory and will tend toward totally unacceptable quality
ES = PS	perceived quality is satisfactory
ES < PS	perceived quality is more than satisfactory and will tend towards ideal quality

In the TQM philosophy, Deming decrees that the overall aim is not merely to satisfy the customer (ES = PS), but to delight the customer by exceeding expectations (ES < PS).

Parasuraman et al (1991) develop their research further to explain how some companies have more than just a competitive advantage in customer service, they have unwavering customer loyalty. They argue that the key to providing superior service is through understanding and responding to customer expectations, which have two levels: desired and adequate. The desired service level is the service the customer hopes to receive. It is a blend of what the customer believes 'can be' and 'should be'. The adequate service level is that which the customer finds acceptable. It is in part based on the customer's assessment of what the service 'will be', that is, the customer's 'predicted service'. The tolerance zone separates the desired service level from the adequate service level. This tolerance zone will vary from customer to customer and potentially from one situation to the next for the same customer. Figure 2.2 illustrates service level expectations.

Figure 2.2: Service Level Expectations and Perceptions of Service Performance
(Source: Parasuraman et al, 1991)



As Figure 2.2 shows, depending on the relative levels of customer perceptions and expectations, a firm can operate at a competitive disadvantage, a competitive advantage, or at a 'customer franchise' in terms of service. To develop true customer loyalty, firms must exceed not only the adequate service level but also the desired service level. Parasuraman *et al* (1991), state that service quality can be used as a powerful competitive weapon which requires continuous striving for service superiority, consistently performing above the adequate service level and capitalising on opportunities for exceeding the desired service level.

2.3 Public/Private Sector Comparisons

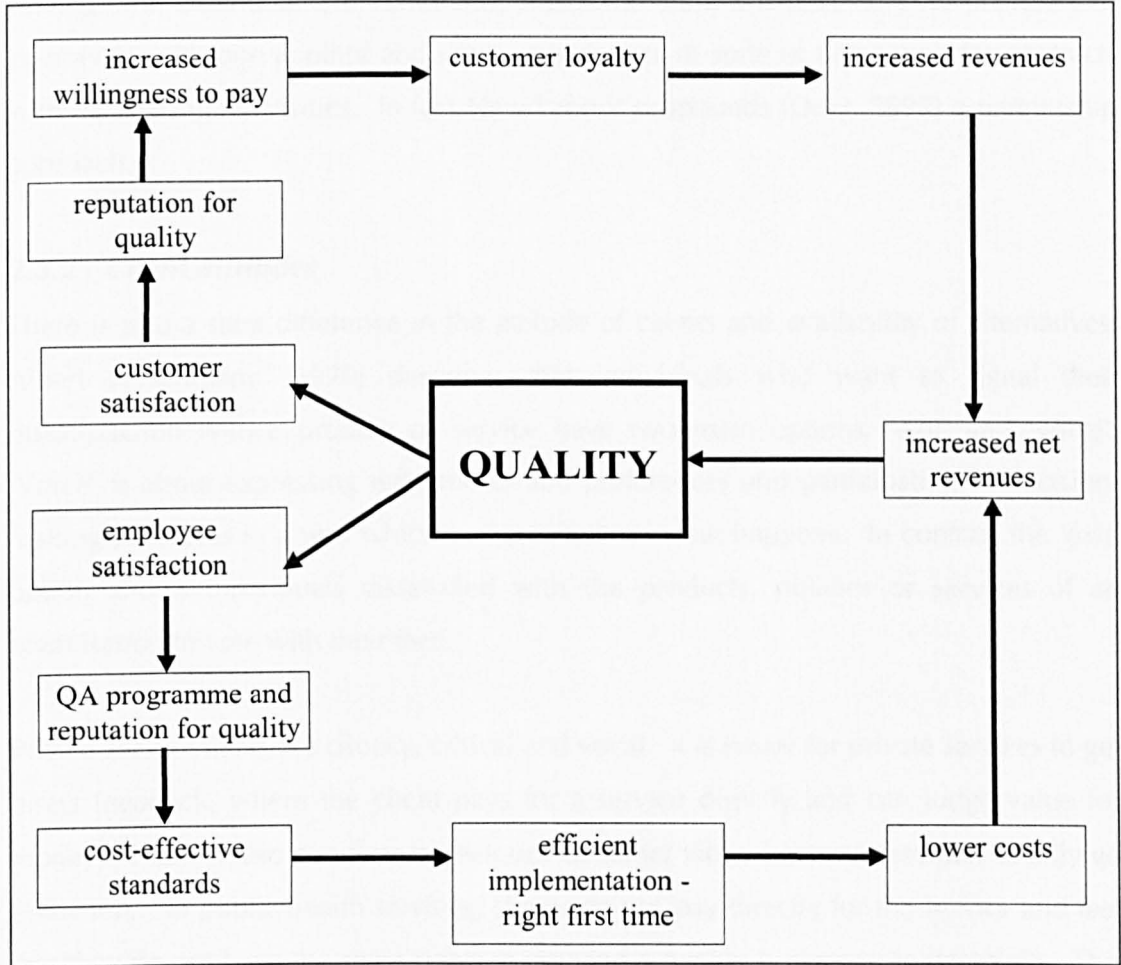
It is also important to consider that many of the QA models and techniques that have been developed have been against the background of the private sector where the primary incentive for QA has been concern about competition and profit. Recognition must also be given to the different and conflicting objectives that public services have in comparison with private enterprise. The public sector has a more complex function; to serve the interests of the community as a whole, and to meet the needs of individuals within the community. Meeting needs is not the same as satisfying tastes or wants (Pfeffer and Coote, 1991, p13). Thus it is crucial to be aware of these fundamental differences when planning QA initiatives in public sector organisations. Øvretveit (1992) compares the commercial sector with the health sector and lists the differences as:

2.3.1 Demand-supply - resource problem

Pre NHS 1990 reforms, any improvement in quality which raised demand faster than supply led to stricter rationing criteria and/or longer waiting lists because no extra resources were available. Staff employment was not threatened by poor quality and 'losing' customers was not a problem but a relief. The introduction of the 'internal market' has attempted to reduce this difference but it is important to remember that health authorities may well wish to retain certain local services which could not otherwise compete. In commercial sectors, by contrast an increase in demand leads to higher profits and provides extra resources, making growth possible which is essential in these sectors. Thus in the private sector there is a straightforward link between satisfied customers, increased demand and commercial success. In the public sector

this link is somewhat more complex. Figure 2.3 highlights the relationship between quality and increased revenue.

Figure 2.3: Flow Chart of Cost Recovery
(Adapted: Wouters, 1994)



In an ideal market, competition among health care providers in response to consumer demand will work to improve the quality of care, largely by eliminating outliers. A competitive environment should support good information flow and should value personal choices and preferences. An ideal market should also permit relatively easy movement of providers into and out of the market. All of these characteristics of a market are assumed to lead to better levels of quality than do purely regulatory mechanisms. None has yet been shown to do so.

Reerink (1991) states that in health services conflict, mistrust and competition are definitely counterproductive and that the keys to the proper development of modern

QA are tolerance, common consent and trust. What is called for is 'collaborative competition', since providing quality health services is not about rivalry and withholding information to maintain competitive advantage. These 'dirty' business tactics would certainly lead to a deterioration in health services. Public services are serving both individual and community needs therefore it is necessary for providers to co-operate with one another and share experiences in spite of competing for contracts with purchasing authorities. In fact New Labour propounds (DoH, 1997) a partnership approach.

2.3.2 Client attitudes

There is also a stark difference in the attitude of clients and availability of alternatives. Albert Hirschmann (1970) describes that individuals who want to signal their dissatisfaction with a product or service have two main options: 'exit' and 'voice'. 'Voice' is about expressing judgements and preferences and participating in decision-making processes in a way which has an effect on what happens. In contrast the 'exit' option allows individuals dissatisfied with the products, policies or services of an organisation to vote with their feet.

Private sector clients are choosy, critical and vocal. It is easier for private services to get direct feedback, where the client pays for a service directly and can judge value for money. There is also a motive to seek out customer views because they can usually go elsewhere. In public health services, clients do not pay directly for the service and feel that they do not have the same rights to demand a quality service or to complain. This may be due to the fact that many clients are too ill or scared to voice their views, or, as Hirschmann has described, the 'voice' can be weakened or corroded when 'exit' is not an alternative.

Genuine dialogue between consumers and providers is vital and without such dialogue quality will remain elusive. This concept is developed further in Chapter 4.

2.3.3 Customer range

Another important difference is that most health care providers have to satisfy a range of clients, often with conflicting requirements. Taking the example of a hospital, it must try and satisfy the purchasing authorities, the patient, informal carers, the referrer and the community at large. Which client should the service aim to satisfy and how should the service resolve conflicts? The answers are more difficult to find than in a service where one individual walks in, cash in hand, asking for a service. Donabedian (1994) goes further to discuss the differing roles of the consumer in the promotion of quality health care. He defines their roles as:

1. Definers of quality
2. Evaluators of quality
3. Informants about quality
4. Co-producers of care
5. Targets of quality assurance
6. Controllers of practitioner behaviour
7. Reformers of health care

(In Chapter 4 these roles are described in more detail)

Thus, not only is it important to define customer range, it is also vital to understand the different roles and responsibilities of the consumer and their relation to the provider in designing, producing and delivering the service.

2.3.4 Intangibles

The patient's judgement of many health services, and often even the efficacy of services, depends on subtle behaviours of staff. How staff treat the patient in the general sense has a considerable effect on patient satisfaction since interpersonal relations are one of the main things which patients can judge.

2.3.5 Professional component

Patients may not be able to judge significant aspects of the service, since often they are not in a fit state to do so, they are afraid or they may not be technically competent to make such a judgement. Thus the willing co-operation of professionals is necessary in order to judge to what extent professionally assessed needs of the patients are met, and how well the service carries out professional assessments. Donabedian (1994) warns

about the problem of perverse preferences and cultural dissonance. Sometimes patients have preferences that the practitioner believes are contrary to the patient's own best interests or to the practitioner's personal convictions. Also the model of an active, egalitarian partnership between patient and practitioner is often contrary to established norms where a patient delegates decision-making responsibility to the practitioner, who is expected to act in the patient's best interest.

2.3.6 Lessons from the commercial sector

"It's very difficult to say that we have anything to learn from the industrial model in terms of consumer centredness because our own health care tradition is centred on the patient; we are trained and motivated to serve patients, that is the raison d'être of health care" (Baker, 1993).

Although Baker quite blatantly states that the health sector has little to learn from industry in terms of client focus, research into consumer centredness has been developed far more in the commercial sector for reasons of competition and economic gain. Even in the industrial context quality can be difficult to define. Despite this, working definitions have emerged and the basic characteristics of the industrial template reflect five main emphases as follows (Ellis and Whittington, 1993):

- Achievement of predetermined standards or targets
- Involvement of customer requirements in the determination of such standards
- Consideration of available financial and other resources in the determination of such standards
- Recognition that there is always room for improvement and that standards and targets are subject to review
- Recognition of the value of positive organisation-wide quality management

Quality assurance can be applied to any process within any organisation and although there are fundamental differences between manufacturing and service industries and public and private sector organisations, these should not prevent health services from using established quality methods although careful adaptation and selectivity is required (Øvretveit, 1992).

2.4 Quality in the Health Sector

"Concern for quality health care is as old as medicine itself. But an honest concern about quality, however genuine, is not the same as methodical assessment based on reliable evidence" (Maxwell, 1984).

2.4.1 Quality assurance in health care pre 1980

Although specific references to health care quality assurance in the UK are difficult to find pre 1980, mechanisms have existed for some time but under different labels.

In ancient civilisations there were schools of medicine and there is evidence that written professional codes of practice existed for physicians. However, Florence Nightingale is probably considered one of the first pioneers of formal quality assurance. She demonstrated that by establishing a cycle of standard setting, observation, review and improvement that the hospitalisation of wounded soldiers led to an increase rather than a decrease in mortality. Her *Notes on Nursing* (Nightingale, 1859) became the benchmark for quality for many years.

The first advocate of regular review of medical practice was Ernest Avery Codman, a practising surgeon in a Boston Hospital in the early part of this Century (Codman, 1916). He recalled each of his patient's one year after discharge and checked on accuracy of diagnosis, success of surgery, overall benefit derived from treatment, and existence of side effects. His medical colleagues were so scathing of his work he set up his own hospital called 'The End Results Hospital'. He described his approach to improving the end result of health care as:

"merely the common-sense notion that every hospital should follow every patient it treats, long enough to determine whether the treatment has been successful, and then to inquire 'if not, why not?' with a view to preventing a similar failure in the future" (Donabedian 1989b).

Most other early ventures into quality assurance have been concerned with education and licensing of practitioners, which has been led by each separate professional body

and therefore been mono-professional in approach. These activities reflect considerable confidence in the effectiveness of professional education as a guarantee of quality.

From the 1930s and onwards there have been numerous studies internationally on health care outcomes. The development of public health interventions broadened the concept of good quality care. During the 1940s there was a new world wide emphasis in health care on interventions for control of major communicable diseases such as smallpox, polio and tuberculosis. In these programmes good quality care was not just what was good for the individual patient but what was effective in reducing the burden of the disease in the whole population.

By the 1950s the emphasis began to shift from end results to the process of care. In one of the first major evaluative studies of quality in primary care, Collings investigated general practice in England by direct observation of general practitioners at work (Collings, 1950). His qualitative assessment included the performance of the doctors and the conditions in which they worked. His conclusions highlighted the lack of objective performance standards and absence of recognised criteria for establishing them.

During the 1960s and 1970s UK governmental interest in systems of Quality Assurance has grown in formality, undoubtedly in response to the increasing costs of provision and to the decreasingly secure national resource from which the NHS must be financed. As early as 1956 the Guillebaud committee (MoH, 1956) commented, when given the remit of examining costs in the NHS:

“it is one of the problems of management to find the right indices for efficiency.”

2.4.2 Health care quality assurance post 1980

Since 1980 there has been an ever growing concern among the health professions about the quality of health care delivery. This has been coupled with rising dissatisfaction about the health care system on the part of the public and policy makers, unremitting pressures for cost containment, and uncertainty about the effect of future cost containment on quality of care (Lohr, 1990). Thus underlying the many initiatives world-wide is the belief that QA offers governments the chance to improve health and

public satisfaction from their existing investments in health services. Though the importance of health service quality might be universal, the design and implementation of QA systems must reflect each country's particular way of organising health care as well as the beliefs and values of both the users and the providers of health services. This implies careful planning from the outset.

In the UK by the 1980s governmental allusions to quality assurance in health care were edging towards prescription. The Griffiths report (DHSS, 1983) suggested quality assurance as one of several industrially derived methods of management which could be adopted in the health service. Finally, with the publication of the 1989 White Paper (DoH, 1989a) and the subsequent Health Sector Reform Bill, the implementation of formal mechanisms for ensuring the quality of patient care became explicitly recognised as an important goal of the NHS for the decade (Relman, 1988). In fact medical audit in the NHS had now become a mandatory part of health service provision. Pressures were also being externally applied whereby Britain was party to the 'appropriate health care and technology programme' of the World Health Organisation agreement which stated that by 1990 all member states should have built effective mechanisms for ensuring quality of patient care (Hurst and Ball, 1990).

However the government has continued to take a non-directive role on which QA mechanisms both purchaser and provider units should implement (Dixon and Darlington, 1992). A consequence of this has been the implementation of a huge array of different quality initiatives which have affected primary, secondary and tertiary care country-wide (Moss, 1992a).

2.5 Definitions of Quality in Health Care

Good health is a highly valued attribute of life. It is also difficult to define since it means different things to different people. Quality is very much in the eye of the beholder and as such is influenced by many different factors such as environment, behaviour, values and culture. What is required is to be able to quantify quality and identify the extent to which it is being met (Lohr, 1990). This can only be achieved by having:

- Appropriate definitions of quality in health care

- A range and adequacy of methods for measuring, preventing, detecting and correcting quality problems
- A strong research base
- Strategies for implementing a programme to assure quality of health service provision for its users

The above factors must include the contributions to care given by all professional groups and take into account both the clinical and non-clinical aspects of the health care system. As well as this it must recognise the high level of intangibles provided in health services which subsequently will involve the addressing of both soft and hard issues.

Definitions for quality of care and health service delivery are numerous and wide ranging and reflect the different perspectives and priorities of funders, health professionals, patients and the population. Some examples are:

- *"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 purchasers"* (Øvretveit, 1992).
- *"That complex set of interpersonal interactions between clients and service providers"* (Vera, 1993).
- *"The proper performance (according to standards) of interventions that are known to be safe, that are affordable to the society in question, and that have the ability to produce an impact on mortality, morbidity, disability"* (Roemer and Montoya-Aguilar, 1988).
- *"Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge"* (Lohr, 1990).
- *"Effective health care, that meets everyone's needs and that is delivered equitably, humanely and efficiently"* (Black, 1990).
- *"Degree to which agreed standards are achieved and to which these standards are related to the highest priority need of the users of the service given existing resource levels and other local constraints"* (Centre for the Evaluation of Public Policy and Practice, 1991).

- *"Quality care is about the best that an enthusiastic and motivated work force can provide within the resources available to them"* (Doyle and Haran, 1996a).
- *"Being treated like a human being"* (Vera, 1993).

If a definition for quality of care is to be used by managers and professionals to guide them in their QA activities or by patients to inform them of what to expect, it should be simple, precise, explicit, scientific in nature and robust. Rodriguez (1988, p4.), conscious of such differences in perspectives, emphasises that quality is socially constructed and that the definition may ultimately depend on who is assessing quality. However the following features are suggested for inclusion:

- Measurement (of standards)
- Encompasses both clinical and non-clinical aspects of health care delivery
- Targets both individuals and populations and their preferences
- Ultimate aim is to improve health status
- Recognises resource constraints
- Consistent with current professional knowledge
- Recognises limits set by higher authorities

Thus the range of definitions of quality reflect the different perspectives from which quality is viewed, the different characteristics which define a quality service and the different dimensions of the health system.

2.6 Models of Quality

Several models based on dimensions of quality have been propounded for health care quality to guide professionals in their QA activities (Donabedian, 1966, 1980; Maxwell 1984, 1992; Øvretveit, 1990, 1992). In Donabedian's model, quality of care is evaluated according to the structure of health facilities, the process of care and outcome. In contrast the six dimensions of Maxwell's model illustrates the major characteristics of health care quality. More recently Øvretveit has provided a framework for evaluating quality from the client, health practitioner and health manager perspectives.

2.6.1 Different perspectives on quality

Øvretveit (1990) is essentially interested in three groups of stakeholders who have legitimate and often different views about what constitutes a quality service. He defines them as:

1. **Client Quality:** what clients want from the service, individually and as a population
2. **Professional Quality:** whether the service meets a need as defined by professionals, and whether it correctly carries out techniques and procedures which are believed to be necessary to meet client needs
3. **Management Quality:** The design and operation of the service process to use resources in the most efficient way to meet client requirements

The client's view of quality may differ drastically from the professional's. Sometimes the patient may request inappropriate or even harmful treatments. On the other hand health practitioners may well see quality in terms of accuracy of diagnosis and efficacy of treatment, even though the cost to achieve this level of accuracy may be high and the need for it questionable.

There is no consensus as to how to balance these differing perspectives but this model does attempt to provide a more balanced view of what is important from each perspective and to highlight that we must consciously seek to bridge the gap between the professional, the manager and the lay person. This is advocated as establishing partnerships in health care.

2.6.2 Different dimensions of quality

Maxwell (1986) argues that in a publicly funded health system, quality has six dimensions which must together define the service:

1. **Access to services:** geographic, financial, physical, organisational, linguistic
2. **Relevance to need:** for individuals and the community
3. **Effectiveness:** extent to which desired outcome is achieved
4. **Equity:** whether services are provided fairly and to the most needy
5. **Social Acceptability:** respect for cultural values, beliefs and attitudes
6. **Efficiency and Economy:** maximising outcome for given resources

Whilst different stake-holders may have different priorities (eg patients may prioritise access, whilst professionals may be more concerned with clinical effectiveness and managers with efficiency), Maxwell warns that in the end quality must be seen as a whole and not in fragmented parts. Otherwise, there is a danger that by placing too much attention on one dimension it can have a detrimental effect on the other quality factors. Davies (1992) suggests that the dimensions work well as a checklist, but are more difficult to administer as a complete approach to a quality problem.

2.6.3 Different dimensions of the health system

Avedis Donabedian (1980) has articulated what continues to serve as the unifying conceptual framework for quality measurement and assurance. This widely accepted model of structure, process and outcome has guided three decades of international research and programme development.

Structure: He describes structural measures as the characteristics of the resources in the health delivery system. They are essentially measures of the presumed capacity of the provider to deliver quality health care. Thus the system in which care occurs to a large extent determines processes available to health care staff.

The limitation of using structure as a measure of quality is that the presence of structural facilities does not guarantee access and use. What is being assessed is the adequacy of the structure, for good processes of care (Gilson, 1992). In this sense it is more a measure of 'potential quality'. However, structure has not been shown to have any influence on outcome according to Brook and Avery (1976) and its usefulness of appraisal may be limited to **"the detection of fraud or of grossly unsanitary conditions"**. Hopkins (1990) reminds us that bad care can occur in well equipped hospitals.

Process: Examining the process of care embodies what is actually done to and for the patient and has become a more frequent approach to the study of quality (Buck and McWhinney, 1980). This partly reflects the realisation that measurement of outcomes such as health impact is difficult and not so relevant for planning and management purposes (Van Norren *et al*, 1989). Process measures seek information to identify

problems that occur during the delivery of care. Elements of health care delivery can be evaluated against criteria that reflect professional standards and patient oriented measures. TQM approaches place much importance on process measurement (Berwick, 1992a, 1992b, 1992c).

Outcome: Finally outcomes are the end results of care. Outcomes offer a vast range of units of measurement, eg maternal death, neo-natal mortality, patient satisfaction. Outcomes tend to focus on aggregate data and, by definition, review is historical. Many factors other than care may influence outcome. Long periods of time may elapse before relevant outcomes are manifest, and outcomes do not give insight into the nature and location of deficiencies or strengths in a health service (Donabedian, 1966). Unless outcome measures can be related back to the processes of care they have little significance. Indeed every patient has different preferences, needs and capacities. A multiplicity of outcomes can occur with only fuzzy and wavering lines to distinguish causal relationships from chance occurrences (Lohr, 1990). Furthermore, health impact is difficult to measure and more limited outcome measures such as service outputs and coverage are not necessarily good indicators of impact (Lever, 1989).

By using the Structure-Process-Outcome paradigm the structure can be defined in terms of the organisation's resources, policy and management systems. The processes are means by which inputs are converted into outputs and the outcomes are the end results or outputs of the various processes. Even when quality structures and processes of health care are present it does not guarantee or assure a quality outcome and it is necessary to understand the processes of care first, before evaluating outcomes. It is clear that process and outcome measures are complementary and not rival measures of quality.

2.6.4 Composite model for evaluating quality of health care

Although the three models described by Maxwell, Øvretveit and Donabedian have different emphases they are not mutually exclusive but complementary, and can be included in a single framework (Table 2.5, Weakliam, 1994). This provides a model for understanding the various approaches to quality assessment and quality assurance. It also confirms which parameters can be measured at the different points in the health

system and that a range of quality indicators can be developed to represent the different perspectives of the client, manager and health care practitioner.

Table 2.5: Composite Model

(Adapted: Weakliam, 1994)

Dimensions of the Health System	STRUCTURE Policy, resources, management systems	PROCESS Service delivery	OUTCOME Outputs, health status, health impact
Dimensions of Quality	Accessible Available Affordable Relevant to need Amenities Equity Sustainable	Appropriate Acceptable Technical competence Safety Interpersonal relationship Ethical	Coverage Effectiveness Efficiency User satisfaction Morbidity Mortality Quality of life
Perspectives of Quality	Client Quality <-> Professional Quality <-> Management Quality		

It is important to note that some of the dimensions of quality apply to more than one of the dimensions of the health system and that client, professional and management perspectives will differ. In this example only the most direct relationships are highlighted.

2.6.5 Quality of health care for an individual patient encounter

This composite model of quality can also be used in defining the quality of care for an individual patient encounter depicted in Figure 2.4, adapted from Hopkins (1990) and Doyle *et al* (1993a). It attempts to look further than the narrow confines of whether clinical interventions influence outcome. The model highlights the five different factors that Calman (1992) introduces as influencing outcomes of care:

1. **The health of the individual at the start of the process of care.**

This is a complex issue and will include broader social, economic and cultural dimensions.

2. **The illness, its natural history, and the prognosis.**

This is often forgotten, yet it may be the most important determinant of outcome and will include patient characteristics such as the severity of illness, age, gender and ethnicity.

3. The treatment available and its effectiveness.

This assumes that the correct treatment has been properly carried out and evaluated.

4. The professional skills available and the skill mix of staff.

The educational and human resource dimension.

5. The facilities and resources.

This assumes that the necessary resources are available when required.

In considering how best to improve the quality of care for an individual patient, the first two factors rely on effective public health intervention. Factors three and four relate very specifically to the quality of care (clinical and interpersonal) provided, emphasising effectiveness of treatment, interpersonal and communication skills and the need to be aware of current professional knowledge. The final factor is specifically related to resource availability, its application and consumption.

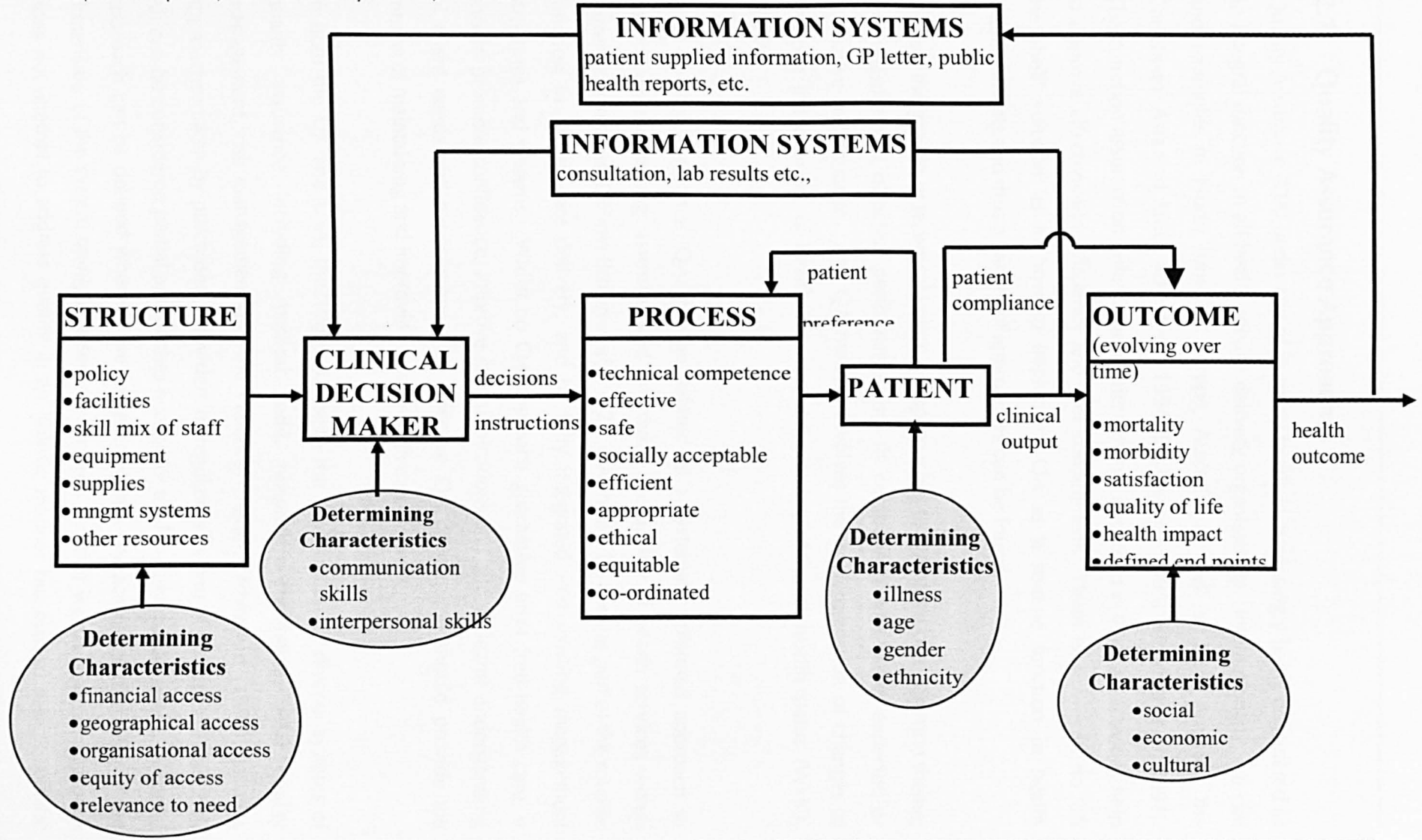
Outcomes are known to vary by geographical location and by the individual practitioner providing care. For this reason, there is a real professional challenge to measure outcomes and improve quality. This model highlights that to look at clinical intervention alone in evaluating quality of patient care will provide an inaccurate picture of an individual or a unit's ability to provide quality services and that other wider factors (determining characteristics) must be taken into consideration. Accessibility potentially limits the patient's interactions with structures for care and the interpersonal and clinical skills of the health care practitioner as well as patient preference will determine whether the appropriate clinical activities are applied correctly. The patient's own characteristics such as severity of illness, age, gender and ethnicity will influence the link between process, clinical output and outcome. Just as over time, social, economic and cultural factors will influence health outcome as will patient compliance with treatment. Therefore providing the best possible care to individual patients involves:

- Clinical and interpersonal excellence
- Improving public health
- Effective and equitable resource allocation and use

This in turn implies that health care practitioners (doctors, nurses and para-medics) must co-operate and collaborate with managers, patients and the communities they serve.

Figure 2.4: Model of Health Care for an Individual Patient Encounter

(Adapted: Hopkins, 1990 and Doyle et al, 1993a)



2.7 Quality Assurance Approaches

Quality Assurance (QA) under any of its many labels is increasingly being considered as an integral function in all health service delivery organisations. Internationally, we can find examples in North America, Europe, Australia as well as Latin America, the Caribbean, Asia and Africa (Øvretveit, 1994; De Geyndt, 1995; Nicholas *et al*, 1991). The common assumption behind these international initiatives is that QA activities help to improve effectiveness, efficiency and cost containment. There is, however, no 'off the shelf' solution as to how to implement QA as a routine function in health establishments and thus a variety of approaches can be found.

Despite the growth of technical jargon, all approaches to QA share one common theme; the measurement of actual performance and its comparison with either expected or normative performance. Any QA method involves the implementation of changes to improve the delivery of health services and, consequently, of health status (WHO, 1994).

Thus Quality Assurance (QA) can be defined as a systematic, planned approach to continually monitoring, assessing and improving the quality of health services within current constraints (DiPrete Brown *et al*, 1992). QA should be seen as part of the routine function in health care delivery, and be fully integrated into existing management structures and systems. Whilst no QA approach guarantees error free health care, it should promote confidence, improve communications and allow clearer understanding of client needs and expectations. An effective QA programme should provide the means of maintaining and improving upon health care delivery.

In both the UK and USA, the 1980s has seen the proliferation of diverse systems of quality assurance including medical audit, hospital accreditation, total quality management, risk management and the Patient's Charter. Øvretveit (1994) classifies approaches taken by purchasers, providers or regulators as one of six types (Table 2.6). All can be considered partial approaches except for total quality management. A partial approach can be defined whereby the perspective, the characteristics of quality or the dimension of the system being assessed are limited. In other words a partial approach does not attempt to address quality in an holistic manner but instead selects specific

areas of concern, eg medical audit - represents purely the professional perspective of quality assessment. Another example is the quality standard BS 5750 which does not guarantee quality services but is concerned with assuring consistent systems of product or service delivery.

Table 2.6: Classification of Approaches to Health Service Quality (Øvretveit, 1994)

Classification of Approaches
1. Risk avoidance and negligence minimisation
2. Regulatory/policing minimum standards (eg <i>external accreditation</i>)
3. Professional development (eg <i>medical audit</i>)
4. Customer service (eg <i>complaints and satisfaction</i>)
5. Partial organisation development (<i>primary focus on support rather than clinical services</i>)
6. Total quality management (<i>emphasis on continuous quality improvement</i>)

These approaches to quality in part reflect the different contexts for health care, incentives and the power of professionals and managers (Pollitt, 1992).

The US health care system has experimented with many of these approaches. With high negligence claims and insurance costs, particularly popular methods for avoiding poor quality have been risk avoidance programmes and external regulation using accreditation systems. However accreditation will not always be the most appropriate approach for quality assurance in a non-market led health sector. In Europe, professional standards and medical audit have been the yardstick in measuring and assessing quality of care. More recently in the US and Europe, with the rise of consumerism, providers have also been drawing on 'customer' approaches to quality. However few countries have attempted to integrate their different approaches into a comprehensive quality strategy and system. It is only recently that some US and European managers have taken a more holistic approach to quality, drawing on a total quality management philosophy and framework.

2.8 Quality and Health Sector Reform

"We are now on the threshold of a third revolution in medical care. The first was the rapid expansion of scientific medicine and hospital technology, the second was the era of cost containment and the third is the era of assessment and accountability"
(Relman, 1988).

The motivation for introducing formal quality programmes has varied from country to country, but has often stemmed from the implementation of health sector reforms. Health sector reform can be defined as:

"....a process of fundamental change in policy and institutional arrangements that is designed (by government) to improve the functioning and performance of the health sector in order to produce better health outcomes. Reform implies a radical rather than an incremental or evolutionary change, and is more likely to be a sustained process rather than a one-off activity. The purpose of the change is to promote the achievement of overall health policy objectives" (Haran, 1996).

In the USA and Europe there are major incentives for providers to pay attention to quality. The incentives in the USA have resulted from strong competition for patients, the need to contain and reduce costs and to win contracts from purchasers (insurance companies). In addition regulators are now looking for improvements rather than mere compliance to minimum standards. In some European countries 'market' reforms have led to publicly funded health care services being provided under contracts between provider organisations and purchasing or commissioning health authorities. Quality has become a subject of 'contract specification' and 'contract monitoring' (DoH, 1990). But contracting as a quality control mechanism will be only as good as the agreed quality specifications and quality monitoring mechanisms, and the incentives or disincentives to comply with contract terms. Providers are recognising that quality systems are necessary to win and keep contracts and to make continual improvements, as well as to reduce costs.

2.8.1 Reasons for the introduction of QA in the NHS

“Good quality, despite what some say, may not always save money. But bad quality always costs money” (Nichol, 1989).

In the UK implementation of QA can be firmly linked to the Health Sector Reform Bill in 1990 which has made medical audit a mandatory part of health service provision. It can be argued that the specific reasons why health care purchasers and providers are now focusing their efforts on establishing robust quality assurance systems include:

- Public accountability and consumerism
- Value for money and efficiency
- Concern for excellence in health care and health gain
- Inter-professional development

2.8.2 Public accountability and consumerism

Consumerism has become a powerful force in both the manufacturing and service sectors and has gradually spilled over into public services which are now having to become more responsive to client expectations. The Patient's Charter (DoH, 1991, 1992) in Britain specifies quality standards which patients have a right to expect from their local health services in an attempt to make public services more accountable to the population. Pollitt (1991) examining the politics of medical audit in the US and UK comments on the US culture of public accountability:

“thus we observe the spectacle of a thoroughly public system (the NHS) that has minimal public accountability and a mixed public/private, largely profit-oriented system (Medicare) which has quite sophisticated arrangements for the protection of publicly financed patients and the publication of detailed quality data.”

The purchaser-provider split has also delegated responsibility for quality to provider units, with purchasers having the responsibility for monitoring providers through service level agreements and quality specifications. This is also squarely putting accountability onto the provider's shoulders, not only in terms of health care provision, but also in the way provider units organise themselves and manage their resources. With the threat of losing contracts to other provider units this is providing an impetus to take QA seriously.

2.8.3 Value for money

Pfeffer and Coote (1992) comment that on the right of the political spectrum quality is broadly concerned with the idea of value for money; meaning that the desire to achieve economic efficiency is a major impulse behind quality initiatives. Economic constraints have forced health care funders and providers world-wide to look at new ways of appraising their performance. As health care has become steadily more expensive, quality of care has become tied up with issues of cost containment and efficiency (Smith, 1990). Professionals and managers have become more accountable as value-for-money has become the catch-phrase. Battlegrounds of 'quality' have opened up between health professionals for whom good quality care is all about meeting professionally defined standards for their patients, and health service managers for whom it is more about cost-effectiveness.

The quality gurus argue that ultimately QA will save money due to the costs associated with poor quality. Donabedian makes three links between quality and cost:

1. Bad care can harm patients and is also wasteful
2. Wasteful care has the potential to harm patients
3. Waste in any form depletes resources that could be used to treat more patients better

Øvretveit (1991) categorises the costs associated with quality as:

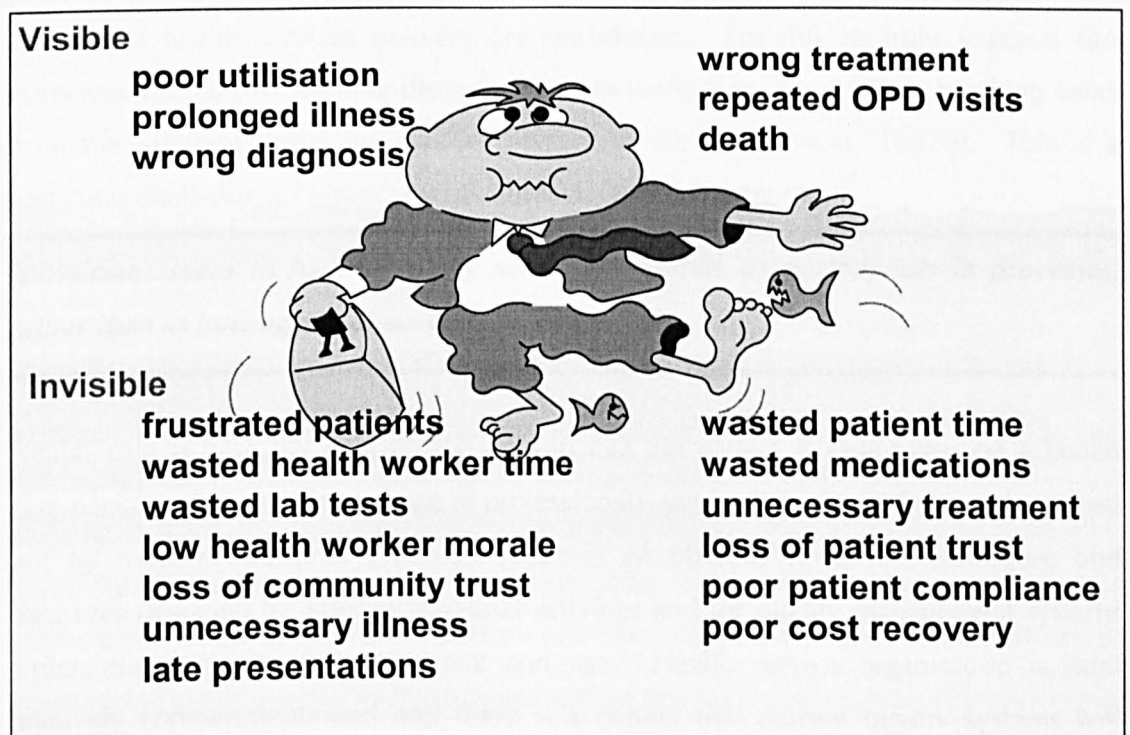
1. **Prevention Costs:** The expenses incurred by ensuring that the design and operation of the service is correct; failures are prevented from occurring.
2. **Appraisal Costs:** The overall and continuing cost associated with maintaining quality systems to identify 'defective' services or products before they are given to the client, eg training, audit, quality control procedures, resource management etc.
3. **Internal Failure Costs:** These are due to inadequate systems and bad mismanagement and are costs associated with rectifying things whilst the patient is still in the system. eg delays, repeat tests, lost notes etc. These costs are estimated as being a significant proportion of annual operating costs.

- 4. External Failure Costs:** These are costs associated with rectifying the problem after the patient has left the system, eg patients readmitted, handling patient complaints. These costs include negligence claims.

He argues that not all costs associated with quality are bad. Prevention and appraisal costs are necessary to improve quality and ultimately to eliminate costs associated with internal and external failures. Evidence from industry has shown that the level of wasted resources generally exceeds 35% of operating costs (Hodgson, 1987). Typical proportions of costs in companies (non health related) not engaged in formal quality improvement efforts are that 5% or less is spent on prevention, 25% on appraisal and 70% on rectifying failures (Wouters, 1994).

Figure 2.5 illustrates some of the costs associated with poor quality, many of which are never accounted for or even acknowledged as costs.

Figure 2.5: Quality Costs



2.8.4 Concern for excellence and health gain

All quality assurance initiatives, whether implicit or explicit, focusing on individual care or population service, undertaken by professionals, managers or consumers, must reflect

an abiding interest in the provision of the highest possible quality care. If such concern is not given primacy, quality assurance cannot take place. It should extend to all aspects of care including technical, interpersonal and moral (Ellis and Whittington, 1993). This concern for access to quality health care is a societal belief (Lohr, 1990) which was reflected in the UK with the establishment of the NHS in 1948. In fact the health of individuals affects the health of the community at large and changes in the health status of the community have a domino effect on various sectors of our society and economy.

2.8.5 Inter-professional development

Both individuals and organisations must be positively motivated to implement quality assurance. This implies commitment of time, energy and resources. Deming (1986) stated that 92% of everything that was wrong with an organisation was the fault of management. **“Workers”** he said, **“worked in the system while managers worked on the system.”** Berwick (1992a,b) stresses that quality is likely to improve further if all personnel are already assumed to be doing their best, but will try even harder if better systems of health services delivery are introduced. For this to truly succeed QA initiatives should involve inter-disciplinary team work (Berwick, 1992c), breaking away from the inherent ‘tribal’ boundaries present in the NHS (Moss, 1992b). This is a particular challenge for physicians, as Berwick (1989) comments:

“physicians seem to have difficulty seeing themselves as participants in processes, rather than as lone agents of success or failure.”

Health care is basically inter-professional in that the patient is dependent on a health care package delivered by a range of professionals, yet its QA is most frequently carried out by mono-professional groups. There is an obvious need for techniques and measures designed for inter-professional activities and for quality management systems which encourage their development and use. Health service organisation is itself relatively compartmentalised and there is a danger that current quality systems will consolidate divisions rather than break them down (Ellis and Whittington, 1993).

2.9 Summary

The rationale for quality improvement is to create an environment whereby it is possible to anticipate, understand and be responsive to patient needs. For this to happen, regular, critical and systematic analysis and evaluation of clinical practice is required. This must include the contributions to care given by all professional groups and take into account both the clinical and non-clinical aspects of the health care system. Though guidelines, protocols and standards of care have been developed by professional groups for specific problems, comprehensive guidelines covering several levels of care (from primary to tertiary) and several provider groups are rare (Vuori, 1992). Much good-quality care is dependent on collaboration and communication between these provider groups. Now that the audit of clinical practice is becoming established and accepted, a framework for coherent, interdisciplinary QA is required, bringing together all the quality initiatives. Otherwise it is very likely that these different initiatives will become isolated, ineffectual activities (Moss, 1992).

There is still much rhetoric and few examples of holistic models in health care delivery systems. No single approach or off the shelf solution is likely to fulfil all criteria, but certainly fundamental building blocks exist. It would appear that most of the QA approaches reviewed offer partial approaches and could have some benefit. The TQM approach has a great deal of potential, yet it also presents some basic conflicts with the underlying norms and expectations that guide health service bureaucracies. While the conflicts exist they are not intractable and, if recognised, represent opportunities not only to improve quality of health care, but also the systems of health service delivery (Doyle *et al*, 1992).

Quality assurance can be applied to any process (service or production) within any organisation (public or private), and although there are fundamental differences between manufacturing and service industries and public and private sector organisations, these should not prevent health services from using established quality methods, although careful adaptation and selectivity is required (Øvretveit, 1992).

This review has identified certain gaps in health care QA literature, specifically in the use of service industry approaches and in practical implementation strategies for

interdisciplinary audit/QA at health facility level. The opportunities for improving health care singly and through co-operative ventures are almost unlimited. Chapter 3 will discuss the research approach adopted in this study and chapter 4 will discuss how this research aims to help fill that gap by developing a framework for quality improvement based on the TQM philosophy which brings together the different disciplines and acknowledges different levels of care through the use of customer-supplier modelling.

"However it is not a question of qualitative versus quantitative methods but rather how to address innovative strategies for combining different perspectives and quantitative and qualitative methodologies within a single study"

Bowling, 1997

Chapter Three

Research Design and Methods

“However it is not a question of qualitative versus quantitative methods but rather how to address innovative strategies for combining different perspectives and quantitative and qualitative methodologies within a single study”

Bowling, 1997

3.0 Introduction

Chapter 2 highlighted the fact that there are few holistic examples of quality improvement strategies in the UK health sector. Furthermore, it showed that with the audit of clinical practice becoming established and accepted, a framework for a coherent, interdisciplinary QA approach is required; one that brings together the different partial approaches. Government proposals now emphasise that the leaders of all health professions must assume greater responsibility for the quality of care. There is thus an implicit need for both purchasers and providers to develop interdisciplinary, systemic and systematic QA approaches that address the:

- Different levels of care
- Critical links between these levels
- Contributions to care given by all professional groups
- Clinical and non-clinical aspects of the health care system

The previous chapter pointed out that although no single approach or off the shelf solution is likely to fulfill all criteria, fundamental building blocks do exist in the manufacturing and service industries. It is suggested that TQM is one such approach that, if adapted and implemented appropriately, can produce truly effective QA systems for the health sector.

This chapter deals with the study design and methodological issues. Firstly the research paradigm is discussed and the different research options are reviewed, taking into account advantages and disadvantages of different research approaches. In this chapter the arguments are put forward for why an action research approach is most appropriate for developing customer – supplier models and why case studies are used for demonstrating the appropriateness of the models. The research methods and techniques employed during this study are described as well as the procedures employed for conducting this research. Finally the data analysis techniques are discussed taking into account the limitations and potential biases associated with this research approach.

3.1 Objectives of Research

The overall aim of this research is to demonstrate that TQM is applicable to a health care setting in the context of the National Health Service.

The specific objectives of this study are to:

1. Critically review Quality Assurance (QA) approaches in order to identify which have potential for application in the health sector
2. Examine whether TQM is applicable and appropriate in relation to a health care delivery system
3. Develop a customer-supplier modelling methodology for understanding how people, processes and systems interrelate
4. Construct customer-supplier models of a clinical directorate
5. Establish a directorate quality assurance system, using customer-supplier models to provide the basic framework for interdisciplinary quality improvement

In essence this thesis is examining whether it is possible to implement a directorate QA system based on the TQM philosophy, through the development of customer-supplier models and whether such models can provide the framework for coherent, interdisciplinary, continuous quality improvement.

3.2 Study Design

The tendency in research on health services is to focus mainly on the experimental method, which implies the exercise of objectivity in:

- the inception of the research idea
- the design of the study
- the methods used
- the process of carrying it out
- and the analysis and interpretation of the research results

However, unlike the traditional biomedical model of research, much research on health services is multidisciplinary, with the consequence being that a variety of qualitative and quantitative, descriptive and analytical research methods are available (Bowling,

1997). All methods have their problems and over-reliance on one method can lead to questionable validity of the final results. The aim of health services research is to produce valid and reliable research data on which to base appropriate and acceptable health service provision (ibid.). Therefore the research knowledge acquired needs to be developed into action if the discipline it to be of value. Relating this definition of health services research to the original objectives of this study, one can clearly see that this study can be classified as health services research, with two principal research components:

1. To develop a novel modelling methodology based on the TQM philosophy which describes the interactions between internal and external customers and suppliers
2. To test the applicability of customer-supplier modelling within a clinical directorate

With the overall aim of developing a framework for quality improvement.

3.2.1 Research paradigm

The reported success of Total Quality Management and other quality improvement approaches in industry has led to the hypothesis that TQM, an holistic management philosophy, offers a possible paradigm for health services. A core assumption throughout this thesis is that if QA systems are established and implemented appropriately then quality improvements will be realised which in the short term should impact on both provider and public satisfaction with health services and in the long term should improve the health of the population. Thus accepting this assumption, consideration must also be given to the health care environment itself that is one of the most mixed paradigms within which to work. Not only is the work force a highly skilled, multi professional group, the use of sophisticated technology is promoted and every patient who comes for treatment requires personalised care specific to their gender, race, socio-economic level and health status. It is within this context that the different research options are reviewed

3.2.2 Research options

In reviewing the research options available various issues and constraining factors were considered at the outset of this study so that an appropriate research approach was

employed. Additionally it is important to remember that health services research not only aims to produce valid and reliable research data on which to base appropriate and acceptable health service provision but that the new knowledge acquired needs to be developed into action if the discipline it to be of value. Key decisions about the strategy and methods to be used were based on the following issues and constraining factors considered relevant to thus study which are detailed in table 3.1.

Table 3.1 Key Issues and Constraining Factors

Issues	Factors Considered
Relevance of research	<ul style="list-style-type: none"> • QA very topical in relation to NHS reforms
Feasibility	<ul style="list-style-type: none"> • Building on experience from commercial/service sector • Small-scale study (1 full-time researcher, very limited funds) • Time limited (18 months maximum for field-work) • Limited access to study population (clinical directorate is a “live” work environment)
Coverage	<ul style="list-style-type: none"> • Selected pilot sites within St Thomas’ Hospital to be involved in developing the models and in testing their applicability • Data collection to focus on both internal and external customer-supplier requirements • Generalisations will have to be carefully considered because of small-scale research project • Response rate of participants should be high
Accuracy	<ul style="list-style-type: none"> • Data should be precise and detailed because all hospital staff (participants) will receive training before data collection • Participants are likely to give accurate/honest responses because data is not highly sensitive
Objectivity	<ul style="list-style-type: none"> • Will involve participants in all aspects of the research design and process to help avoid personal bias • Limitations of research approach will be considered in the analysis and interpretation of the data
Ethics	<ul style="list-style-type: none"> • If sensitive data are collected, confidentiality of information will be guaranteed

In considering the objectives of this study, it can best be described as “hands-on” research, because it is based on the premise that those who are going to use the models (to test their applicability) will also be totally involved in the model development process. This basically ruled out using traditional experimental methods due to the participatory and consensual approach towards investigating problems and developing plans to deal with them. A longitudinal (before and after) study was considered inappropriate, because depending on how the models were developed and used would to a large extent determine what aspects of quality were going to be addressed. Likewise it was not feasible to include a control (non-intervention) group in the study because of;

- time and other resource constraints of the project,
- the ethics of using control groups in social research,
- the developmental nature of the research

making it very difficult to draw any meaningful conclusions from this type of comparison.

To ensure ownership of the process a fully participative process with the participants was important for the two distinct components of this research project.

Component 1: to develop a novel modelling methodology based on the TQM philosophy and construct customer-supplier models for a clinical directorate that describe the interactions between internal and external customers and suppliers

Component 2: to test the applicability of customer-supplier modelling through case studies within a clinical directorate

Thus component 1 is a descriptive study, largely depending upon qualitative field research whilst for component 2 a case-study approach was selected for highlighting examples of the applicability and use of the models. Chapter 4 describes in detail the development of the customer-supplier modelling methodology. Chapter 5 gives an in-depth insight into the organisational structure and readiness of the hospital to QA approaches on board in light of the NHS reforms. Finally chapter 6 describes the resulting models and demonstrates 2 separate case-studies (examples) in how the models were used to identify, analyse and tackle quality problems.

3.2.3 Justification for approach

By considering the issues and constraining factors described in table 3.1, the researcher selected an action research approach using case-studies which offers a significant number of advantages in relation to more traditional research approaches. The principal reasons for this included:

- Size of study (small-scale)
- Practical and multi-disciplinary nature of research requiring active collaboration of participants (health care –practitioners) in both the construction and implementation of models

3.2.3.1 Action Research

Action research implies that the needs and problems are defined jointly with those involved. Subsequently methods are devised to deal with the problems and finally strategies are devised and implemented to improve the services. Hart and Bond (1995) select seven criteria which distinguish different types of action research and which together distinguish action research from other research methods in that it:

- is educative
- deals with individuals as members of social groups
- is problem focused, context specific and future oriented
- involves a change intervention
- aims at improvement and involvement
- involves a cyclic process in which research, action and evaluation are interlinked
- is founded on a research relationship in which those involved are participants in the change process

This approach is particularly relevant to the philosophy of quality improvement approaches and the QA cycle which encourages participation, learning by doing, focusing on the understanding and analysis of problems, change intervention and evaluation on a continuous basis and ownership of the overall process. Additionally this research study has been conducted from a systems perspective in which it is assumed that individual phenomena can only be understood if they are analysed in the context of the interactions and relationships within the wider system.

The disadvantages of this action research approach are that the necessary involvement of the practitioners can limit the scope and scale and at times, particularly in the early stages the extra burden of work for practitioners can be very difficult to balance with normal work duties. The “work-site” approach may affect the representativeness of findings and generalisations that can be made. In effect the research becomes constrained to what is permissible and ethical. For the researcher, ownership of the research process can become contestable within the partnership of practitioner and researcher. Finally in discord with the classical image of science the action researcher is unlikely to be fully detached and impartial in his/her approach to the research.

3.2.3.2 Case-Studies

The use of case studies has become extremely widespread in social research and particularly with small-scale research. Case studies are particularly useful when survey research or experimental research does not fit the underlying design of the study. The major advantages of using this approach is that the focus is on one or a few instances that allows the researcher to deal with the intricacies and complexities of complex social situations. The analysis is holistic rather than being based on isolated factors. Additionally a variety of qualitative and quantitative research methods can be used to capture the complexity of the issues, which in turn facilitates the validation of data through triangulation. This approach is also particularly suitable when the researcher has little control over events and can also concentrate effort on one research site. However the particular problems associated with case-studies include:

- Credibility of generalisations
- Perception of soft data lacking the degree of rigour expected of research
- Focus on process, rather than end results
- Negotiating access to case-study setting

3.3 Key Stages of the Study

This research study consisted of eight key stages as described in Table 3.2.

Table 3.2: Key Stages of Research

Key Stages	Comments
1. Conduct literature review	Literature search using CD-ROM (Medline), BIDS, King's Fund QA abstracts, European Foundation for Quality Management database, hand searches through back issues of relevant journals and review of 'the grey literature'
2. Critically appraise literature	Analysis of key articles, identifying gaps in the literature.
3. Develop/finalise hypothesis, aims and objectives of the research	Based on analysis of literature
4. Develop customer-supplier modelling methodology	Novel modelling methodology developed, based on gaps in the literature in relation to TQM tools and techniques
5. Define organisational context of study	Key informant interviews with external QA bodies, DoH, senior hospital managers and external customers (health authorities, GPs etc.)
6. Select pilot departments to test modelling methodology	Explicit selection criteria drawn-up and pilot departments are matched for similar characteristics
7. Construct models for pilot sites	Participative training sessions in orientation to QA, QA skills and customer-supplier modelling
8. Evaluate models through case studies (specific examples)	Regular QA meetings established with use of QA cycle and customer-supplier modelling. Case studies used to describe application and utility of models.

3.3.1 Study population

The study was conducted in South-East London with St Thomas' Hospital, a large inner-city university teaching hospital. The Hospital was purposely selected for this research study because of its willingness to co-sponsor this study, the strong research links that exist between St Thomas' Hospital and City University and because of the importance of studying the effect of the NHS reforms in one of London's biggest teaching Hospitals.

Respondents included senior hospital managers, staff from the two pilot sites and their immediate internal and external customers (hospital staff, patients, community, GPs, CHCs, health authorities, suppliers and DoH). Additionally key informants from industry and academia with substantial experience of the QA process provided important inputs during the different stages of this research study. Both an inpatient and an outpatient area participated in the study to reflect the two distinct types of health service provision offered by the hospital. In the case of the outpatient area this was already a pre-selected area for the study. For the in-patient area, group characteristics were matched to ensure similarities between the two study groups (refer to chapter 6, section 6.1).

3.3.2 Variables

Key variables investigated related to both internal and external customer and supplier expectation and perception of service quality and service provision. These variables were defined by the respondents and then categorised into interaction types in the customers-supplier models. To test the validity of the models a case-study approach was used.

3.3.3 Tools, data collection and analysis

3.3.3.1 Situation Analysis of St Thomas' Hospital (chapter 5)

To obtain an in-depth understanding of the organisational context of the Hospital and the process of health sector reform, key informant interviews were conducted with senior level managers and key external suppliers and customers. These were unstructured topic-based interviews. Due to the small sample size a manual, thematic analysis was conducted. Additional data was collected through study of hospital documentation, observation of hospital staff and their activities and informal discussions with key informants. All data were collected by the principal researcher.

3.3.3.2 Customer-Supplier Modelling (chapter 4)

Section 4.6 details the systematic design of the modelling methodology. It is important to note that in the collection and incorporation of data into the models, this was based on consensus techniques. Simple data collection tools listed in Appendices I-IV were designed to collect the key data required for describing service or product provision.

All staff completed at least one training session before completing the data collection forms. Once all data had been collected, they were entered into a spreadsheet by the researcher and cross-tabulated. Where anomalies occurred, both customer and supplier were re-interviewed to obtain consensus. Finally on completion of all the models, each member of staff revised their respective models to ensure that the models were representative.

3.3.3.3 Application of models using case-studies (chapter 6)

Due to the nature of this research and the time limitations in carrying out this field work (model development and application) a case study approach was used to evaluate whether customer-supplier modelling could be used to provide the framework for interdisciplinary quality improvement in a clinical directorate. In the two main case studies described additional tools were developed including simple survey cards, postal surveys, focus group discussions and knowledge questionnaires. The details of study population, sample size, tool design and data collection and analysis are included in chapter 6 and Appendices V-X.

3.3.4 *Limitations and constraints*

The principal challenge in action research is the difficulty of controlling for all confounding extraneous variables in natural settings, especially in light of the radical health reforms taking place at the time that this research was conducted. Whilst every effort has been made to ensure that this research study has been conducted rigorously, critically, objectively and with systematic collection, analysis and presentation of the data it is almost impossible to avoid a degree of bias. This is particularly the case in action research studies where the main drivers are the participants (collaborators), who were inevitably influenced by the political, cultural and social demands of working for the UK National Health Service during wide-scale reforms.

The other major challenge was in converting qualitative data into a quantitative form as represented in the models. Chapter 7 discusses the issue of eloquence and accuracy of the models and Chapter 8 recommends how this could be developed further.

3.4 Summary

This chapter has reviewed the various research options available and argued that the most appropriate research strategy is an action research approach using case studies in select pilot-sites to demonstrate the applicability of customer-supplier modelling. Because of the nature of action research, in that as knowledge is generated so it is implemented simultaneously this negated the need for control groups. The constraints and limitations are recognised of such an approach, which include the size of the study, generalisability of the results, possible research biases and ownership of the overall research process. Due to the participative nature of this research whereby the models are designed and implemented simultaneously by the participants, it does not lend itself to traditional experimental research approaches.

The following chapter defines in greater detail the rationale and framework for customer-supplier based on the Parasuraman Servqual model and on Schein's model of organisational culture. Chapter 6 defines in detail the construction of customer-supplier models for the Diabetes and Endocrine Directorate and details 1 micro and 1 macro level case study conducted and their resulting interventions.

Chapter Four

Customer-Supplier Modelling

“Lack of a single point of accountability creates an environment conducive to shifting or shirking responsibility. Helping to focus on the appropriate points of accountability in the system should be one of the key aims of a successful quality improvement programme”

Lohr, 1990

4.0 Introduction

In Chapter 3 the various research options available were reviewed and it is argued that the most appropriate research strategy is an action research approach using case studies in select pilot-sites. Whilst the limitations of such an approach are recognised, it is concluded that due to the participative nature of this research the study does not lend itself to more traditional experimental approaches.

Therefore in this chapter the methodological issues in relation to the rationale and development of ‘customer-supplier’ modelling, are discussed. It highlights the technical, political and cultural issues involved in establishing QA systems in a clinical environment and describes in detail the justification for and relevance of customer-supplier modelling in relation to TQM. The use of this modelling technique is presented at both micro and macro level as a tool to aid interdisciplinary QA. Finally, the relative merits of different implementation strategies are assessed and a framework for QA implementation is proposed, including an analysis of the significant role of the ‘clinical directorate’ for the institutionalisation and acceptance of QA.

4.1 Factors Involved in Establishing QA Systems

As in any sector and within any organisation it will not only be the technical factors that factors will influence the success or failure of new programmes. Equally important are the political and cultural factors. The health sector provides a particularly complex picture due to its unique and distinctive characteristics. Will the era of assessment and accountability actually provide what Ellwood (1988) says we need?

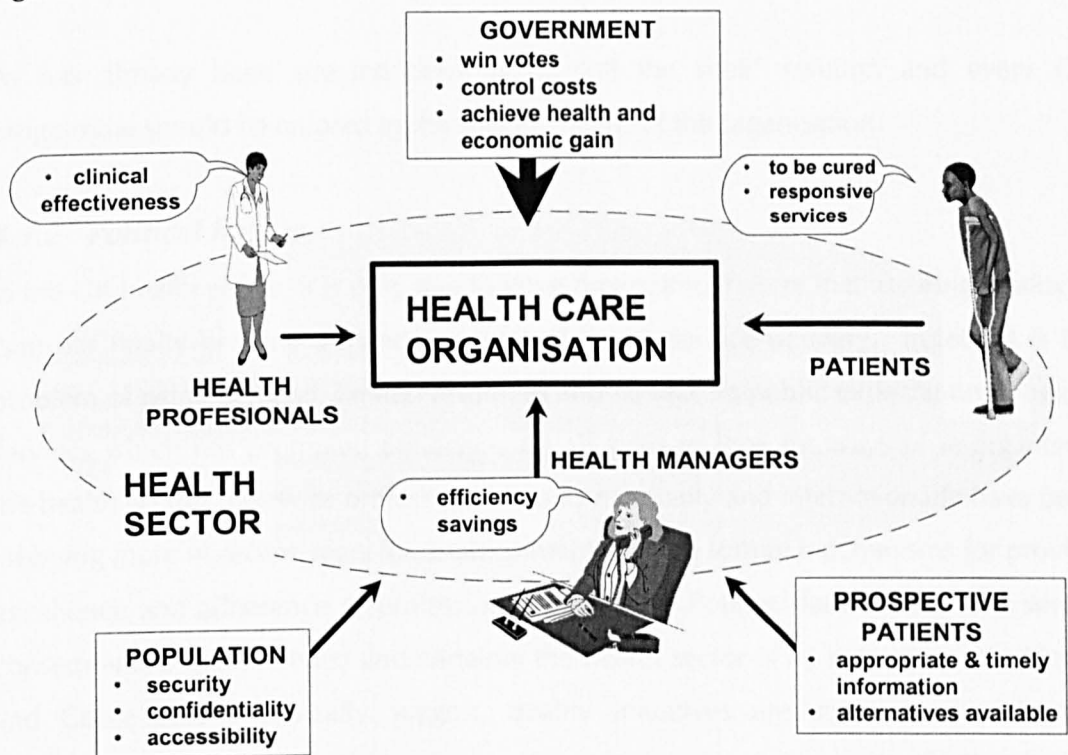
“a central nervous system that can help us cope with the complexities of modern medicine”

As Ellis and Whittington (1993) point out, health care organisations have two major distinctive features:

1. Their costs and effectiveness are difficult to determine.
2. They are the largest and most complex conglomerate organisations devoted to the practice and support of professional activity.

The health sector also has a large number of different and legitimate stakeholders which include government, health service managers, health care practitioners, patients and their carers, prospective patients and the population in general. Each stakeholder exerts different types of power, has conflicting interests and expectations and displays different behaviour, as illustrated in Figure 4.1. It is vital that all stakeholders have the opportunity to be heard so that the QA system can be designed specific to the context in which it is operating.

Figure 4.1: Stakeholders



4.1.1 Technical factors

“Modern medical care is a complex enterprise entailing interactions among doctors, nurses, and other health professionals; complex information systems; an immense array of pharmaceutical products; and complex devices, equipment, and rules of procedure. For good results these complex elements must be assembled effectively, and improvement depends on the processes of care and management that orchestrate these many elements. Orchestration is not easy.” (Berwick, 1992b).

The array of QA literature is huge and has already been reviewed in Chapter 2. To achieve a successful quality assurance programme it is important that technical factors are fully defined and tackled systematically. Technical factors can be grouped into five broad categories which include:

1. Definitions of quality and quality assurance
2. Organisational contexts of QA
3. Measurement and methodology in QA
4. participation in QA
5. resource implications of QA

As has already been stressed there is no 'off the shelf' solution and every QA programme should be tailored to the specific needs of the organisation.

4.1.2 Political factors

In the UK health sector, it is only due to government imperatives that assuring quality of care has finally become a mandatory part of health service delivery. Indeed it is the problem of rising demand, limited resources and increasing public expectation of health services which has prompted politicians on all sides to look for ways of re-organising the health sector. Likewise professional bodies nationally and internationally have been lobbying more in recent years for establishment of more formal mechanisms for proving excellence and adherence to professional standards. Political factors can have severe consequences if not heeded and certainly the health sector is no exception. As Pfeffer and Coote (1991) cynically suggest, quality initiatives are sometimes used as a smokescreen to mask the effects of intensifying pressures on resources. On the right of the political spectrum quality is broadly connected with the idea of 'value for money', whilst on the left quality appears to occupy a position between the traditional goals of 'liberty' and 'equality'. In fact in the latest government reforms (DoH, 1997), the government talk about fairness and partnerships, co-operation not competition. But whatever the political arena, health service providers must be fully aware of the political agenda and be prepared to work within these political frameworks, interpreting policy changes in a beneficial way to the health system.

4.1.3 Cultural factors

In health care there is increasing recognition that quality is not just a matter for individual practitioners, units or professions. The WHO working group on QA in 1983 note that QA must be seen as an agent of organisational change and that QA staff will need to develop extensive skills in the identification of the causes of the resistance to change in organisations and in strategies and tactics of organisational change. Therefore it is necessary to consider the distinctive characteristics of health care organisations.

Innovators may have to attend to change at more profound levels than might at first seem to be required. Zaltman and Duncan (1977) suggest that different change strategies are required depending on organisational style, culture and structural characteristics. They list the different change strategies as:

Re-education: This strategy assumes that employees operate rationally on the basis of the information available to them. If the problem and options are presented clearly they will arrive at commitment to change.

Persuasion: This strategy depends on skillful presentation of the message that change is both necessary and feasible. It requires charismatic and inspirational leadership and probably works best in value driven organisations.

Facilitation: In this strategy the main focus is on the individuals involved in the change. Techniques such as team building and awareness raising are used in groups of people most likely to be affected by the change.

Power: Change is effected through the use of the organisations power of coercion.

The introduction of a new approach such as TQM will not succeed unless it ‘fits the culture’. If the disjunction is too marked the culture itself will have to change (Ellis and Whittington, 1993). Every organisation has a culture which can be both a positive or negative force in achieving effective performance. Effective organisations have internal cultures that reinforce the importance of excellence. Cultures provide stability and certainty for their members. Individuals know what is expected, what is important and what to do (Gibson *et al*, 1990). Refer to section 4.5 for a more detailed discussion on group culture.

Quality related initiatives are particularly likely to provoke professional resistance as they inevitably impinge on professional values and traditional practices. However, professionals are more likely to embrace change if the instigators are themselves

professionally credible. Clear and explicit quality procedures are always easier to establish in less professionalised areas of the organisation. Health care professionals have characteristics which distinguish themselves not only from non-professionals but from other professionals. There is considerable evidence that health professionals, who are by definition and nature altruistic and committed to improvement, find quality assurance appealing (Ellis and Whittington, 1993). Professions are also inherently self-perpetuating and intensely protective of their role and status. Quality assurance systems which do not recognise the importance of professional competence and judgement are likely to be regarded as intrusive and to be rejected or obstructed.

4.2 TQM Model in Health Care

When attempting to implement a QA programme, based on the TQM philosophy in a hospital, it runs counter to many of the underlying assumptions of professional bureaucracies. Total Quality Management represents a total paradigm shift in health care management and presents a series of potential conflict areas in the way health organisations are managed. For example TQM calls for continuous and relentless improvement in the total process that provides care, not simply in the improved actions of individual professionals. It requires accepting the fundamental assumption that most problems encountered in a health care organisation are not the result of errors by administrative or clinical professionals, but failure of the system within which all personnel function. An obvious conflict is between the relentless enquiry of TQM and the established norms of professional autonomy. This is not merely a conflict between administrators and clinical professionals, it is a fundamental challenge to the way all professionals think about quality, evaluate and regulate themselves, and gain and protect their professional domains and autonomy (McLaughlin and Kalzuny, 1990).

TQM is a managed change agent designed to move an organisation from a culture based on checking people, correction and fire-fighting to a culture involving everyone in the organisation in total and continuous improvement (Macdonald and Piggott, 1990). TQM only comes about when employees are involved, committed and understand how their roles fit in with the processes to which they contribute and the overall TQM aims of the organisation. The challenge is to encourage staff to become more focused towards 'thinking quality' in the way they work. This requires senior staff

to foster more open communications and initiate team building. It also involves staff having an understanding of who their immediate internal and external customers are, and being aware of and understanding their requirements and expectations. It requires that the different professions cooperate and work together in achieving TQM aims. TQM is not about expecting staff to do a perfect job, but about giving staff the necessary tools, training and support to get to grips with poor process quality. If TQM is to succeed it requires leadership from senior managers and professional staff along with the total commitment, ownership and active involvement of everyone. This will only come about through people understanding what TQM can achieve where other initiatives have failed.

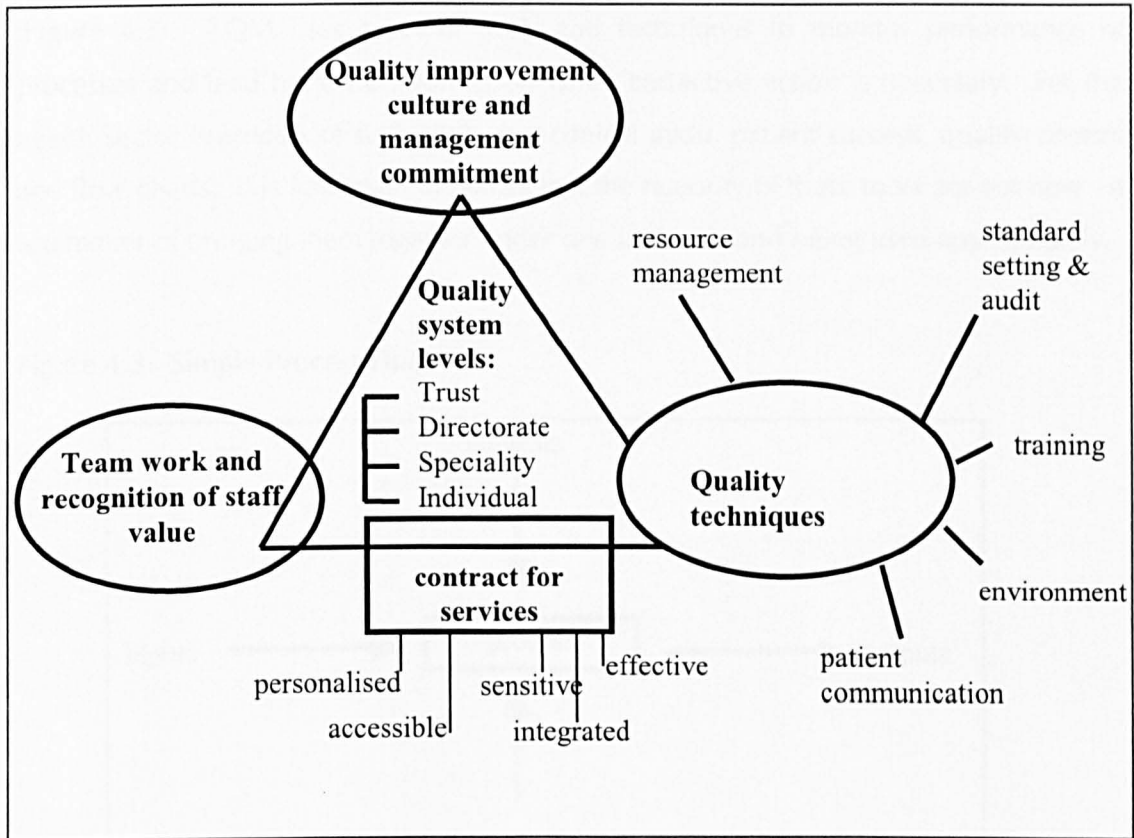
Exactly how much will need to be done and how much time will be required to take an organisation through to total quality management depends partly on its condition at the outset; its organisational readiness. Traditions, skills, structures and culture differ between organisations. The approach used successfully in one place may not necessarily be the best way elsewhere.

The four major components of TQM, illustrated in Figure 4.2, are characterised in the TQM health care model (Koch, 1991) adapted from John Oakland (Department of Trade and Industry, 1989). The process of organising and managing quality improvement in health care must be seen as an integration of key strategies such as resource management, medical audit, business planning etc. which are all complementary to TQM in their implicit or explicit objective to offer increasingly higher quality care to the patient. As a focus for TQM it is vital that contractual obligations to provide services are met. Let us consider the four key components required for establishing a TQM philosophy:

1. Establishment of a coherent quality system
2. Implementation of quality tools and techniques
3. Clear management commitment from both clinicians and general managers
4. Team work and recognition of staff value

Figure 4.2: TQM Health Care Model

(Source: Koch, 1991, 1992)



4.2.1 The system

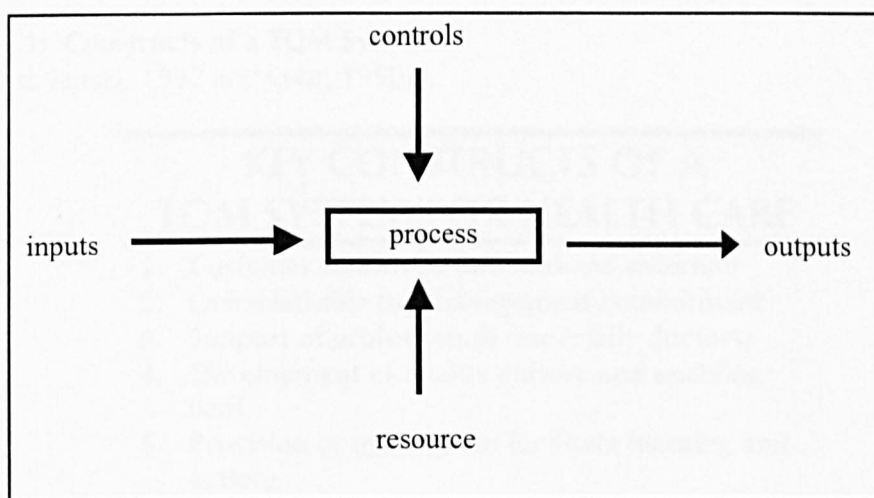
To achieve TQM there is a requirement for the development and implementation of a quality system which defines the roles, responsibilities, processes and procedures within the organisation in order to ensure that staff are able to and do carry out quality assurance activities. The QA system can be defined at individual, speciality, directorate and unit level. BS 5750 is one example of such a system which sets out the methods by which a management system can be implemented in an organisation to ensure that all the specified performance requirements and needs of the customer are fully met.

The quality system should be built in a way which meets the specific organisational and service requirements. Many TQM initiatives fail due to lack of robust quality systems being in place.

4.2.2 Tools and techniques

All processes can be monitored and brought ‘under control’ by gathering and using data (Figure 4.3). TQM uses a set of tools and techniques to monitor performance of processes and feed back the information when corrective action is necessary. For the health sector examples of such tools are: clinical audit, patient surveys, quality control and flow charts. It is important to realise that the majority of these tools are not new - it is a matter of bringing them together under one umbrella and being used appropriately.

Figure 4.3: Simple Process Diagram



4.2.3 People and team work

The complexity of many processes in health care place them beyond the control of any one individual. The only way to tackle quality problems concerning such processes is through team work. This allows:

- A greater variety of problems to be tackled
- Exposure to a greater diversity of knowledge, skill and experience
- Cross departmental or functional boundaries can be dealt with more easily

When properly managed, teams improve the process of problem solving, producing results quickly and economically. Teamwork is essential for building trust, improving confidence and communications and developing interdependence.

4.2.4 Management

Management commitment to TQM, at speciality, directorate and unit level must be real. This involves committing new resources or reallocating existing resources in terms of time, manpower and money. Those with management responsibility must realise that people do not need to be coerced to perform well, but that they want to achieve, accomplish, influence activity and challenge their abilities as long as the system permits them to do so.

Thus the key constructs of a TQM system for health care emerge (Table 4.1):

Table 4.1: Constructs of a TQM System

(Adapted: James, 1992 and Lohr, 1990)

KEY CONSTRUCTS OF A TQM SYSTEM FOR HEALTH CARE
1. Customer sensitivity (internal and external)
2. Demonstrable top management commitment
3. Support of professionals (especially doctors)
4. Development of quality culture and enabling staff
5. Provision of training (to facilitate learning and action)
6. Interdisciplinary teamwork
7. Processes for continuous quality improvement
8. Quality specifications (qualitative/quantitative standards, protocols, procedures etc which are subject to review)
9. Effective communications

These themes are evident in the central features of TQM as set out by Oakland (1989) described in Chapter 2.

McLaughlin and Kalzunny (1990) assert that both models - TQM and the professional bureaucracy - must be accommodated if TQM is to make a difference in health care organisations. Ellis and Whittington (1993) make similar assertions when they state that:

“Quality assurance systems which do not recognise the importance of professional competence and judgement are likely to be regarded as intrusive and to be rejected or obstructed.”

For example the professional model is important in handling the flood of technical information that medical research has developed whereby specialisation is a way of handling information overload. Galbraith (1973) suggests that TQM can be seen as a methodology for developing lateral linkages that transfer information between disciplines as needed in the traditionally highly compartmentalised organisation of health care delivery systems. McLaughlin and Kalzunny contrast the two models (Table 4.2).

Table 4.2: Professional vs. TQM Model

PROFESSIONAL MODEL	TQM MODEL
<ul style="list-style-type: none"> ◆ Individual responsibilities ◆ Professional leadership ◆ Autonomy ◆ Administrative authority ◆ Professional authority ◆ Goal expectations ◆ Rigid planning ◆ Response to complaints ◆ Retrospective performance appraisal ◆ Quality control 	<ul style="list-style-type: none"> ◆ Collective responsibilities ◆ Managerial leadership ◆ Accountability ◆ Participation ◆ Participation ◆ Performance and process expectations ◆ Flexible planning ◆ Benchmarking ◆ Concurrent performance appraisal ◆ Continuous improvement

Thus TQM represents an approach with a great deal of potential, yet it also presents some basic conflicts with the underlying norms and expectations that guide hospital bureaucracies. Whilst the conflicts exist, the problems are not intractable and, if recognised, can present opportunities to improve the health system.

4.3 Customer Sensitivity

The key and distinguishing tenet of the TQM philosophy in contrast to other quality improvement methodologies is its customer focus (both internal and external). There is little evidence to suggest that this issue is being addressed coherently in health care delivery systems. In general, health care providers have taken a passive approach,

promoting patient suggestion schemes and satisfaction surveys, which do not necessarily include all their external customers, whilst with their internal customers few concrete examples exist to show any serious attempts of understanding staff expectation and need. This implies that there is a requirement for a systemic and systematic approach to understanding both internal and external customer needs and expectations which can bring together the different provider and consumer groups and create an appropriate framework and environment for interdisciplinary audit and quality improvement activities.

In this thesis, rather than becoming involved in sociological interpretations of labels, customer, consumer, user and client have been used interchangeably, to refer to the patient and health service personnel, depending on the context. In terms of describing TQM, staff, patients, GPs, carers and other groups have been referred to as customers and consumers. In many cases the patient is also referred to as client or user because of the passivity implied in the term patient, which has mainly been used for distinguishing the person under medical treatment from other customer groups. A more detailed discussion is presented in Chapter 7.

4.3.1 The role of the consumer

Before looking towards developing novel techniques it is vital to understand and be aware of the different contributions that the consumer can make in promoting quality of care. Donabedian (1994) reminds us not to under-estimate the role of the consumer when he contends that:

“...the health care system is not a configuration of providers only. Consumers are an integral component; and if the system fails to produce quality, it is also because consumers have not acted concertedly to exercise their rights and bear their responsibilities.”

In his 1994 address at the International Conference for Quality in Health Care, he assigns consumers the following seven differing roles:

1. **Consumers as definers of quality** - It is clear with regard to interpersonal exchange that consumers play a decisive role in what is considered appropriate and

acceptable. Regarding technical care, consumers know much less, but they can be taught to distinguish good from bad, especially by prior experience of good care for a similar condition. If technical care is to be judged by its impact on health and welfare, consumers, if properly informed, must participate in determining what is best for themselves. In other words, the goals of care are jointly set by patient and practitioner; thus the patient, in effect, participates in defining what outcomes constitute quality.

2. **Consumers as evaluators of quality** - consumers can evaluate quality of care by expressing satisfaction or dissatisfaction with specified components of it, and as a whole. But besides being a judgement on care, satisfaction contributes to obtaining patient co-operation; and patient satisfaction is also a contribution to patient welfare, and for that reason, is a legitimate outcome of care.
3. **Consumers as Informants about care** - in addition to judging care, consumers can provide information about what they experienced during the process of care, and what the results of care were. This information is often difficult and expensive to obtain in other ways and it is information that can be used by others, together with additional data to make a comprehensive assessment of quality of care. Information obtained during the process of care is particularly useful; and the more patients are asked, the more they will observe, remember, understand and report.
4. **Consumers as co-producers of care** - we should not think of health care as something health care professionals provide and consumers receive. It is rather, the results of a partnership in which both patients and practitioners are active participants. The quality of care depends quite often on how well the patient carries out his or her responsibilities, as informant and as executor of the medical regimen.
5. **Consumers as targets of quality assurance** - if consumers are co-producers of care, it follows that a quality assurance activity needs to find out how consumers perform, why they perform as they do, and what can be done to improve their performance. To only monitor provider practice will give a partial view of the process of care, and of the potential for improving it. Strategies for improving consumer behaviour are as important as those directed at providers.

6. **Consumers as controllers of practitioner behaviour** - this is still another way in which consumers get involved in quality assurance, this time not as targets, but as supervisors. A well informed patient who actively participates in health care decisions can have a profound influence on how practitioners behave.

7. **Consumers as reformers of health care** - consumers can play an important role in reforming health care in at least four ways:
 - i) *by direct participation in care* - this has already been explained
 - ii) *through administrative support* - consumers are encouraged to make suggestions and express their opinions through surveys. These activities are only effective if consumers can see that their suggestions are taken seriously and providers give feedback on what has been done.
 - iii) *through markets* - provided that accurate information is available, consumers can choose among alternative sources of care and the success of practitioners and health care institutions will depend on market forces.
 - iv) *through political action* - when alternatives do not exist or are limited, consumers must resort to political action to bring about the needed reforms.

Donabedian concludes that it is the responsibility of each health care professional, individually and collectively to befriend and empower their actual and potential patients. In this way, the health care professions not only serve society as a whole, but also serve their own best interests in the long term. Although Donabedian's article refers directly to the patient as the consumer, the majority of the different roles he assigns are equally valid in the context of internal and external customers

4.4 Customer-Supplier Relationships

“.....having a discussion between customer and supplier without accusation and recriminations is the way to reduce the costs of poor quality by ensuring that non-conformances are seen as problems to be solved rather than the pig-headed behaviour of senseless idiots” (Gourlay, 1992).

A widely accepted definition of quality is ‘meeting the customer requirements’. Although often the emphasis is on external customers, in that all that is done is done for the benefit of the customer, it is also important to be aware of the internal customer-supplier relationships that exist within all organisations. For an organisation to be truly effective, every single part of it must work properly together, because every person and every activity affects and in turn is affected by others. The work of individuals and departments within organisations are interconnected. As such, people and departments act as their own internal ‘suppliers’ and ‘customers’ and their interconnected activities are intended to benefit the external customer. Thus they are both requesting services/products to use/consume and/or providing services/products for others to use/consume. This introduces the concept of the customer-supplier relationship.

In Parasuraman’s (1985) model of service quality reviewed in Chapter 2, he identifies that the consumer evaluates quality based on the difference between the expected service and perceived service (gap 5), which typically relies on their own experience with that service. This in turn depends on the nature of the gaps associated with the design, marketing and delivery of services. These gaps translate quite easily to the health care setting (Table 4.3).

Table 4.3 Translation of Parasuraman Model to a Health Care Setting

	Health Care Setting	Description
Gap 1	Patient expectation - health practitioner perception gap	The gap between patient expectations and health practitioner perceptions of those expectations will have an impact on the patient's evaluation of service quality.
Gap 2	Health practitioner perception - service quality specification gap (norms/protocols/standards)	The gap between health practitioner perceptions of patient expectations and the unit's service quality specifications (norms, standards, protocols, procedures) will affect service quality from the patient's viewpoint.
Gap 3	Service quality specifications - service delivery gap	The gap between service quality specifications and actual service delivery will affect service quality from the patient's standpoint.
Gap 4	Service delivery - external communications gap	The gap between actual service delivery and external communications about the service will affect service quality from a patient's standpoint.
Gap 5	Expected service - perceived service gap	The quality that a patient perceives in a service is a function of magnitude and direction of the gap between expected service and perceived service.

Thus using the Parasuraman model as a basis for understanding customer-supplier relations it can be deduced that:

1. An excellent dialogue between customer and supplier is required to understand customer perceptions and expectations of service.
2. Accurate information and excellent communication channels are necessary to ensure that customers receive timely and correct information about the service.
3. Adherence to service quality specifications are vital to ensure consistently high service quality (norms, protocols, procedures and standards).
4. Regular, systematic review of service quality specifications based on customer expectation and need is required.

BS 7850 part 2 (BSI, 1994) describes the basic unit of a supply chain as illustrated in Figure 4.4.

Figure 4.4: A unit of a Supply Chain
(Source: BSI, 1994)

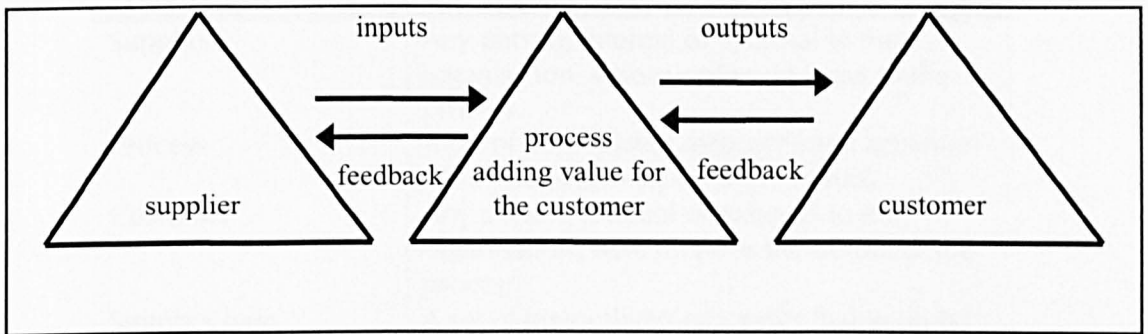


Figure 4.4 describes the relationship between supplier and customer, whereby the supplier provides inputs that are transformed by a series of actions into outputs. These are received by the customer who has needs, expectations and values, by which he/she judges the outcome; that is, ascribe benefit to the outputs. Both customer and supplier are part of that process which is denoted by the feedback arrows.

Figure 4.5 develops this further by describing the changing role of process owner, whereby the process owner can be both a customer and supplier. This model takes into account the inseparability of the production and consumption of many services.

Figure 4.5: The Changing Role of Process Owner
(Source: BSI, 1992)

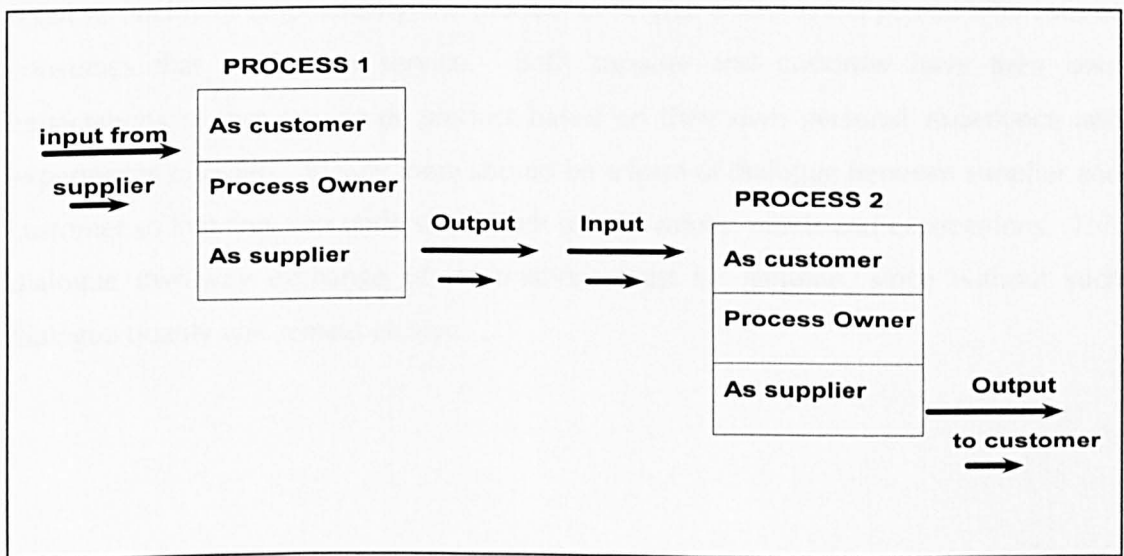


Table 4.4 defines the different terms used in the above model descriptions.

Table 4.4: Definition of Terms

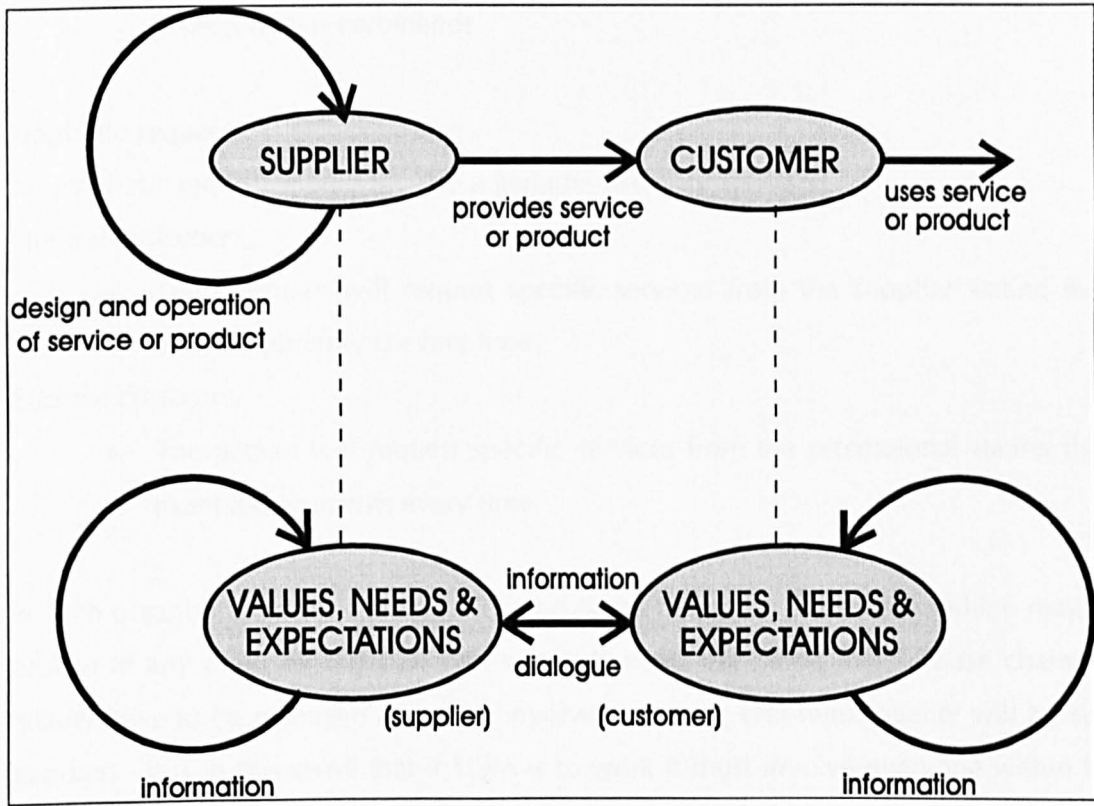
(Source: BS 7850, parts 1 and 2)

Definitions	Descriptions
Supplier	Any person, internal or external to the organisation, who supplies an input to the process.
Process	A set of inter-related resources and activities which transform inputs into outputs.
Customer	Any person, internal or external to the organisation, who receives the output of the process.
Supply Chain	A set of inter-related processes that accepts inputs from suppliers, adds value to these inputs, and produces outputs for customers.
Process Owner	The person responsible for performing and/or controlling the activity (normally both a customer and a supplier).

By bringing together the BS 7850 models and Parasuraman's service quality model, the two approaches are combined to depict the simple customer-supplier relationship (Figure 4.6) and also the customer-supplier chain (Figure 4.7).

The supplier is a person or unit which supplies a product or service as requested (tacitly or emphatically) by the customer. The supplier is responsible for the design and/or operation of that product or service in partnership and taking into account the customer's values, needs and expectations. The customer is the person or unit who requests (tacitly or emphatically) the product or service and/or is the person who uses or consumes that product or service. Both supplier and customer have their own expectations of that service or product based on their own personal experience and experiences of others. Ideally there should be a form of dialogue between supplier and customer so that they can understand each other's values, needs and expectations. This dialogue (two-way exchange of information) must be genuine, since without such dialogue quality will remain elusive.

Figure 4.6: Simple Customer-Supplier Relationship



It is important to reflect on why tacit and emphatic requests take place, which are especially relevant to the health service industry

Tacit request

In a tacit request there may be no dialogue at all, or it will be one-way only.

Internal customer:

- service is provided on a routine basis, therefore no need for customer to request the service every time. Service quality specifications exist, which may or may not have taken into account customer need and expectations.

External customer:

- patient lacks the expertise, accepting professional judgement and will tacitly agree with whatever services the provider requests on behalf of the patient.
- patient is too ill to make any decision about service options.

- service is provided to patient on a routine basis. By the patient presenting for their appointment this denotes their tacit acceptance of whatever the professional recommends.

Emphatic request

An emphatic request should involve a genuine two-way dialogue.

Internal customer:

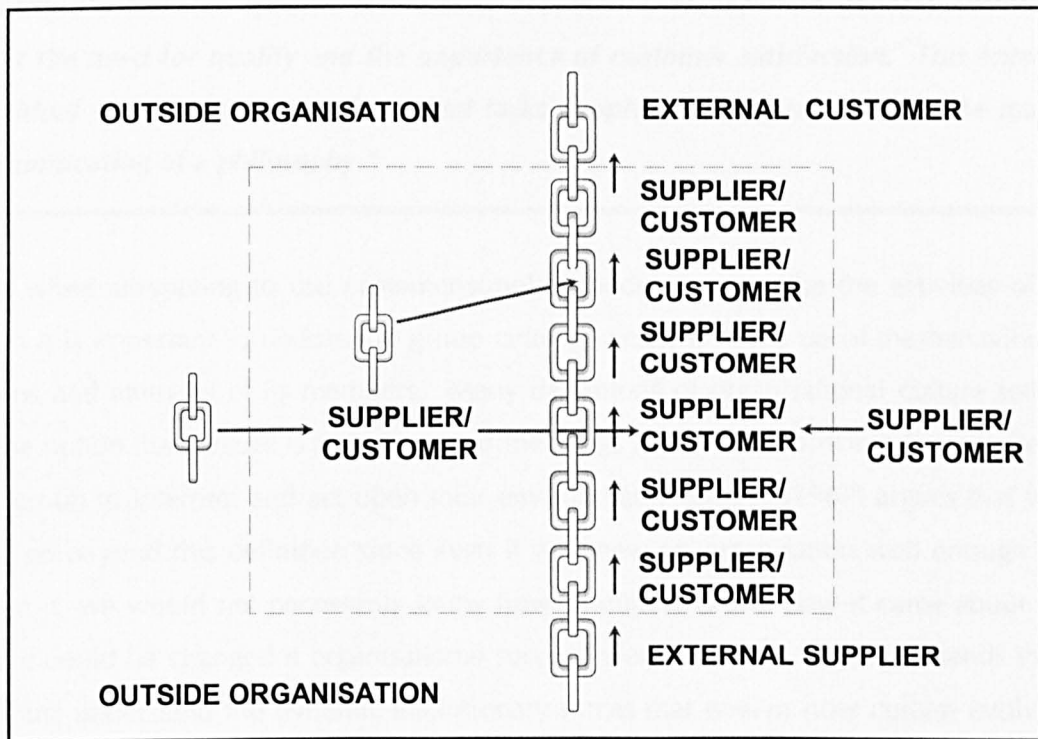
- The customer will request specific services from the supplier stating their exact requirements every time.

External customer:

- The patient will request specific services from the professional stating their exact requirements every time.

In each organisational structure a series of customer-supplier chains exist which may be broken at any point by the customer's requirements not being met. These chains of quality have to be managed and must involve everyone, otherwise quality will be sub-standard. It is in this sense that if TQM is to work it must involve everyone within the organisation. Also the TQM philosophy emphasises the importance of the customer. Therefore, constant feedback to staff is vital to show that their behaviour is bringing about greater customer satisfaction. This implies open communications with internal customers and establishing routine and regular feedback mechanisms with external customers. Figure 4.7 illustrates a customer-supplier chain, highlighting the changing role from customer to supplier of the internal customers/suppliers. This is basically an expansion of Figure 4.5 which described the changing role of process owner.

Figure 4.7: Customer-Supplier Chain



Thus it follows that to understand customer-supplier relationships an understanding of how different groups interact with one another and how group culture evolves is required.

4.5 Values and Group Culture

“...we found that, in some cases, attempts were made to sweep TQM in overnight, but culture takes time to evolve” (Flood, 1990).

Many recent efforts argue that the organisational culture is the key to organisational excellence, which is the precise assertion of the TQM philosophy. With the TQM or excellence approach a great deal of time and effort may be expended towards changing peoples attitudes, with senior management exhorting their staff to value quality, their customers and the need to get it right first time. Ullah (1991) argues that most of this will simply be a waste of time. General attitudes like those mentioned are only weakly and distantly related to behaviour. Ullah says that:

“to shape attitudes that result in quality conscious behaviour, we must therefore focus on attitudes towards specific job-related behaviours, rather than general attitudes about the need for quality and the importance of customer satisfaction. This entails individual communication to the actual tasks people perform, rather than the mass communication of a philosophy.”

Thus when attempting to use customer-supplier models to describe the activities of a group it is important to understand group culture, which is made up of the behaviour, actions and attitudes of its members. Many definitions of organisational culture settle for the notion that culture is a set of shared meanings that make it possible for members of a group to interpret and act upon their environment. Schein (1987) argues that we must go beyond this definition since even if we knew an organisation well enough to live in it, we would not necessarily know how its culture arose, how it came about or how it could be changed if organisational survival were at stake. Schein contends that we must understand the dynamic evolutionary forces that govern how culture evolves and changes. Thus he describes organisational culture as:

“..... the pattern of basic assumptions that a given group have invented, discovered, or developed in learning to cope with its problems of external adaptation and internal integration, and that have worked well enough to be considered valid, and therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems.”

Problems of external adaptation are those that ultimately determine the group’s survival in the environment. However a group or organisation cannot survive if it cannot manage itself as a group. External survival and internal integration are therefore inextricably linked. Even though one can distinguish between the external and internal problems, in practice both systems are highly interrelated and interdependent. Using Schein’s definition of organisational culture, customer-supplier modelling is defined.

4.6 Customer-Supplier Modelling

Even in the most simple of transactions, there is very rarely only one supplier and customer involved. When examining more complex clinical practice there tend to be many different customers and suppliers in order to satisfy one operation. This results in the formation of a customer-supplier model, which is in effect a series of single customer-supplier relationships linked together. This modelling technique can be used to describe the activities of an individual, process, speciality, directorate or unit. To detail the operational and clinical activities of one of these categories it must include all the different provider groups involved in delivering that specific service. Thus, this technique has the potential for providing the framework for bringing the different provider groups together and also providing a degree of coherency for audit and quality improvement activities.

4.6.1 Stages in the modelling process

It would seem logical, therefore, in modelling customer-supplier relationships to divide external and internal systems into two quite separate parts which directly relate to Schein's description of organisational culture. These are 'external adaptation modelling' and 'internal integration modelling', where

- **External adaptation** modelling is concerned with how services, products and people interface with the group and
- **Internal integration** modelling is concerned with what actually happens within the group

To design and construct these models in the first place requires total involvement of the group in question, since it is only these people who can identify what services they supply and consume and with whom they interact.

4.6.2 External adaptation modelling

It would seem more logical to start with external adaptation modelling, so that the group can jointly define how they work and adapt with other people and organisations. This involves pin-pointing the external bodies which have an influence over and active involvement in the way a particular group of service providers operate and deliver

health care. These external bodies may be suppliers, customers or both. The different stages in the external adaptation modelling process are listed in Table 4.5.

Table 4.5: Stages of External Adaptation Modelling

EXTERNAL ADAPTATION MODELLING:		
STAGES	DESCRIPTION	COMMENTS
Stage 1	Identify the boundaries of the group.	Clinical directorate, ward, department, etc.
Stage 2	Involve everyone in the group in the modelling process.	Ensure that at least one member from each discipline is present.
Stage 3	List all people, departments and outside organisations which interact with the group.	Includes individuals or other groups within the organisation and external to the organisation.
Stage 4	Define the service or product being supplied or used by these external bodies.	Simple definition of what is being supplied or consumed.
Stage 5	Define them as customers and/or suppliers.	Definition based on whether they are providing or consuming services.
Stage 6	Identify the link person within the group who initiated the request for the service.	Person/sub-group responsible for ensuring that request or receipt of service.
Stage 7	Construct external adaptation model.	Unrefined model.
Stage 8	Identify priority links.	Group decides who are key external suppliers and customers.
Stage 9	Review and refine model.	Second version model produced which is reviewed on continual basis.

Stage 1: identify the boundaries of the group

At the start of the modelling process it is vital that the group members are clearly defined and identify themselves as a working group. Unless consensus is reached it is impossible to proceed with the modelling process. It is also important to decide on the size of the group. For example, there will be sub-groups within the main group. The size of the group and its composition will very much depend on the overall objectives of the modelling process.

Stage 2: involve everyone in the group in the modelling process

This is important to ensure that all dimensions of the group's work are taken into consideration. Obviously, practical realities of work will not always allow every member of the group to be present, but at least one member of each discipline or service should be represented.

Stage 3: list all people, departments and outside organisations which interact with the group

In order to understand how the group as a whole adapts externally to other people, departments or organisations, external to the group, it is necessary to list each of these different bodies.

Stage 4: define the service or product being supplied or used

Stage 4 of this process involves defining services or products supplied or used by the different external bodies listed at stage 3.

Stage 5: define them as customers and/or suppliers

In some cases the external bodies will be both supplying and consuming services, whereas in other cases it will be one or the other. It is important to match the exact services and/or products in relation to whether they are customer or supplier to the group.

Stage 6: identify the link person within the group who initiated the request for or provision of the service

In order to create some level of accountability it is extremely important to specify the link person from within the group who is responsible for initiating the provision of, or request for the services/products listed.

Stage 7: construct external adaptation model

At stage 7, the first draft external adaptation model can be constructed, which should provide a map of all the different customers and suppliers who have some type of regular interaction with the group.

Stage 8: identify priority links

If there is a considerable number of bodies which interact with the group it may be advisable to prioritise the key links which account for the majority of service/product provision and consumption.

Stage 9: review and refine model

Review and refining of the model is necessary, as new services are provided/consumed, new members join the group and quality actions alter working relations and key processes.

The end product is a formal depiction of all the suppliers and customers, showing the services or products provided and their link into the group.

4.6.3 Internal integration modelling

The second part of the modelling process involves defining quite explicitly how the group work and integrate together. This is describing how they act as suppliers and customers to one another and is, in essence, describing the internal functioning of the group. It follows a sequential set of stages similar to external adaptation modelling. The stages are illustrated in Table 4.6.

Table 4.6: Stages of Internal Integration Modelling

INTERNAL INTEGRATION MODELLING		
STAGES	DESCRIPTION	COMMENTS
Stage 1	Identify the boundaries of the group.	Clinical directorate, ward, etc.
Stage 2	Involve everyone in this group in the modelling process.	Ensure that at least one member from each discipline is present.
Stage 3	List all people who you interact with within the group.	Includes all individuals within the group.
Stage 4	Define the service or product being supplied or used by this person.	Simple definition of what is being supplied or consumed.
Stage 5	Define them as customers and/or suppliers.	Definition based on whether they are providing or consuming services.
Stage 6	Identify the link person who initiated the request for the service.	Person/sub-group responsible for ensuring request or receipt of service.
Stage 7	Construct internal integration model.	Unrefined model.
Stage 8	Cross-tabulate to check for anomalies.	There are likely to be inconsistencies between what suppliers believe they are supplying and customers believe they are requesting.
Stage 9	Draw up list of the key interaction types.	Obtain group consensus on the key interaction types.
Stage 10	Define each link (interaction type).	Each link must be typed, based on consensus list of interaction types.
Stage 11	Perform final review of model.	Second version model produced which is reviewed on continual basis.

The end product is a formal depiction of the internal functioning of the group. This will consist of several models to represent the various professional and support staff within the group.

4.6.4 Macro level modelling

At a macro level the basis is to provide simple models/maps which show all the different external departments and bodies which interact with the group as well as producing models/maps of how individuals work internally with one another. The key difference between a customer-supplier map and a model is that the map will simply define the customer-supplier relationship without specifying the interaction type, whereas the

customer-supplier model will specify all interaction types involved in each customer-supplier relationship.

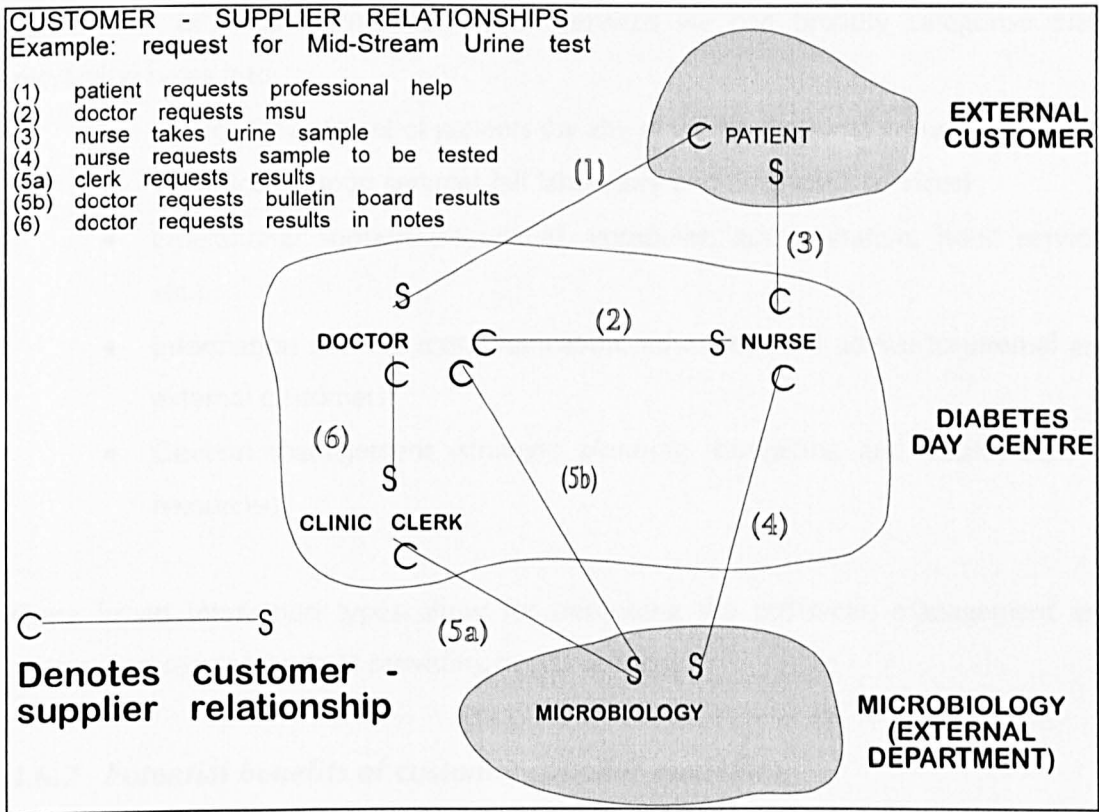
Thus when attempting to systematically improve quality customer-supplier models can be used as a tool to understand the system as a whole, avoiding the danger that any one quality initiative will be at the expense of an unrecognised loss of quality elsewhere. Therefore at a macro level the aim is to focus on key processes and produce maps as the basis for then identifying areas for quality improvement. This is important, because often when things go wrong it happens not within a single functional area but rather at the boundaries or interfaces among functions. It becomes very easy to blame other people and departments, because of the difficulty of seeing the process of work as a whole; the way the patient experiences it.

4.6.5 Micro level modelling

However, this modelling technique can also be used at a micro level by picking out a specific link and expanding it, or by picking out a specific procedure and identifying all the customer and suppliers in the process being defined. It is useful to refer to the macro level model when developing a micro level model.

Figure 4.8 gives a simple example of a customer-supplier micro model. The model shows the different customers and suppliers involved when ordering a specific test (eg a mid-stream urine test) and its results. The focus of this model is the diabetes day centre which is the main provider of care for the patient. The patient is described as an external customer, since he/she is the ultimate beneficiary of care. Microbiology is labelled as an external department, because it is not an integral part of the day centre (which is the defined group). The customer-supplier relationships, numbered from one to six, show the various stages of delivering this service.

Figure 4.8 Micro Level Model of a Procedure



It requires only one break-down in one of the customer-supplier links to have to repeat the whole procedure.

4.6.6 Interaction types

Once the simple maps have been produced there is a need to formally define the interaction types between the different members of staff and the different units to give more significance to the models (stages 9 and 10 of internal integration modelling). These interaction types can also be weighted to highlight which are the priority links (stage 8, external adaptation modelling). However it is also important that the models are not overcomplicated or else they will not be used as a QA tool by the staff with heavy work commitments. There is the additional danger in prioritising links because this may result in devaluing the importance of some of the group members' job functions.

Obviously these interaction types will vary enormously depending on the type of organisation or department. For health services we can broadly categorise these interaction types into:

- Clinic management of patients (by any of the professional groups)
- Technical support services (all laboratory and diagnostic services)
- Operational support (secretarial, computer, administrative, hotel services etc.)
- Information services (communication, education and advice to internal and external customers)
- General management (strategic planning, budgeting and deployment of resources)

These broad interaction types allow for describing the technical, management and information requirements of providing health services.

4.6.7 Potential benefits of customer-supplier modelling

The real aim of customer-supplier modelling is to allow staff to understand work as a process. As Berwick (1992a) rightly says the key questions become:

“What are the key processes?.....and, how exactly do we carry out these processes?”

This is very important because when things go wrong it is usually not the fault of the individual, but rather a fault of the system.

It is proposed that customer-supplier modelling can be used as the basis for this systems thinking. The modelling technique can be used at a macro level to describe activities/processes at individual, speciality, directorate or unit level. It can be used at a micro level to explore in depth particular weak links or specific procedures. Whatever level this modelling is used at it will still be divided between internal integration and external adaptation modelling.

The benefit of this approach is that it has the potential to:

- Provide an holistic, interdisciplinary, systems approach
- Provide a framework for interdisciplinary quality improvement activities

- Improve understanding of group culture
- Identify current work practice
- Help prioritise quality problems
- Highlight quality and organisational problems
- Pinpoint weak relationships
- Acknowledge different levels of care and outside organisations
- Identify the critical links between different levels of care
- Recognise the contributions to care given by all professional and support staff
- Include both the clinical and non-clinical aspects of the health care system

An important practical issue for the modelling process is that sufficient time is allocated to the modelling process to ensure accurate models are produced. It is vital that all staff are involved in this process or else the models will not be fully representative and it is equally important that these models are updated on a regular basis, especially when quality actions alter working relationships and key processes.

4.7 Implementation Strategies

“Within the health service itself there is a great need to bring together quality systems. At present the gap between professional activity and quality promotion and management remains wide. And managers complain that many theoretical approaches to quality are downright impossible to turn into practical initiatives at local level” (Davies, 1992).

There has been a lot of rhetoric about different methodologies and theoretical frameworks for assuring quality of health services and much less information about how to apply theoretical frameworks into working implementation strategies. Many health care organisations have shied away from implementing organisation-wide TQM programmes on a par with those carried out in industry. The reasons are numerous, but are mainly due to competing priorities, initial resource requirements and the commitment involved in establishing such a programme.

However the TQM philosophy can be equally applicable to a whole organisation as it is to a group within an organisation. Taking study areas where there is already interest will make implementation easier and choosing areas where it is likely to have an immediate impact will help to demonstrate success early on. Successful trials can then be extended to other areas of the hospital and hence reduce the risk of things going wrong. In light of the establishment of clinical directorates they would seem a very appropriate organisational structure through which to pilot such an approach. Thus by proving success in a smaller area it is likely to win more managers over to committing resources and increase ownership for quality.

4.7.1 Clinical directorate approach

Health care is basically inter-professional in that the patient is dependent on a health care package delivered by a range of professionals, yet QA is most frequently carried out by mono-professional groups. There is an obvious need for techniques and measures designed for inter-professional activities and for quality management systems which encourage their development and use. It would also be sensible to foster techniques which facilitate dialogue between professionals and other groups such as managers, support workers and indeed consumers. Health service organisation is itself relatively compartmentalised and there is a danger that current quality systems will consolidate divisions rather than break them down.

A very effective organisational structure through which to drive QA is the clinical directorate. As Williamson (1991) states:

"a clinical directorate implies speciality management by a doctor, nurse and manager. It manages the entirety of the service and holds its own budgets. It is responsible for saying what will be done and how, and for monitoring the effectiveness of its decisions. It is in effect, the management entity at the sharp end of patient care since it has to grapple with pricing, input and quality issues all in one, all at the bedside."

Driving QA through clinical directorates should ensure an interdisciplinary approach, from a group bound together with common purpose. The impact on health services should be seen early on since clinical directorates are the front end of health care delivery.

4.7.2 Stages of a QA implementation strategy

Thus in this research programme QA will be driven through the clinical directorate. The framework and implementation strategy for establishing such a programme will include four developmental stages.

1. Assessment of current situation:

Before implementing any quality improvement strategy it is vital to understand the organisation, size and culture of the study area to inform the development of the other programme phases. Especially important is a review of quality related initiatives already in place. A thorough review and analysis of the current management and information system will be necessary in order to ascertain whether data from the routine information system can be used to assess quality and to look at the extent and effectiveness of current monitoring and supervision activities. Where there is evidence of QA activities already underway, these will be integrated into the QA programme.

2. Sensitisation towards quality:

Successful quality programmes pay as much attention to changing human relations as to introducing new systems. There needs to be as much emphasis on understanding and changing people's attitude towards their work as on training them to use specific tools and methods. This phase will aim to provide personnel with the necessary understanding and knowledge about QA to integrate a quality philosophy into their work practice. In this phase quality action teams will be formed and the teams will be trained in concepts of quality improvement and the TQM philosophy.

3. Development of customer-supplier models:

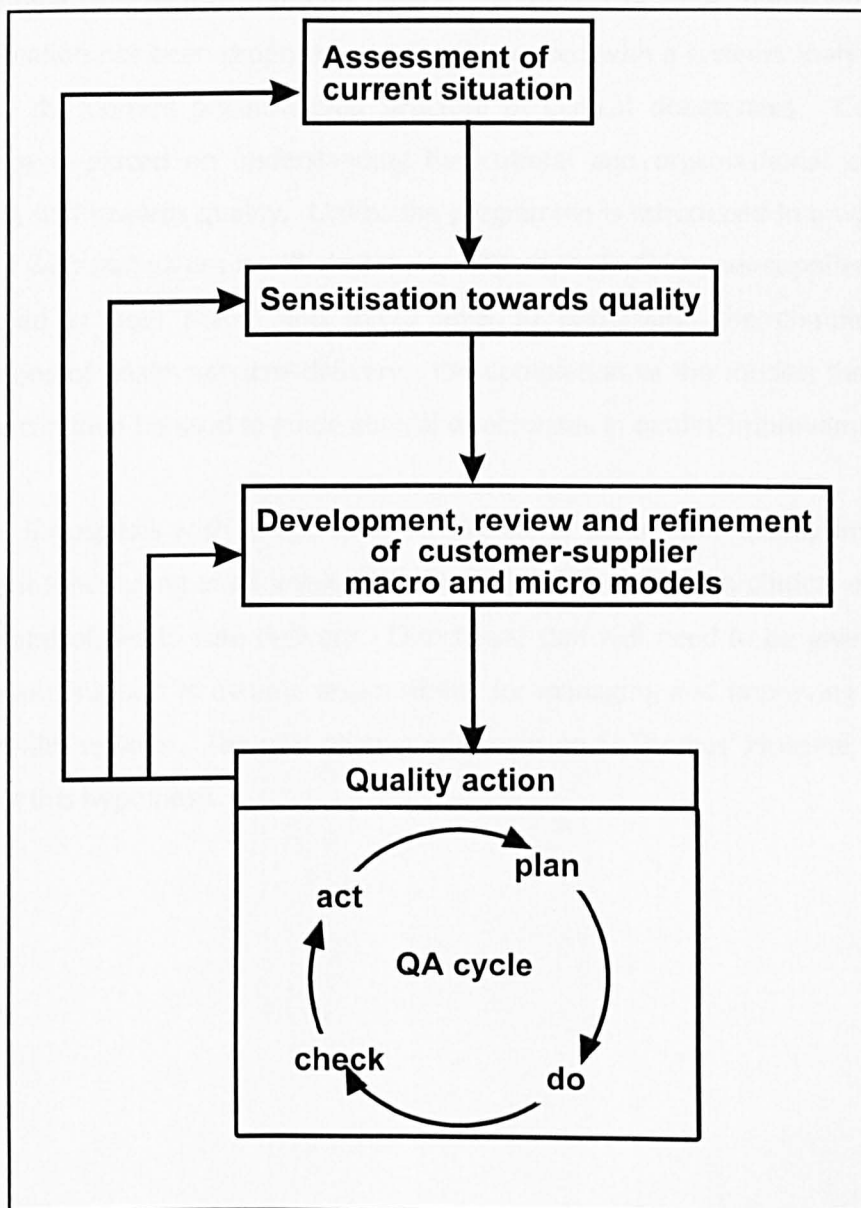
The modelling phase will be important in helping groups understand how they externally adapt to other individuals, groups and organisations and how they internally integrate their own work. The customer-supplier models will also provide staff not only with a better understanding of how their activities integrate with the whole hospital but also provide a tool for stage 4 - quality action.

4. Quality action:

On completion of the customer-supplier models the quality action teams will use these models for identifying and understanding quality problems and use the QA cycle to drive the whole quality improvement process.

Figure 4.9 illustrates the different stages.

Figure 4.9: Stages of the QA Implementation Strategy



4.8 Summary

This chapter has suggested that quality assurance is not only a technical issue, but one that also includes political and cultural factors which cannot be ignored. A QA approach appropriate to a health care setting has been proposed based on the TQM philosophy and using Parasuraman's service quality model. Customer-supplier modelling, a novel technique, has been developed as a QA tool for encouraging inter-professionalism, addressing the different levels of care and the critical links between them. It has been argued that the clinical directorate provides a very effective organisational mechanism through which to drive QA. A framework for QA implementation has been proposed which commenced with a systems analysis in order to review the current organisational structure of clinical directorates. Considerable importance is placed on understanding the cultural and organisational context and sensitising staff towards quality. Unless the programme is introduced in a way which is consistent with staff values it will almost undoubtedly fail. Customer-supplier modelling is proposed at both macro and micro level to understand the complexities and interrelations of health services delivery. On completion of the models these and the QA cycle can then be used to guide clinical directorates in quality improvement.

All in all, if hospitals wish to rise to the challenge of continuous quality improvement and have it functioning at all levels, QA should be driven through clinical directorates, the front end of health care delivery. Directorate staff will need to be given adequate expertise and support to assume responsibility for managing and improving the quality of their health services. The next chapter will focus on St Thomas' Hospital, the site for testing out this hypothesis.

Chapter Five

St Thomas' Hospital

"If London is to retain its position as a world city, Londoners must have access to high-quality modern health services. At the same time, health care in the capital must develop in a way that reflects and complements the development of the health service, medical education and research in the country as a whole.....above all, health services must be linked to the London communities which they serve".

King's Fund, 1992

5.0 Introduction

In Chapter 4 a framework and implementation strategy for QA in a health setting was proposed based on the TQM philosophy and using customer-supplier modelling, a novel methodology specifically designed for this research study. It was suggested that in order for QA to be fully accepted and institutionalised it needs to be driven through clinical directorates, but with firm support from senior management.

Following on from this proposal the present chapter focuses on St Thomas' Hospital, the site for testing out this hypothesis. Its organisational structure is described and its readiness to take quality assurance approaches on board in the light of the reforms and their particular relevance to London hospitals is discussed. A customer-supplier map and model at hospital level are developed and an analysis is undertaken of the importance of the hospital's different external customers and suppliers. Finally the hospital's policy on quality is reviewed and its implications for the pilot study are considered.

5.1 Organisational Structure and Background to St Thomas' Hospital

The research described in this thesis was carried out between October 1990 - September 1993, a particularly turbulent time for St Thomas' Hospital. During this period the Hospital experienced three major restructurings of management, changing from a directly managed unit, to becoming a Trust Hospital (1992) and later merging with Guy's Hospital (1993), although situated on two sites. The newly merged Guy's and St Thomas' Trust set its aims as being to:

- Provide comprehensive, local acute services to the population of South London
- Be the major specialist referral centre in South London
- Be a centre of teaching and research of national and international standing

In 1993 Guy's and St Thomas' Trust had contracts with more than 65 health authorities, making it the largest NHS Trust with an annual income of some 220 million pounds (Guy's and St Thomas' Trust, 1993). During the data collection period of this research study, the predominant organisational structure was as a directly managed unit and as a

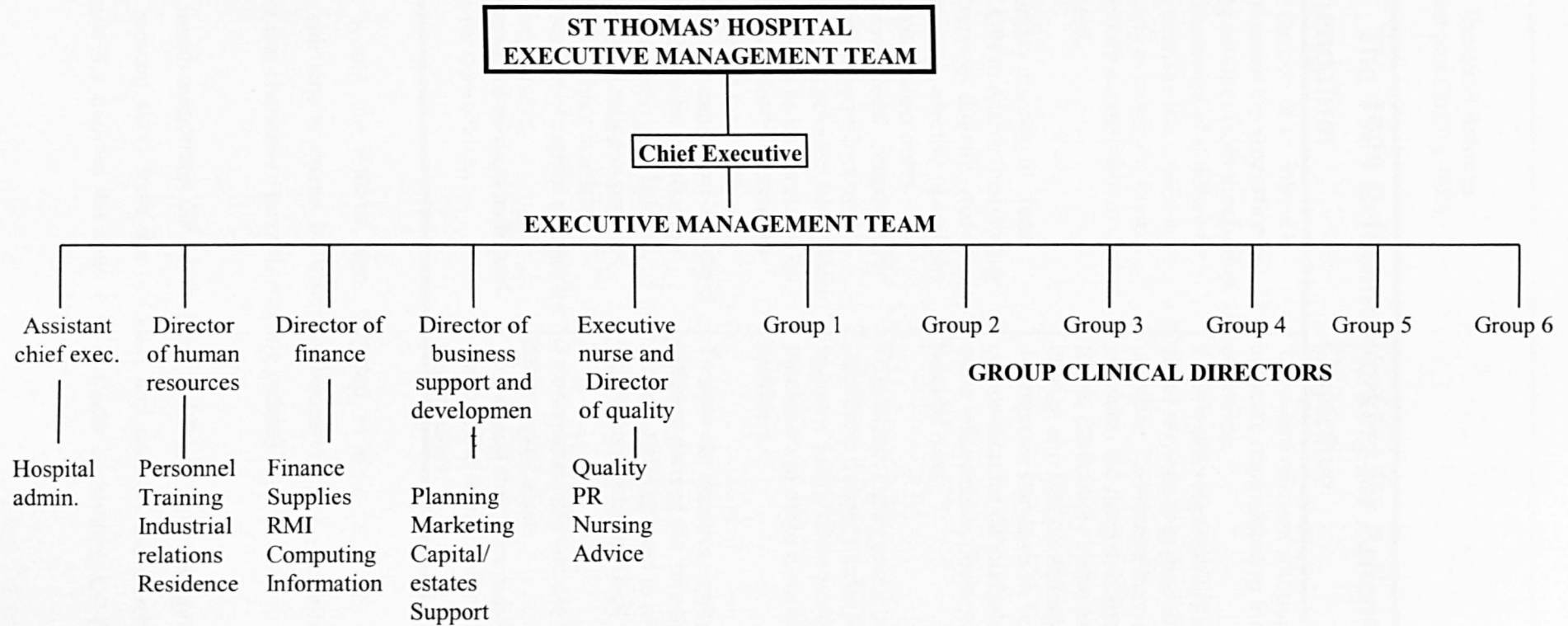
single Trust hospital. An organigram of the management structure is illustrated in Figure 5.1 and it is within this context that the research hypothesis was tested.

St Thomas' Hospital was organised into clinical directorates, with a clinical director and business manager responsible for each directorate. The Executive Management Team (EMT) was headed by the chief executive of the hospital and his team consisted of six group clinical directors, an executive nurse and director of quality, a director of business support, a director of finance, a director of human resources and an assistant chief executive. It is interesting to note that half of the EMT members were practising clinicians. Whilst the EMT was responsible for policy decisions for the hospital, most of the day to day management was devolved to the clinical directorates. Directorates had a budget to run their services which was linked to work-load agreements negotiated with the central hospital management and purchasers of health care. Typical of most NHS Trusts the Executive Nurse was also the Director of Quality.

5.2 Significance of NHS Reforms to the Management and Organisation of Hospitals

It is important to discuss and describe in some detail the changing climate of the NHS during the period of this research, all of which directly impacted on the organisation of management and services delivered at St Thomas' Hospital. *Working for Patients* (DoH, 1989a) introduced wide-ranging proposals setting out the most radical changes in the NHS since its creation, although it was not until April 1991 that the implementation of the reforms began. Table 5.1 lists the seven major recommendations of *Working for Patients*.

Figure 5.1: Organisational Structure of St Thomas' Hospital, September 1991 (prior to Guy's and St Thomas' merger)



Tables 5.1: The 1989 Reforms
(Source: Grant and Collini, 1996)

The 1989 Reforms: Working for Patients	
Recommendation	Objective
1. The introduction of an 'internal market' through the separation of providing services from purchasing.	To reward efficient and popular providers; to create competition to improve standards of service.
2. The establishment of stand-alone Trusts to manage the provision of hospital and community services. Trusts directly accountable to central government.	To delegate responsibility for decisions about services to as near the patient as possible. To remove from service providers the need to consult higher levels, particularly in the management of finance and staff conditions.
3. The voluntary creation of ' fund-holding ' GPs to enable them to buy hospital services directly - mainly out-patient services, elective operations and diagnostic procedures.	To improve standards in hospitals through competition for GP budgets; to make GPs more influential in decisions about hospital care.
4. The use of non-legal ' contracts ' for payment for services between purchasers and providers for defined workloads. GPs to be consulted on where District Health Authorities should place big contracts.	To establish clarity about the volume and standards of service to be provided; to improve quality of services and to enable purchasers to make clear choices between providers.
5. The change to a capitation (weighted population) basis for purchasing services for a given population in place of direct funding of services provided on an historical basis.	To promote resource equity between different parts of the country; to encourage services to be tailored to meet local needs rather than vested medical interests.
6. The introduction of capital charges for buildings/equipment.	To encourage efficient use of land and other capital assets.
7. The promotion of medical audit and job plans for consultants.	To increase the accountability of hospital doctors, including their clinical performance.

Taken as a whole the reforms were intended to shift the NHS from a passive bureaucracy still largely driven by historical budgeting to a responsive organisation where money was channelled towards meeting patients' needs.

The roles of health authorities, GP fundholders and Trusts were changing rapidly with a power shift moving away from the hospitals and towards the purchasers of health services. Table 5.2 outlines the new roles of health authorities, GP fundholders and trusts.

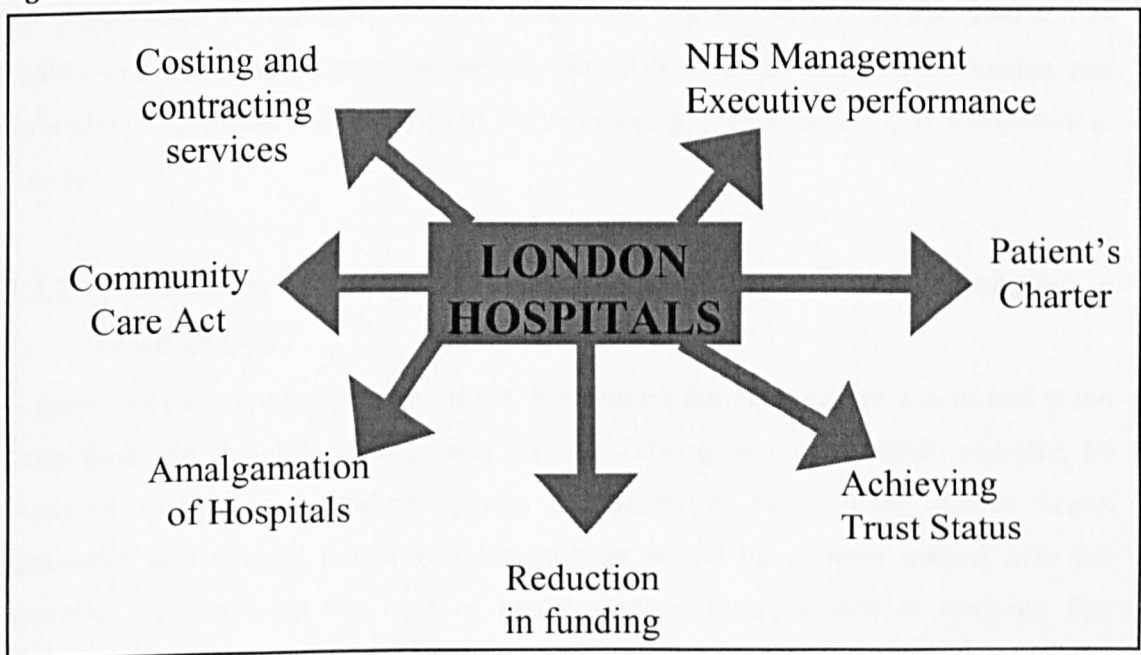
5.2.1 Reforms and QA

Initiating a formal quality improvement programme in a large inner city teaching hospital such as St Thomas' was fraught with difficulties due to the unique and changing character of the clinical and managerial environment. Some of these characteristics included:

- Reduction of available funding
- Amalgamation of London Hospitals (Tomlinson, 1992)
- Formation of Hospital Trusts
- Newly introduced processes to cost and contract health services (DoH, 1990)
- The Community Care Act (DoH, 1989b)
- National Health Service Management Executive (NHSME) performance monitoring
- The Patient's Charter (DoH, 1991).

Some of the many competing priorities hospitals were faced with are illustrated in Figure 5.2.

Figure 5.2: Competing Priorities



Changing priorities in the NHS funding environment and the drive for greater use of economic and effectiveness indicators had created intense pressure for hospitals to prove that they were monitoring the performance of both administrative and clinical services. In response Trusts had no option but to develop internal systems for auditing and measuring performance. Managers were being confronted with strategic issues such as obtaining contracts from purchasers; providing financial and clinical information on costs and performance; changing the quantity of services provided as well as methods of service delivery. This new political and economic environment meant that providers had to take on new and expanded roles in the provision of health services. New posts were being created, such as contracting managers, business managers, clinical directors and medical audit and quality assurance facilitators. A threat hung over managers' heads, that those who did not develop expanded roles to meet these strategic issues would not survive (Doyle and Kavet, 1994).

As Dixon and Darlington (1992) comment, responsibilities and accountability for quality were unclear with various professional groups laying claim only to what they perceived as their part of the quality pie, leaving the whole pie unowned or disowned. Since these reforms, senior staff have been striving towards developing more rigorous clinical and service information to substantiate claims of quality and efficient hospital performance and, to satisfy patients, consumer groups and purchasers. However, with the government's consistent decision to facilitate but not to dictate the direction of quality improvement programmes within the NHS, this has resulted in diverse and sometimes inconsistent approaches to the monitoring, measurement and assessment of quality.

5.2.2 The emergent health market and the importance of customer-supplier relationships

In April 1991 the implementation of the *Working for Patients* reforms began and at the same time the Patient's Charter was issued. The government belief was that by changing to this new funding system, purchasers of health care, district health authorities and general practitioner fundholders would have more control over the providers in specifying the type of quality service required and in ensuring that providers were responsive to local population needs. This in effect was making

hospitals far more accountable, not only for the health care they provided, but for the way they organised themselves and managed their resources.

By this split providers were freed to concentrate on what they did well and competitively and to develop their expertise, resulting in being rewarded rather than penalised for efficiency and attracting more clients. The 'markets' ideology was that where clients were able to, and wished to travel, they could get a better service which was also less expensive for purchasers. Conversely where accessibility and proximity were more important, public purchasing authorities could influence local providers to provide a range of services rather than to specialise in some specific 'markets'. Quality in contracting was developed at the local level through all the different provider-purchaser transactions taking place. This has resulted in no assurance of uniformity in specifications or monitoring throughout the NHS; thus, the quality of care experienced by the whole population may continue to vary considerably depending on geographic location. Dixon and Darlington (1992) comment:

“Contracting as a quality control mechanism will only be as good as the quality specifications and quality monitoring mechanisms agreed within contracts and incentives or disincentives to comply with contract terms.”

With the creation of the 'health market' a deeper understanding of customer-supplier relationships was essential. However as was pointed out in Chapter 2, unlike most commercial services, hospitals do not have a single customer but a number of different customers whose values and expectations have to be understood.

Hospitals could no longer dominate health services, but had to listen to and address the needs and expectations of its different customers, who could now exert influence over the way hospitals delivered services. They had to understand on what basis purchasers made their purchasing decisions. Explicit criteria included:

- GP referral patterns
- Comparative cost
- Quality
- Community Health Council (CHC) views
- Population views

In order to understand the significance of the health reforms, a customer-supplier map (influence diagram) was constructed with St Thomas' as the focal point, showing the various different external organisations and bodies connected to the hospital who exerted different levels of influence and power over the hospital.

To construct this customer-supplier map a series of interviews was conducted with local health care organisations and practitioners, including:

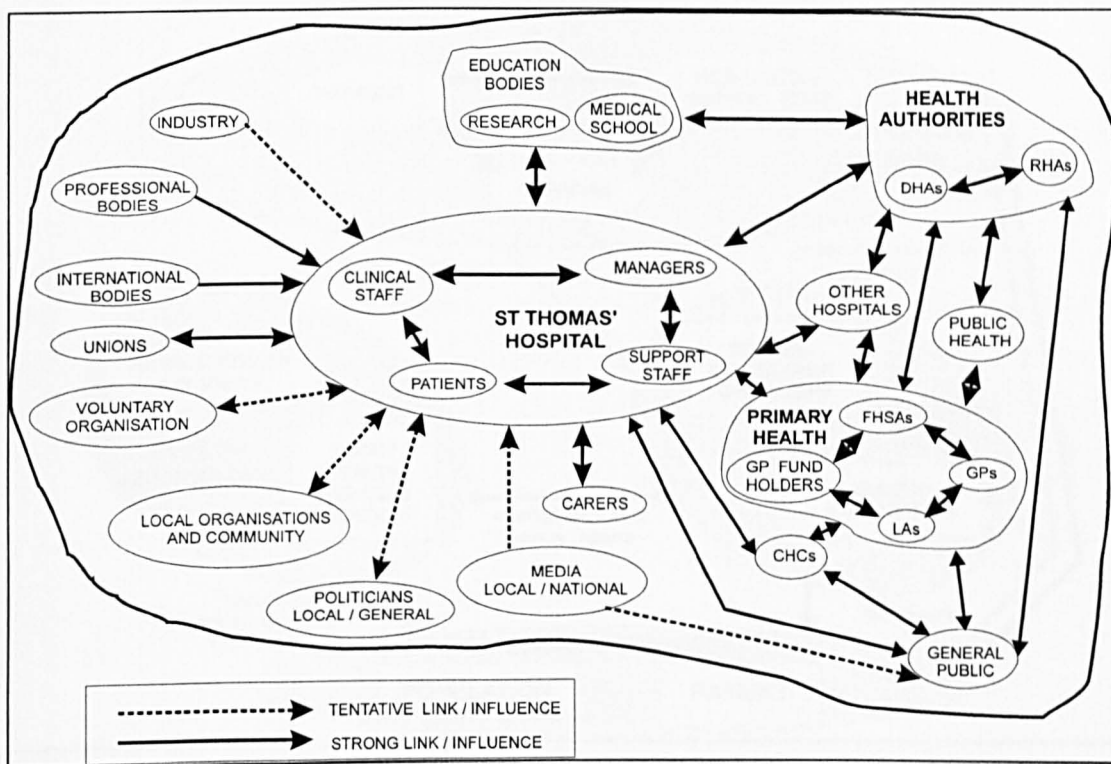
- District Health Authorities
- Public Health Specialists
- GP Fundholders
- GPs
- Family Health Service Authorities
- Community Health Councils

In each interview the interviewee was questioned on their:

- Role in the reformed NHS
- Priorities for next 5 years
- Perceived influence over other health sector organisations

Figure 5.3 highlights the different external players, individually and as sub-groups, illustrating how they interacted with one another and with the hospital. This process helped to pinpoint the new emergent key players. This process was particularly relevant at the time for St Thomas' Hospitals, since it was vital that hospital managers had an understanding of who their customers were, to look at the range and understand their differing needs and expectations, and thereby cater for those expressed and implicit requirements when developing a service quality strategy.

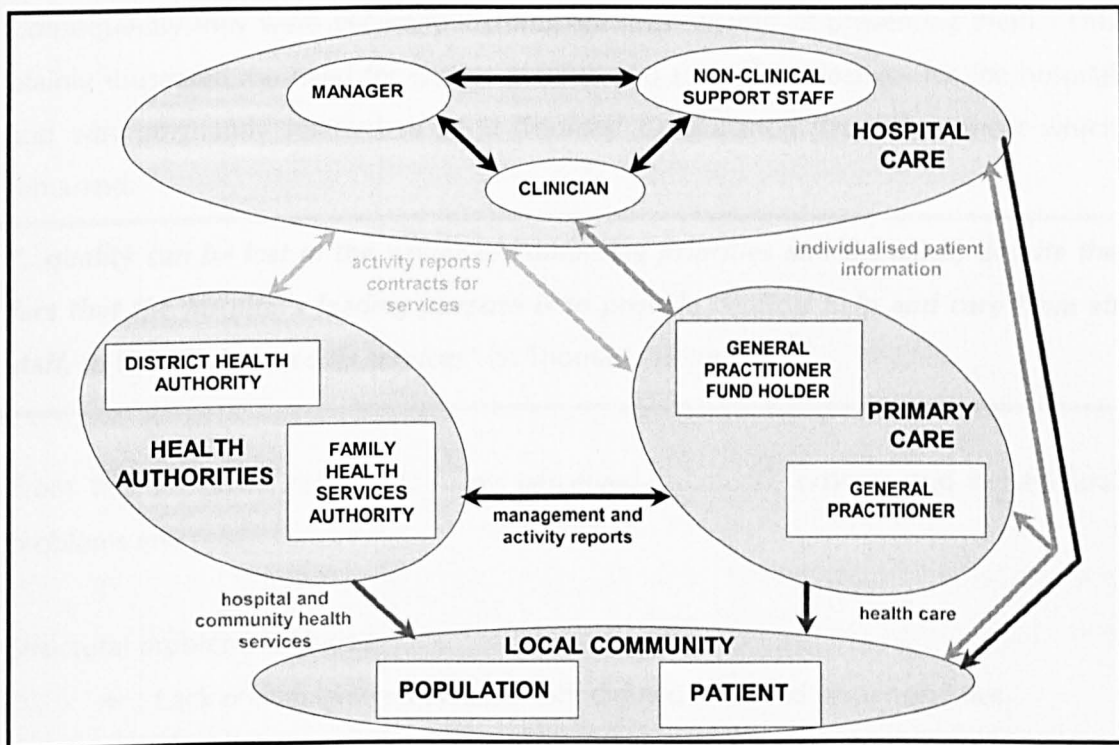
Figure 5.3: Customer-Supplier Map



As a result of the interviews and construction of the customer-supplier map, it was shown that there were countless bodies which all exerted different types of influence over one another and over the Hospital. However what became most apparent was that much of the power of hospitals has now been devolved to district health authorities and general practitioner fundholders, both acting as proxy customers for the patient. Their influence was considerable since between these two bodies they possessed ultimate referral power as to where individuals and populations could receive health services. Previously the demand for resources was expressed by the professionals (particularly the doctors) working in the service, according to the needs for clinical care. These demands had been met by a DoH allocation of new resources on a year by year basis. The unwritten philosophy was that the health professionals would determine the allocation of resources, accepting the need for careful husbandry, whilst the government would endeavour to meet all reasonable demands. This led to severe conflict between health professionals and government as demand for resources grew (Chantler, 1990).

Thus a more detailed customer-supplier model can be produced of the new emergent key players, shown in Figure 5.4.

Figure 5.4: Emergent Key Players



5.3 Organisational Readiness to Take on QA at St Thomas' Hospital

As discussed in the previous chapter, developing a successful TQM programme is dependent on an understanding of current management and clinical practices, whereby quality is seen as integral to the philosophy (system of beliefs and values), procedures (established methods) and policy (plan of action) of the hospital. To sustain a QA system not only must it be robust but also flexible, running through the centre of the organisation and being able to withstand organisational restructuring as well as changes in medical care.

When this research commenced in 1990 a series of individual interviews was carried out with senior hospital personnel to gauge the organisation's readiness to take on formal QA approaches and to ascertain their level of commitment to quality.

Managers seemed particularly frustrated by the flimsy, unco-ordinated framework within which they worked, where decision making processes were unclear and direction unspecified. They complained of having to take on more work than they could cope

with and finding it difficult to prioritise problems due to lack of information. Consequently they were generally 'fighting the fires' instead of preventing them. This plainly illustrated the need for clearer policies and strategic objectives for the hospital and was poignantly referred to in St Thomas' Consultation Trust Document which remarked:

"...quality can be lost in the welter of competing priorities and demands, despite the fact that the hospital's leading purpose is to provide medical help and care from all staff, to those who need its services" (St Thomas', 1990).

From this series of interviews, many perceived structural, process and behavioural problems emerged.

Structural problems included:

- Lack of management systems with defined roles and responsibilities
- Lines of demarcation by profession - thin line between management and professional responsibility
- Poor resource management systems
- Weak communication channels
- Few review/evaluation mechanisms in place

Process problems:

- Ineffective strategic planning
- Weaknesses in team working between clinical and non-clinical professions
- Lack of vision - managers mainly fire-fighting

Behavioural problems:

- Low staff morale - feeling undervalued
- Staff complacency - living on old history
- Lethargy and resistance to change
- Poor hospital self image
- Senior managers out of touch with front end of health care delivery

Many of these problems were tackled head on during the restructuring of management and clinical services. However, at this stage, senior managers felt it was inappropriate to take on an organisational-wide approach to TQM, but to work with and through the clinical directorate or pre-determined groups of people with the Executive Nurse and Quality Director responsible for constructing a quality framework and driving the quality process.

5.3.1 St Thomas' Hospital policy on quality

“Staff either did not believe in or did not understand why they were making all these other changes. People were concerned about the future of the service and their own futures. They needed to be convinced that the quality programme would help get them and the service where it needed to be. And was that not the real issue - that we really did not have a clear idea of where we were going - a strategy” (Øvretveit, 1992).

In 1991 a Framework for Quality (St Thomas' Hospital, 1991) was presented to the Executive Management Team. This was the first attempt at a concerted hospital-wide approach to quality improvement. This came about because the hospital was now accountable to the South East London Commissioning Agency (SELCA) for explicit quality objectives set out in their contract. These included:

- Medical and clinical audit
- Routine information for patients/clients and relatives/friends
- Complaints procedure
- Patient satisfaction
- Waiting times in outpatient departments
- Cancelled outpatient clinics
- GP referrals
- Case-note availability
- Infection control
- Waiting lists/times for admissions
- Cancelled admissions
- Policies and procedures

The hospital had to provide quarterly monitoring reports to SELCA, reporting on the quality targets and monitoring methods being used. SELCA also had the right to make random visits and inspections to the hospital.

The hospital framework for quality quite clearly stated that although it was not ready to take on board a TQM approach, it would support a pilot study in selected areas of the hospital. The key components which the quality strategy proposed for both directorate level and on a hospital-wide basis included:

- Leadership and good management practice
- Information
- Strategic planning
- Human resource utilisation
- Services
- Outcomes
- Customer satisfaction

The role of the Quality Directorate was to provide leadership and co-ordination, ensuring that each clinical directorate took a consistent approach in line with the hospital's strategy for quality. A quality assurance monitoring group was formed, mainly responsible for monitoring the hospital's contractual commitments to quality, negotiated with SELCA. Additionally a separate medical audit committee was formed purely with the objective of facilitating clinical directorates in establishing medical audit programmes which would then be extended to clinical audit programmes.

This separation of medical audit from quality assurance, each with independent offices and separate staff existed in many hospitals. In this way audit was perceived as something belonging to the doctors; and the quality office as belonging to the nurses or managers. The general perception was that medical audit was concerned with patient care and quality assurance with such things as environment, waiting times, laundry, catering, staff courtesy etc. This was particularly confusing for staff and the lack of formal co-ordination and integration among these activities became increasingly frustrating. Some aspects of both offices overlapped, resulting in duplication of effort. Other aspects were conveniently ignored, whatever their importance to patients,

because neither doctors, managers nor nurses wanted to face resolving given problems in the organisation.

Quality improvement activities progressed in this way. A bi-monthly audit afternoon was made mandatory for all clinical directorates. Some directorates supported medical audit (exclusively for doctors) and others clinical audit. The SELCA quality objectives became more of a central management issue, with the audit and quality offices supporting clinical directorates when requested and collecting this information. This was probably typical of most hospitals during the early years of contracting and it was within this context that this research into the applicability of TQM in a hospital setting was investigated.

5.4 Summary

In this chapter the significance of the NHS reforms with respect to London hospitals was discussed, highlighting the intense pressure and changes with which these hospitals had to cope. With the emergence of the 'health market' resulting in power shifts between the different key actors, the importance of customer-supplier relationships was demonstrated. The structure and general background of St Thomas' Hospital was described including the organisational readiness of the institution to take on QA activities and senior management commitment to a system-wide QA approach. In the light of this analysis, Chapter 6 goes on to discuss in detail the various stages involved in establishing QA systems in a Clinical Directorate.

Chapter Six

The Clinical Directorate Approach: A Pilot Study in Using Customer-Supplier Modelling as a Framework for Quality Improvement

“When management commitment is meagre, and investment resources even less, it is important not to launch an organisation wide quality strategy with fanfare. One approach is to concentrate resources on a pilot quality programme within one service delivery unit. The aim being to show what can be done, to build up experience, and to convert ‘sceptical natives’ into ‘ambassadors’ for the approach”

Øvretveit, 1992

6.0 Introduction

In Chapter 5 the structure and organisational readiness for taking on a systems-wide QA approach were discussed in relation to St Thomas' Hospital. It was concluded that TQM should be launched in selected pilot-sites and that the most appropriate and feasible organisational structure through which to drive it would be the clinical directorate.

This chapter details the experience with implementing the QA implementation strategy described in Chapter 4. The first section discusses the criteria for selecting appropriate pilot sites. It then focuses on the development of customer-supplier models in a clinical directorate, starting with a situation analysis of the directorate and ending with how customer-supplier models were used as an aid to drive the whole quality improvement process. Case studies are given of how the customer-supplier modelling process was used to identify internal quality problems at a macro level and also to highlight a particularly weak link with the local black community at micro level. Details of how these quality problems were tackled are described. The importance of team working and the role of the quality facilitator are discussed in relation to the construction and use of these models. Chapter 6 concludes by reviewing what was achieved over the study period and highlights lessons learnt.

6.1 Rationale for Selection of Pilot Sites

As it was argued in Chapters 4 and 5, the clinical directorate provides a very appropriate organisational structure for QA activities, especially when senior management commitment towards quality is hesitant, as was the case at St Thomas' Hospital.

Both an in-patient and an out-patient area participated in the study to reflect the two distinct types of health service provision offered by the hospital. In the case of the out-patient area this was already a pre-selected area for the study. For the in-patient area, certain criteria were matched to ensure similarities between the two study groups

Not only was it important that the pilot sites had a strong group identity, it was vital that their vision was broader than the confines of medical audit, in that everyone from the group would commit themselves to the programme. Likewise without the support of

the clinical director, it would have been very difficult to have convinced the rest of the group to commit to the programme. It was also felt that a doctor from within the group should manage the QA programme, to demonstrate to the rest of the group that QA was important to all staff; even the doctors!

Meetings were held with a variety of hospital managers to look at the appropriateness of the criteria against a variety of directorates which had expressed willingness and interest in participating in the research. The following criteria were used:

- A well-defined working group (preferably clinical directorate)
- Group recognition of the need for setting up formalised QA systems
- Recognition that these systems must be interdisciplinary
- Recognition that quality improvement methodologies would tackle both clinical and non-clinical aspects
- Willingness to commit time to the programme
- Full support from the clinical director
- Agreement to assign a doctor from within the group to manage the QA programme with guidance from the researcher

The Directorate for Diabetes and Endocrinology (preselected group) was particularly relevant, since it fulfilled the above mentioned criteria; it consisted of a highly skilled multi-disciplinary team and tackled chronic disease management. It can reasonably be argued that nowhere is QA more important than in the management of chronic disease, where the continued care and follow up of patients as well as linking in with both primary and secondary services is vital. Diabetes mellitus affects at least 1-2% of the population in Britain and it is conservatively estimated that 4-5% of total health care expenditure in the UK is attributed to the management of diabetes and its complications (Laing and Williams, 1989). Therefore diabetes constituted an excellent example when exploring the worth of novel methods for delivering better health care.

A second pilot site was matched and selected, in order to represent a typical in-patient area. The Obstetrics and Gynaecology ward (Beatrice Ward) therefore also participated in the research, so that the applicability of customer-supplier modelling could be developed in two quite different domains.

6.1.1 Limitations of pilot sites and the research study

When implementing any programme of organisational change it is always difficult to be able to attribute all changes to the one programme. In this study it must be taken into consideration that this research was carried out during a period of implementing radical health reforms and hospital management restructuring. It is also important to recognise that this thesis was only tested in a hospital setting although it is considered equally applicable to other primary and secondary health care settings, which will be discussed in Chapter 6. Additionally with only 2 pilot-sites involved in the study, this will not necessarily be representative of the hospital as a whole.

6.2 Introducing QA into a Clinical Directorate

The QA implementation strategy proposed in Chapter 4 was used as the guiding model for the introduction of QA into the Diabetes and Endocrinology Clinical Directorate, (Beatrice Ward is discussed in section 6.9) and followed four main stages:

1. **Assessment of current situation:** develop an understanding of exactly how the pilot area delivers its service, review of on-going quality related initiatives, understand group culture.
2. **Sensitisation towards quality:** form quality action team and train in concepts of quality improvement and TQM philosophy.
3. **Development of customer-supplier models:** model how the group externally adapts to other individuals, groups and organisations and how the group internally integrates its own work.
4. **Quality action:** use of customer-supplier modelling for identifying and understanding quality issues and use of the QA cycle to guide interdisciplinary quality improvement.

Eighteen months were spent with the study group to progress through and complete these four main stages.

6.3 STAGE 1: Assessment of Current Situation

To understand fully the way the Diabetes and Endocrinology Directorate organised itself, a systems analysis was carried out by looking at various factors which included:

- Directorate services and staff skill mix
- Physical layout of the Diabetes and Endocrine Day Centre
- Patient flow through the Diabetes and Endocrine Day Centre
- Organisational structure of the clinical directorate
- Directorate information system
- Status of quality improvement related activities
- Group culture

6.3.1 Directorate services and skill mix

The Diabetes and Endocrinology Directorate consists of a multi-specialist team of staff offering a comprehensive range of medical, nursing, paramedical, administrative and clerical services. Approximately 90% of its activity is out-patient based with around 200 patients attending the various clinics every week in its day centre.

The following basic packages of care and specialised clinics are provided:

- Clinician consultation: new, annual and follow-up visits for both insulin dependent and non-insulin dependent patients
- Diabetes specialist nurse consultation (patient education and clinical management)
- Dietitian consultation (dietary assessment, advice and group education)
- Chiropody services (advice, education and treatment)
- Counselling services (adjusting to impact of chronic disease)
- Eye screening services (retinopathy, cataract and glaucoma)
- Laboratory services (HbA1, fructosamine, urine analysis etc.)
- Out-patient nursing services (blood pressure, visual acuity, blood samples etc.)
- Children and young persons' clinic (in collaboration with paediatricians)
- MARS clinic for treatment of male impotence
- Combined antenatal and diabetic clinic (in collaboration with gynaecologists)

Additionally computer, administrative and secretarial services are provided to support the various patient care activities. The actual staff skill mix when this research was conducted is shown in Table 6.1.

Table 6.1: Staff Skill Mix

Profession	Specialism
Doctors	Specialist training in diabetes and endocrinology.
Diabetes nurse	Specialist training in the education and treatment of patients with diabetes.
Out-patient nurse	Perform a range of investigations in support of the diabetic and endocrine clinics.
Diabetes dietitian	Specialist expertise in diets which are fundamental to the treatment of all patients with diabetes.
Chiropodist	Specialist expertise in the foot care of patients, as serious foot disease is a major complication of diabetes.
Physiologist	Specialist expertise in testing for eye disease and nerve disease which are major complications of diabetes.
Therapist	Counsels patients in personal adjustment to chronic disease and non-compliance with treatment.
Laboratory Scientific Officer	Operates equipment for biochemical investigations in the support of diabetic and endocrine clinics.
Clinic clerk	Manages reception, appointment system, retrieval of patient notes and monthly returns.
Secretary	Referral letters and day to day secretarial and administrative support.
Computer support staff	Maintenance of DIABETA system - customised computer database of patients.

6.3.2 Physical layout

The day centre was specifically designed for the needs of patients with diabetes and endocrine disorders. It is a fully self-contained unit whereby all routine diabetes and endocrine tests and services are provided within the unit. It is normally only when other complications arise that the patients will be referred to other departments outside the unit. In fact one can argue that there is no need for it to be geographically placed within the hospital.

6.3.3 Flow-charting a typical patient visit.

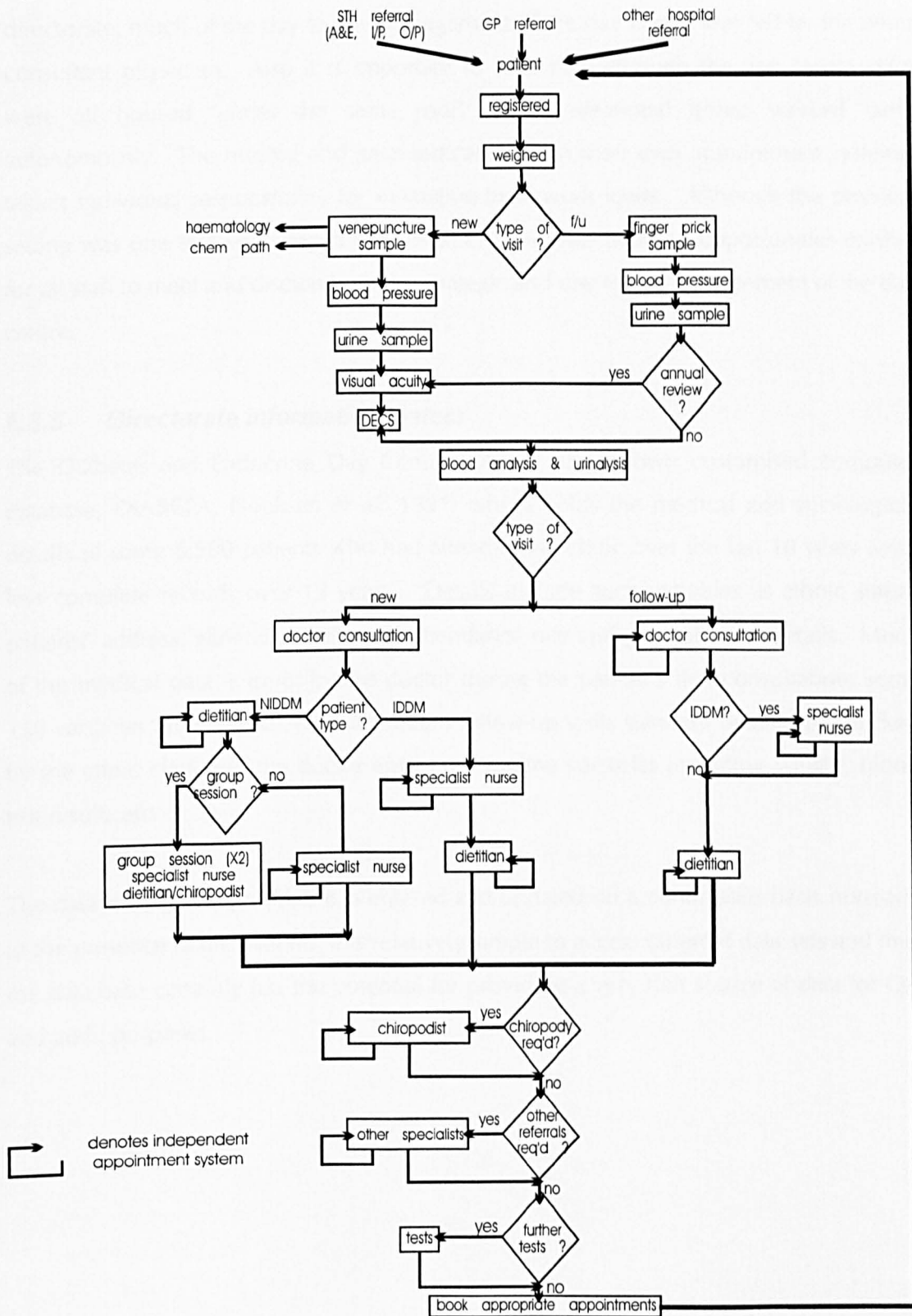
An important part of the basic systems analysis was to understand fully the different processes a patient encountered on a visit to the day centre and understand how patients typically flowed through the day centre. Flow charts can be used to help identify key processes and poor systems design and thus a flow chart was constructed of a diabetes out-patient encounter; the most common type of visit to the day centre (Figure 6.1). The flow chart highlights how patients are managed from entering the unit until leaving it and it illustrates the different procedures employed for insulin dependent diabetic patients (IDDM) and non-insulin dependent diabetic patients (NIDDM). Additionally variation in procedures for new, follow-up and annual review patients is shown. It can be observed from the flow chart that unless specialist referrals or investigations are required, then all services are provided within the day centre.

6.3.4 Organisational and management structure of directorate

The management of the Diabetes and Endocrinology Clinical Directorate was the joint responsibility of the clinical director (consultant physician), a business manager and a nurse manager. However the business manager and nurse manager also managed other clinical directorates, hence the overall leadership of the directorate rested with the clinical director. The key tasks and responsibilities of the clinical director, with support from the business manager and nurse manager included:

- Formulating an annual business plan
- Producing an accurate budget in advance
- Negotiating and agreeing budget with central management
- Monitoring actual performance against budgeted performance
- Negotiating service activity of directorate by contract with purchasers
- Ensuring appropriate and workable policies for running the directorate
- Marrying QA/audit process with managerial policies and contracts to deliver a quality service to patients
- Providing leadership and guidance necessary for effective management

Figure 6.1: Patient Flow Chart of a Diabetes Out-patient Encounter



Whilst the clinical director took responsibility for the strategic management of the directorate, much of the day to day management of the day centre was led by the other consultant physician. Also it is important to note that although the day centre team were all housed 'under the same roof' each professional group worked fairly autonomously. The nursing and paramedical staff ran their own appointment systems, taking individual responsibility for managing their work loads. Although the physical setting was one that encouraged co-ordination, very few planned opportunities existed for all staff to meet and discuss both the strategic and day to day management of the day centre.

6.3.5 Directorate information system

The Diabetes and Endocrine Day Centre (DEDC) has its own customised computer database, DIABETA, (Sönksen *et al*, 1991) which holds the medical and sociological details of some 6,500 patients who had attended the clinic over the last 10 years (with less complete records over 19 years). Details include such variables as ethnic status, patients' address, general practitioner, attendance rate and physiological details. Much of the medical data is input by the doctor during the patient's first consultation; some 150 variables are entered. On subsequent follow-up visits standard details are checked by the clinic clerk and the doctor enters ten routine variables including weight, blood test results etc.

The data quality is high since it is entered and updated on a continuous basis normally in the presence of the patient. It is relatively simple to access different data sets and thus the data-base certainly has the potential for providing a very rich source of data for QA and audit purposes.

6.3.6 Status of QA

“Most clinicians would like to see in charge of the quality assurance apparatus one of their own: a clinician senior in rank and of unquestioned competence” (Donabedian, 1996).

Most staff had not received training opportunities at directorate level in quality assurance or clinical/medical audit techniques when this research programme was initiated, although concern had been expressed about the lack of a comprehensive system for improving quality of services. Regular data collection for monitoring quality of services related to the information requested for the SELCA quarterly monitoring report. This included variables such as:

- Evidence of medical/clinical audit taking place
- Waiting time for medical consultation
- Percentage of cancelled clinics
- Response time to GP referral
- Casenote availability
- Provision of patient information
- System for complaints monitoring
- Customer satisfaction

This information was collected mainly for central management purposes although it could have been usefully utilised at directorate level.

The internal directorate structures to review clinical and non-clinical procedures were:

- Weekly clinical review meetings
- Monthly staff meetings
- Informal meetings arising as and when required

The weekly clinical review meeting served to review clinic notes of complicated patients. This meeting was held at 8am and would normally only be attended by doctors although other clinical staff joined these meetings from time to time. This was very much a meeting run by clinicians for clinicians and minutes were never taken. The

meetings existed purely for reviewing complicated clinical cases and discussing individual case treatment.

Monthly staff meetings were held during the lunch hour and were normally attended by most of the day centre staff. These meetings were to provide opportunities for staff to raise any issues relevant to the running of the DEDC. Again these meetings were not minuted and all agreed actions were verbal. The effectiveness of these meetings very much depended on the motivation of the staff attending. Although these meetings were meant to take place every month, several months often elapsed between meetings.

If emergency issues arose, then meetings were convened on a needs basis.

Thus it can be seen that although several mechanisms were in place for reviewing quality, no systematic effort existed in terms of monitoring, assessing and improving routine clinical and non-clinical practice. This is not to devalue the worth of these meetings but to highlight the type and structure of routine clinical and non-clinical assessment being practised by the directorate.

Certainly staff recognised the need for setting up ‘some type’ of programme that addressed quality of care provision in the directorate and it was felt that a framework was required for communicating about and agreeing upon how to address clinical and service quality concerns rather than purely medical issues.

6.3.7 Understanding group culture

“The health care enterprise may be seen as a culture, or a set of cultures, to which quality assurance effort must adapt or which may have to be modified if quality assurance is to flourish” (Donabedian, 1996).

Øvretveit (1992) reminds us that, whilst it is important to identify tools and techniques for quality assurance activity and that training people to use these tools is fairly straightforward, it is only half the equation and an utter waste of resources if people cannot or do not want to use the tools. He asserts that the other half of the equation is in establishing a quality philosophy and culture that values quality throughout the

service. This requires conscious action to understand different staff attitudes towards quality, since attitudes in themselves are an expression of culture.

Thus when attempting to implement a formal quality programme, understanding staff perceptions towards quality helps to decide how to present quality in the right way; in a way which responds to their indifference or objections. In fact to inspire staff with an idea that is consistent with values that they already hold is probably the most logical and least confrontational way of influencing a service culture.

In Chapter 4, the work of McLaughlin and Kalzuny (1990) was considered. They refer to the professional and TQM models, which although in conflict must both be accommodated in a health setting on the one hand to deal with the high professional component involved in delivering high quality health services, and on the other to deal with the multi-disciplinary nature of health care and the need to work together and share information. Certainly the DEDC working environment could be likened far more to the professional model rather than the TQM model. Staff were working autonomously and there was much cynicism about 'management pronouncements and promises'. Morale in general was low with staff threatened by more cuts and even possible closure with the merger of Guy's and St Thomas' Hospitals. Although staff were in agreement that clinical excellence was the most important philosophy in their work, many of the staff members felt worn down by the idea of 'having to take on yet more work' with the introduction of a QA programme. They felt that their hands were tied because many of the quality problems they perceived related to the services of the hospital as a whole which were not the responsibility of any one person or specific area. Whilst some staff were worried about identifying and voicing areas of concern because of being expected to take on additional work, others were keen to express their views but did not have the belief that anything could be done. It appeared that one of the major problems was that opportunities did not exist for staff to get together and analyse data on service performance such as clinical audit and waiting times. It was also found that few staff possessed skills in systems analysis and data collection techniques. This was mainly due to unfamiliarity with tools or not having the time to fully investigate issues because of other priorities. The rapidly changing environment meant that attention was given to crisis issues rather than long-standing concerns of patients and staff.

However, staff did express concern about the lack of a coherent and comprehensive system for monitoring, assessing and improving quality of services. Hospital directives were stressing the importance of a medical audit programme and had in fact announced that all clinical directorates would have a statutory medical audit half-day once every two months. With the creation of this space, staff agreed to establish a multi-disciplinary quality improvement programme to include all staff that would tackle both clinical and non-clinical aspects of health service delivery. This was probably part fear, that if they did not take control themselves, there would be a danger of having QA systems imposed from central hospital management. Thus when this quality programme was introduced there was a certain reticence and apathy displayed by staff, but also a sense of opportunity and challenge to be involved in the design of their own QA programme!

6.4 STAGE 2: Sensitisation Towards Quality

Successful quality programmes pay as much attention to changing human relations as to introducing new systems. This implies that there needs to be as much emphasis on understanding and changing people's attitude towards their responsibilities as on training them to use specific tools and methods.

This stage aimed to provide personnel with the necessary understanding and knowledge about QA to integrate a quality philosophy into their work practice. Therefore before introducing the concept of customer-supplier modelling, basic QA training sessions were held voluntarily within the DEDC, focusing on the concepts of QA, audit and TQM, so that general awareness about quality issues could be raised.

In fact stage 2 was a continuous element of the QA programme, starting with basic QA awareness training, then going on to more in-depth training sessions on tools and techniques which included customer-supplier modelling, the QA cycle, and development of the directorate QA programme.

All training sessions were voluntary and were held early morning or during lunch hours. It was impossible to get all members of the group together at any one time, due to their different work commitments.

Using Zaltman and Duncan's (1977) model of different change strategies (section 4.1.3), a combination of three of the four categories were used.

1. **Persuasion:** in that DEDC staff needed to be convinced that change was both necessary and feasible
2. **Facilitation:** in that all the training focused on the individuals involved in the change
3. **Power:** in that hospital directives, contracts and the health reform bill had made QA a requisite part of health service provision.

6.5 STAGE 3: Developing Customer-Supplier Models

The initial development of the customer-supplier models was quite a lengthy process and required staff time and commitment. The two phases to the modelling process described in Chapter 4 were:

1. **External adaptation modelling:** concerned with how services, products and people interface with the group.
2. **Internal integration modelling:** concerned with what actually happens within the group.

These two phases were carried out separately and then both models could be linked. It was very important that the whole directorate was involved in this process so that consensus could be obtained over the identification and ownership of the services being provided and consumed. However in certain cases it was not possible for all staff to be involved, thus the most important criterion to apply was that at least one person from each professional group was represented in the modelling phase.

The overall modelling process from model inception through to using the models for quality action involved 13 different steps, as shown in Table 6.2

Table 6.2: Customer-Supplier Modelling Process

CUSTOMER-SUPPLIER MODELLING PROCESS	
STAGES	COMMENTS
1. Conduct training sessions on external adaptation modelling.	All staff to be introduced to the philosophy of customer-supplier modelling and to be given in-depth insight into the elements of external adaptation modelling.
2. List external bodies and define customer-supplier relationships.	Individually, as sub-groups and as a group, different external bodies are listed and their relationship defined as customer and/or supplier.
3. Produce external adaptation macro model.	Draft model produced.
4. Refine model through individual interview and group consensus.	Individual and group sessions to obtain consensus and make necessary model refinements.
5. Prioritise links.	Due to the number of external bodies, links are prioritised with customers and/or suppliers which have a large number of interactions with the group.
6. Conduct training sessions on internal integration modelling.	All staff to review the philosophy of customer-supplier modelling and to be given in-depth insight into the elements of internal integration modelling.
7. List and type internal customer-supplier relationships.	Individually or in sub-groups internal customer and/or suppliers are listed.
8. Produce internal integration macro model.	First draft model produced.
9. Refine model through individual interview and group consensus.	Individual and group sessions to obtain consensus, type interactions and make necessary model refinements.
10. Meet as quality action team and use macro models for identifying weak / priority links.	Both internal and external macro models can be used to help identify where the weak and/or priority links exist which need to be strengthened and redefined.
11. Produce micro level models for identified areas of concern.	In-depth micro level models are produced highlighting all processes and interactions involved.
12. Take quality action.	Weak links can now be identified and using the stages from QA cycle of problem analysis, solution and implementation, quality actions can be implemented.
13. Review and update models on a regular basis.	With time, working relations and key processes change, therefore annual review of models should take place.

A more in-depth break-down of external adaptation and internal integration modelling are discussed later in this chapter.

6.5.1 External adaptation modelling

External adaptation modelling, the first part of this two-stage modelling process was introduced to the directorate staff in small multi-disciplinary groups. This part came first, because as a group it was considered less threatening to concentrate on external services, where there would more likely be agreement over exactly the type of services being requested and consumed.

Several small, multidisciplinary group training sessions were conducted with the directorate staff. These sessions were voluntary and were scheduled at different times during the day over a two-week period so that everybody would have an opportunity to attend. In these sessions the staff were introduced to the concepts of quality improvement in health care and then in particular to the concept of customer-supplier modelling. Thus the whole group was taken through the nine stage process of external adaptation modelling as described in Table 6.3.

Table 6.3: External Adaptation Modelling

EXTERNAL ADAPTATION MODELLING:		
STAGES	DESCRIPTION	COMMENTS
Stage 1	Identify the boundaries of the group.	Clinical directorate, ward, department, etc.
Stage 2	Involve everyone in the group in the modelling process.	Ensure that at least one member from each discipline is present.
Stage 3	List all people, departments and outside organisations which interact with the group.	Includes individuals or other groups within the organisation and external to the organisation.
Stage 4	Define the service or product being supplied or used by these external bodies.	Simple definition of what is being supplied or consumed.
Stage 5	Define them as customers and/or suppliers.	Definition based on whether they are providing or consuming services.
Stage 6	Identify the link person within the group who initiated the request for the service.	Person/sub-group responsible for ensuring that request or receipt of service.
Stage 7	Construct external adaptation model.	Unrefined model.
Stage 8	Identify priority links.	Group decides who are key external suppliers and customers.
Stage 9	Review and refine model.	Second version model produced which is reviewed on continual basis.

Every participant at the meeting was given a specifically designed form to list their different suppliers and customers and to define the service or product provision (Appendix I). Individuals were given two weeks to complete these forms and were encouraged to fill them in individually or by speciality. In this external modelling phase staff listed people, departments and outside organisations with whom the directorate worked or relied upon. These groupings were categorised as either supplier, customer or both. A short, simple description of the product or service was given and a person or group of people was identified as the initiator or link person in the customer-supplier relationships.

After defining the different relationships, preliminary models were constructed. This was a formal depiction of all the suppliers and customers, showing the service and product provision and their relationship to the department. Due to the complexity of

customers and suppliers the first external adaptation model produced was sub-divided into three models showing the directorates relationship with:

- **Clinical support services:** all clinical and diagnostic services within St Thomas'
- **General hospital support services:** hotel services and management within St Thomas'
- **External services (external to St Thomas' Hospital):** all bodies external to the hospital

Individual and group modifications were made to the models so that consensus could be reached..

Figures 6.2, 6.3 and 6.4 depict the three models produced. In the external models the interactions have been limited to arrows depicting service/product provision as the simple customer-supplier relationship is described in Chapter 4.



Figure 6.2 External Adaptation Model for Clinical Support Services

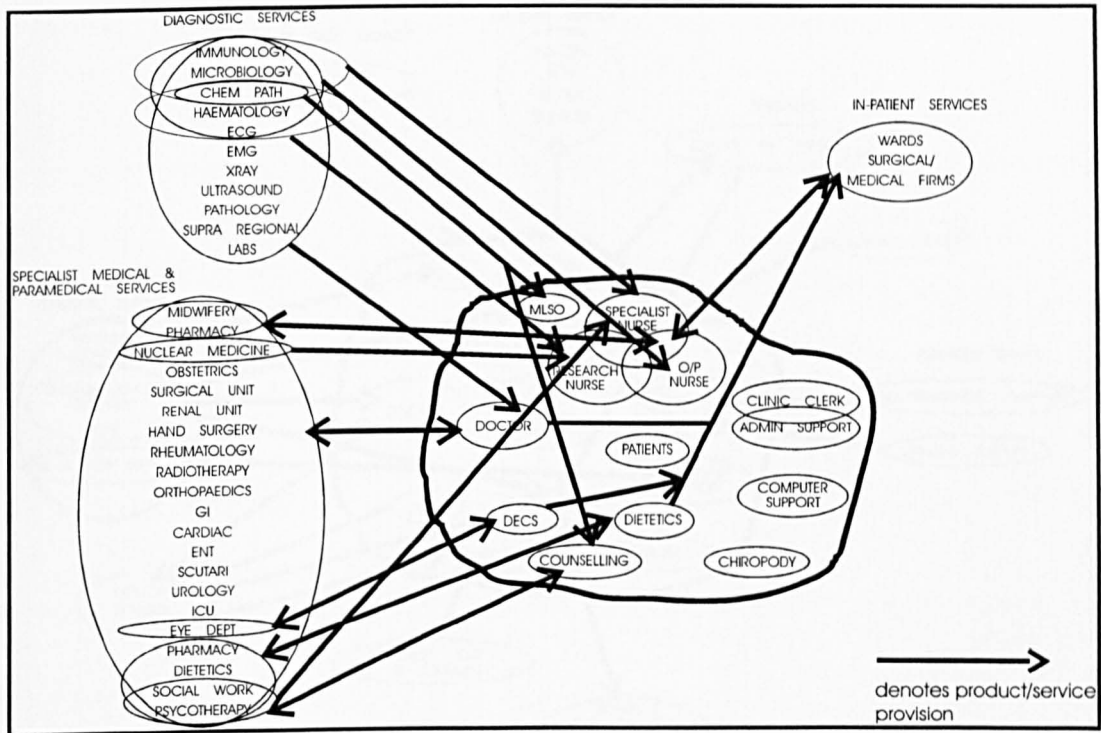


Figure 6.3: External Adaptation Model for Non-Clinical Support Services

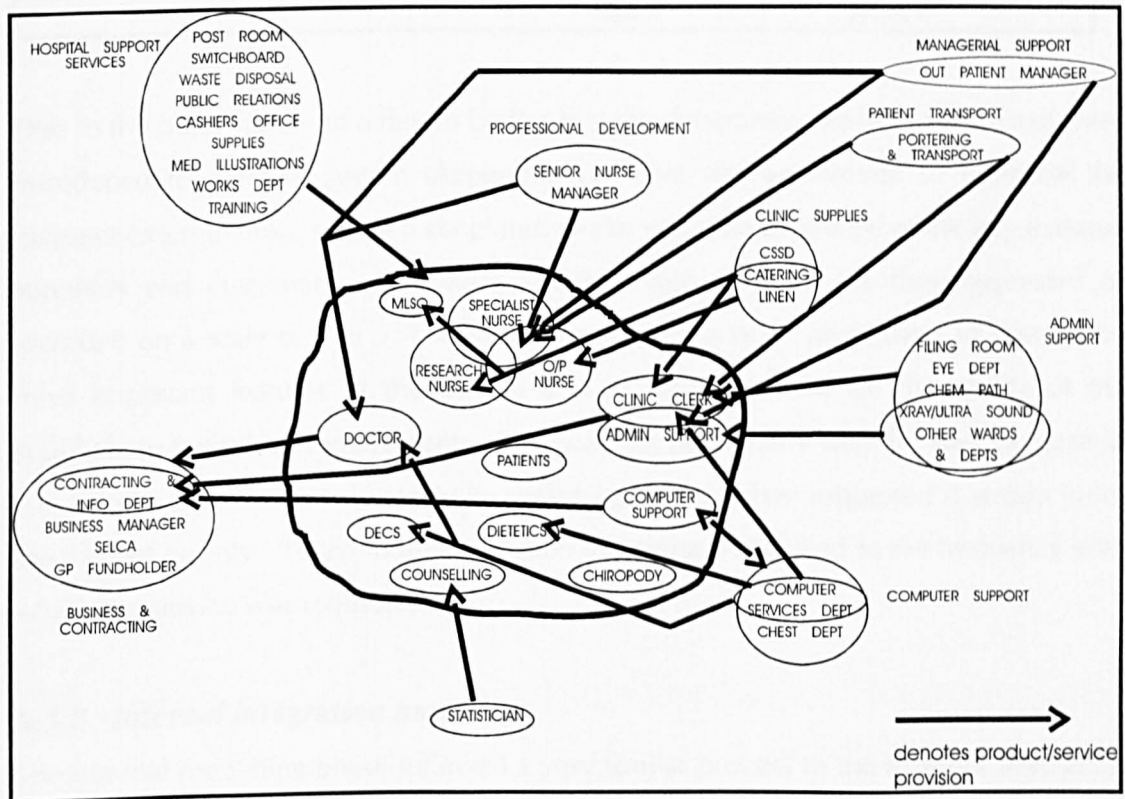
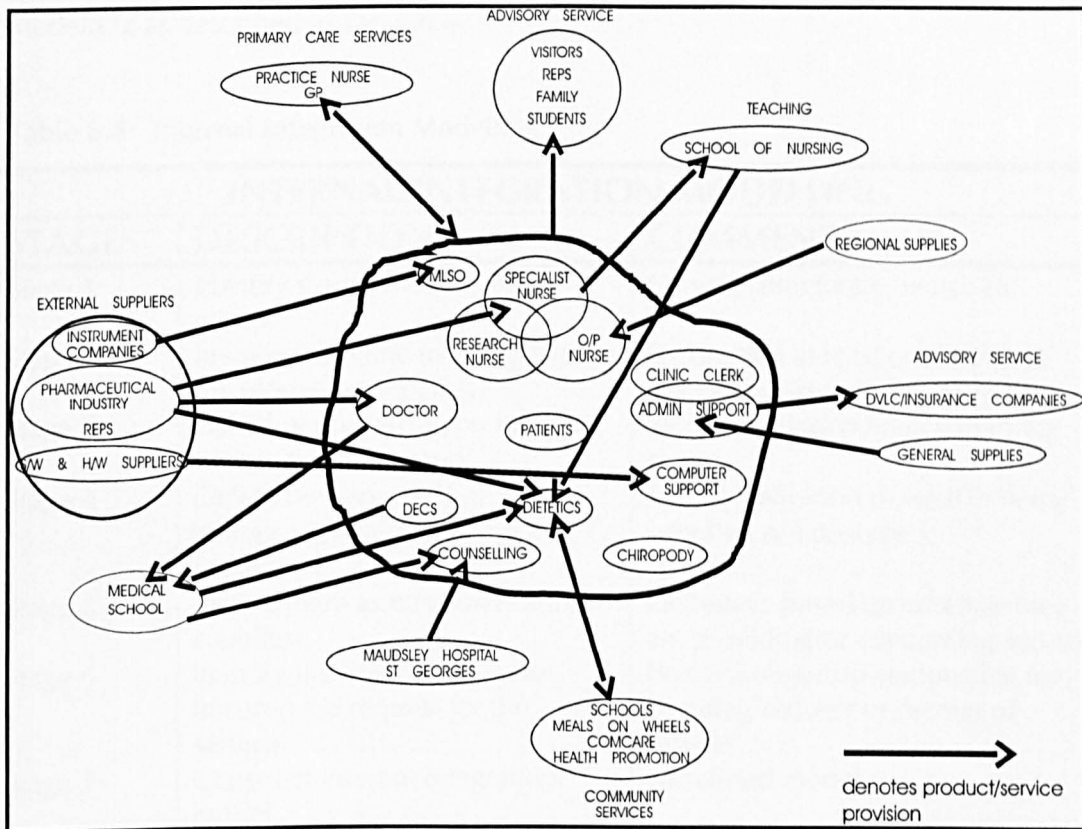


Figure 6.4: External Adaptation Model for External Services



Due to the huge variety of different bodies that the directorate interacted with staff were introduced to a rating system (Appendix II). This was an attempt to prioritise the different external links, so that a simplified model could be produced of the key external suppliers and customers. Staff were asked to rate each service they requested or provided on a scale of 1 to 5 (1 = very important, 5 = quite important), to specify the most important features of the service and to also comment on the ability of the suppliers to fulfil their requirements. This was not particularly easy for staff because in some cases a service would rarely be called upon, but when requested it would be of the highest priority. To avoid this confusion the rating was linked to the frequency with which the service was requested.

6.5.2 Internal integration modelling

The internal modelling phase followed a very similar process to the external adaptation modelling, except in this case it was an introspective view of how the whole group interacted and worked with one another.

Thus the whole group was taken through the 11 stage process of internal integration modelling as described in Table 6.4.

Table 6.4: Internal Integration Modelling

INTERNAL INTEGRATION MODELLING		
STAGES	DESCRIPTION	COMMENTS
Stage 1	Identify the boundaries of the group.	Clinical directorate, ward, etc.
Stage 2	Involve everyone in this group in the modelling process.	Ensure that at least one member from each discipline is present.
Stage 3	List all people who you interact with within the group.	Include all individuals within the group.
Stage 4	Define the service or product being supplied or used by this person.	Simple definition of what is being supplied or consumed.
Stage 5	Define them as customers and/or suppliers.	Definition based on whether they are providing or consuming services.
Stage 6	Identify the link person who initiated the request for the service.	Person/sub-group responsible for ensuring request or receipt of service.
Stage 7	Construct internal integration model.	Unrefined model.
Stage 8	Cross-tabulate to check for anomalies.	There are likely to be inconsistencies between what suppliers believe they are supplying and customers believe they are requesting.
Stage 9	List key interaction types.	Obtain group consensus on the key interaction types.
Stage 10	Define each link (interaction type).	Each link must be typed, based on consensus list of interaction types.
Stage 11	Final review of model.	Second version model produced which is reviewed on continual basis.

As with the first stage modelling several small, interactive, multidisciplinary group training sessions were carried out with the directorate staff. In these sessions the staff were introduced to the detailed concepts of internal integration modelling, so that they could realise the second stage of the modelling process. Every participant at the meeting was given a specifically designed form to list their different suppliers, customers and service or product provision (Appendix III).

Individuals were given two weeks to complete these forms and as before were encouraged to fill them in individually or by speciality. In this case customers and suppliers were limited to the directorate staff who were categorised as follows:

- Doctor
- Specialist nurse
- Out-patient nurse
- Research nurse
- Medical laboratory scientific officer (MLSO)
- Clinic clerk
- Administration/secretarial support
- Computer support
- Dietetics
- Counselling
- Diabetic eye complication screening (DECS)
- Chiropody

In this phase of the modelling, the interactions were described in greater detail, since the internal functioning of the DEDC accounted for the majority of staff time. After defining the different relationships 12 preliminary models representing each category of staff were constructed, showing the internal functioning of the directorate. These models were shown to each individual category of staff to allow comment and make the necessary adjustments. Due to the large number of interaction types and differences in opinion between different groups as to the type of services being requested from one another, a cross tabulation was put together so that all the information from all sources could be entered. This was used to highlight where perhaps information omissions had occurred or where there were discrepancies. In this way this cross tabulation was used to cross check every single interaction type.

The whole modelling process made people think more about who they truly needed to interact with and also to question why? Staff realised that some interaction types were formal whereas other interaction types which they placed as equally important were informal. It also highlighted that with some members of the group no formal interactions ever took place.

In stages 9 and 10 it was necessary to devise a short-hand for the various interaction types, since too much detail in the models would make them difficult to use in practice. Therefore the DEDC staff met to devise a standard list of interaction types, whilst not distorting the actual nature of their interactions. In Chapter 4, broad categories were suggested as follows:

- Clinic management of patients (by any of the professional groups)
- Technical support services (all laboratory and diagnostic services)
- Operational support (secretarial, computer, cleaning, administrative etc.)
- Information services (education and advice to internal and external customers)
- General management (strategic planning, budgeting and resource deployment)

Table 6.5 describes the different interaction types devised by the directorate staff, which follow very closely to the broad categories suggested in Chapter 4.

Table 6.5 Interaction Types

INTERACTION TYPES FOR THE DIABETES AND ENDOCRINE DIRECTORATE
CLINICAL MANAGEMENT (Cm) : planning / monitoring / assessment / treatment
ASSESSMENT (As) : diet assessment / patient examination
MONITORING (Mo) : weight, blood sugar levels etc
TREATMENT (T) : medical treatment, chiropody, counselling
INVESTIGATIONS (I) : trials / tests
TESTS (Te) : bloods / preassessment / eye screening / AFTs (neurological tests)
RESULTS (Rs) : test results
EDUCATION (E) : patient group and individual sessions
ADVICE (A) : information / audit / infection control / medical advice / treatment advice
OPERATIONAL SUPPORT (Os) : switchboard / work maintenance / cleaning / portering / post / transport / waste disposal etc
SECRETARIAL (S) : typing / photocopying / telephone queries / clinic letters / messages
SUPPLIES (Sp) : pharmacy / laundry / CSSD / HSDU / computer h/w and s/w
COMPUTER SUPPORT (Cs) : tech support / maintenance / crash recovery
ADMINISTRATION (Am) : appointments / notes / results / reception
MANAGEMENT (M) : business planning / contracting / budgeting

Some of these broader categories were then sub-divided yet again such as Clinical Management, which is made up of assessment, monitoring and treatment of the patient.

$$C_m = A_s + M_o + T.$$

Investigations involve ordering and carrying out specific tests and receiving the results.

$$I = T_e + R_s.$$

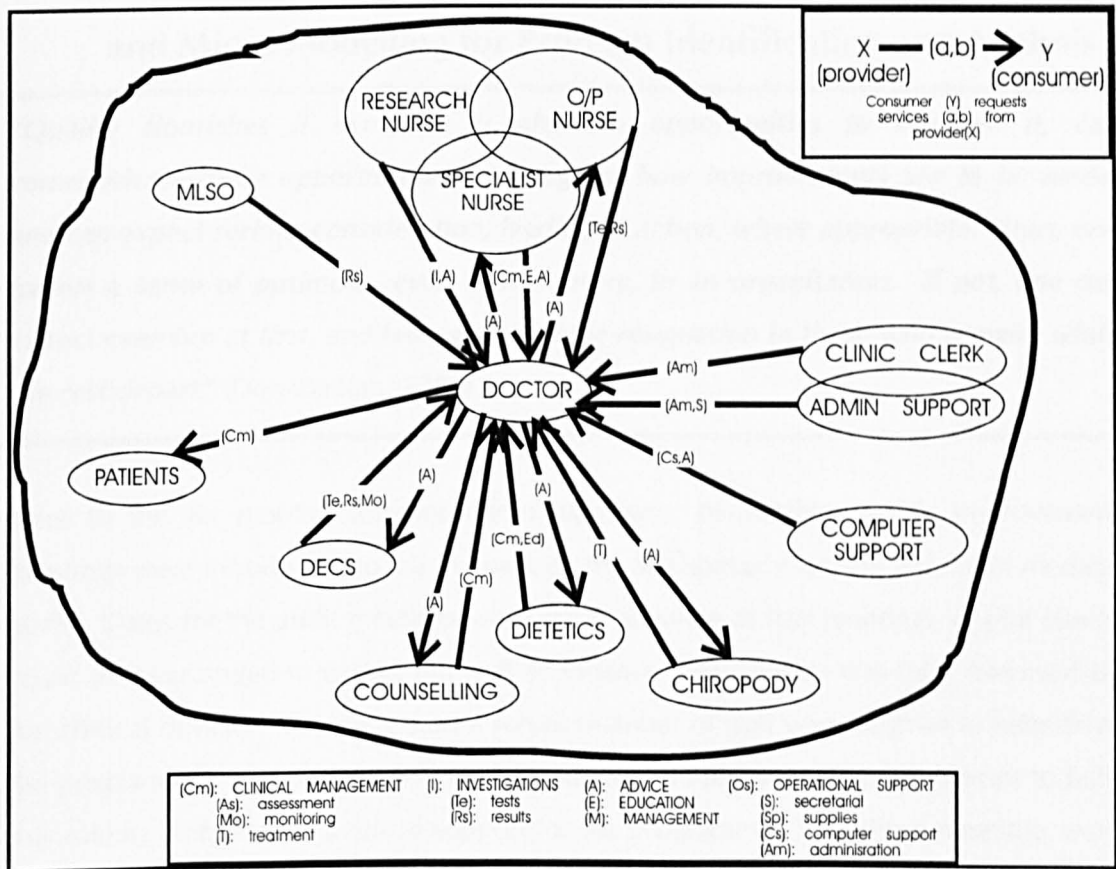
Operational Support involved all operational hospital services including secretarial support, admin. support, supplies and computer support.

$$O_s = S + S_p + C_s + A_m.$$

In this internal integration modelling phase it was unnecessary to prioritise links due to the small number of staff categories involved, unlike the case of external adaptation modelling which involved a very large number of external bodies,. Additionally it may have created tension within the directorate if staff were asked to rate or prioritise different internal services or individuals.

Figure 6.5 gives an example of one of the internal integration models constructed, whilst Appendix IV shows the full set of internal integration models produced.

Figure 6.5: Internal Integration Model; Doctor ↔ DEDC



With the models having been developed, it was important to test them as an aid to carrying out audit and quality improvement activities; this is stage 4 of the QA implementation programme and is illustrated through 2 case studies, one using a macro model and the other a micro model.

6.6 STAGE 4: Quality Action - Using Customer-Supplier Macro and Micro Modelling for Problem Identification and Analysis

“Quality flourishes if everyone is alert to opportunities to improve it, can communicate these opportunities, can suggest how improvements are to be made, and can expect serious consideration, leading to action, where appropriate. Thus, one fosters a sense of optimism, even of adventure, in an organisation. If not, one can expect cynicism at first, and later an apathetic resignation in those who remain, while the rest depart” (Donabedian, 1996).

Prior to the six month customer-modelling phase, bi-monthly quality improvement meetings were introduced, to fall in line with the St Thomas’ Hospital policy on medical audit. Dates for the audit meetings were set in advance at staff meetings so that clinics could be re-arranged to ensure full staff attendance. This action was fully endorsed by the clinical director. From the start a senior member of staff was assigned to help drive the programme. The clinical director fully supported the nomination of a doctor to fulfil this role to visibly show medical support for the programme. Thus these meetings were led by one of the registrars and the researcher was invited to introduce the concepts of audit and quality assurance as well as taking on a facilitative role during the audit meetings.

Although scepticism was high, in that some staff members felt they were being taken away from their ‘real’ work to ‘talk’ about how to improve the overall performance of the directorate, it was a generally accepted principle that the audit of clinical practice was becoming established and accepted, and that there was a need for a framework for coherent interdisciplinary audit bringing the different professional groups together to facilitate quality improvement activities. Concern was also expressed that if the directorate did not design its own programme, then undoubtedly a hospital system would be imposed which would be less relevant and sensitive to the directorate’s needs.

The directorate audit/QA meetings were held once every two months for three hours. The general format of the meeting included:

- Update and review from previous meetings
- Identify specific problem areas
- Staff assigned to working parties for specific problem areas
- Working parties analyse problem area and seek solutions
- Working parties report solutions and actions to be taken before the next meeting
- Discussion on topics for next meeting
- Confirm date for next meeting

Between meetings the lead auditor (registrar) and facilitator were involved in follow-up, provided support to staff and planned for the next meeting.

The first two meetings consisted of theory and group working sessions. Staff were introduced to the concepts of audit, quality improvement and customer-supplier modelling. Pre-selected topics suggested by individual members of staff were analysed and potential solutions proposed. Selected topic areas included:

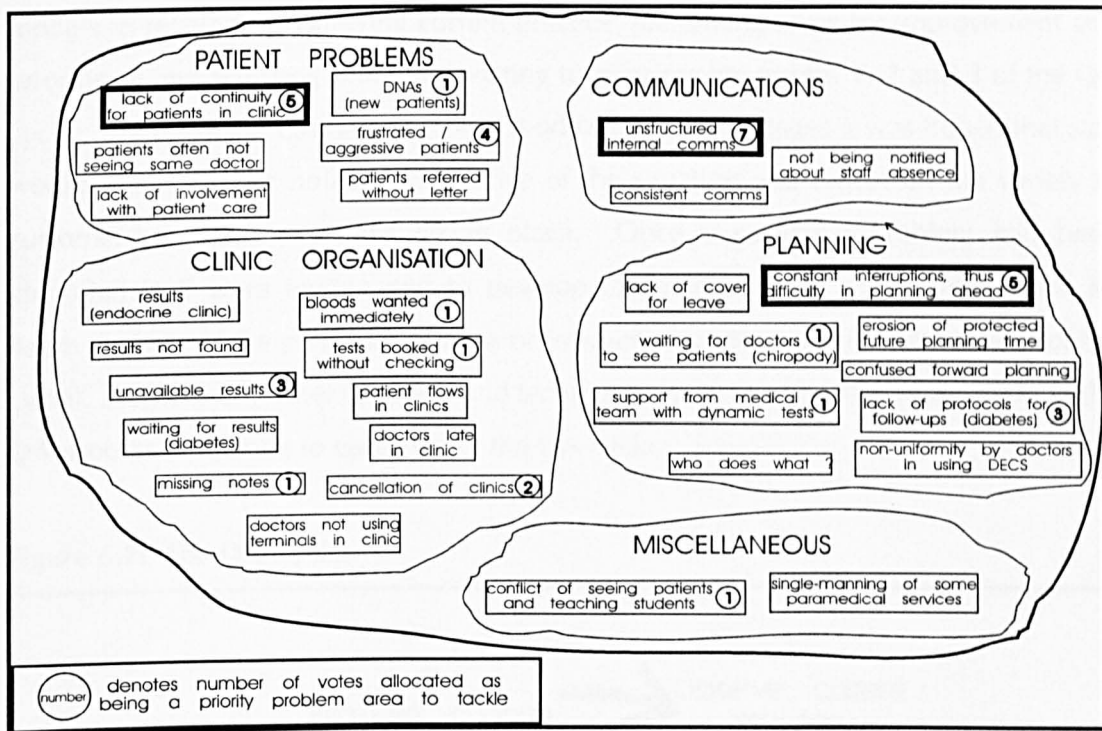
- Annual patient review
- Why do I see a different doctor each time?
- Creatinine and cholesterol results: a cause for concern?
- Insulin tolerance testing
- Patterns of referral to dietitians
- Retinal photography

It can be observed that a variety of clinical and organisational topics were covered. However, follow-up to the potential solutions was weak, resulting in active participation only from those who suggested the problems in the first place. Thus it was decided that more participative techniques needed to be employed for selecting areas of concern, to create a greater sense of group ownership and follow-up. Also, by this time the customer-supplier models had been completed and were ready for use.

Structured brainstorming sessions during the audit meetings revealed a number of concerns about the day care services. Some of these included clinic waiting times, patient and GP information, staff communications, patient communications, doctor

continuity, accuracy of blood results and many other areas, both clinical and non-clinical. Figure 6.6 gives an example of the concerns of DEDC staff as a result of one brainstorming session.

Figure 6.6: Results from Staff Brainstorming Session



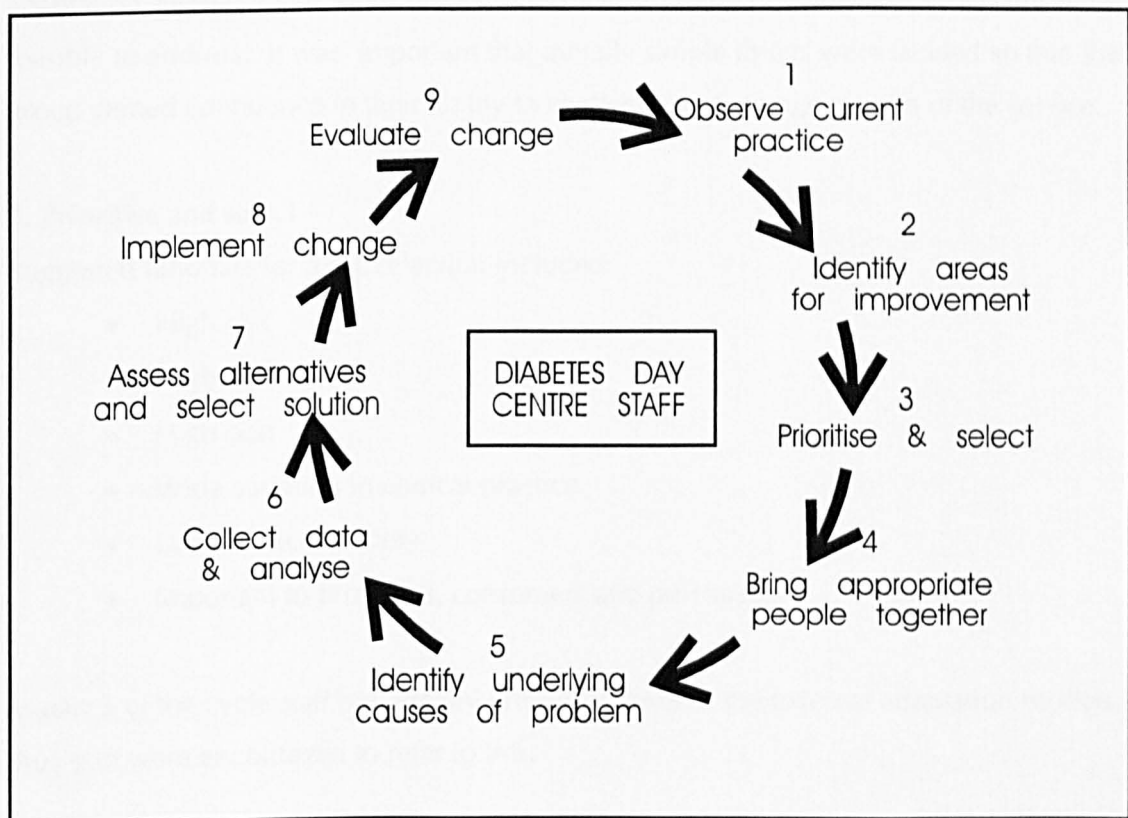
In this example the group was given a trigger question:

“What are your two most significant problems that cause you most frustration when attempting to do your job in the day centre?”

The purpose of this was to focus staff on internal problems of the day centre. Each member of staff was given two cards to describe the problem in as few words as possible. All the cards were read out aloud by the facilitator to check that everybody understood the sentiment of the card. No judgements were made. The next stage was to categorise all the responses into broader areas such as clinic organisation, patient issues etc. At this stage every member of the group was given two red dots to stick on one or two cards that they felt were the most important issues. Once these issues had been prioritised, it was then possible to select the top three issues and assign people to working groups to analyse the problems in greater detail.

To focus on these areas of concern, audit meetings were structured using the directorate, audit and quality improvement cycle (Figure 6.7). Guidelines were given to staff to help them in applying the QA cycle to guide their audit and quality improvement activities. In particular staff were encouraged to refer to the customer-supplier macro models in relation to reviewing current practice, identifying areas for improvement and prioritising and selecting problems relating to poor quality (stages 1, 2 and 3 of the QA cycle). By using the customer-supplier models for these 3 stages it was hoped that staff would retain a more holistic perspective of the situation and reflect on the variety of customer-supplier interactions taking place. Once a particular problem had been identified staff were encouraged to develop customer-supplier micro models for in-depth analysis of the particular process or interaction under investigation (stage 5 of the cycle). Additionally other QA tools and techniques were used by staff to aid them in the QA process in relation to each step of the QA cycle.

Figure 6.7: The QA Cycle



1. Observe current practice

- Use patient flow charts
- Use customer-supplier models
- Review of current performance data available from DIABETA.

Staff were encouraged to develop flow charts and refer to the customer-supplier models for observing current practice as well as making use of routine data available.

2. Identify something that can and should be modified

- Brainstorming
- Using customer-supplier models
- Review of current performance data available from DIABETA

The above problem identification techniques were suggested. It was important that problems identified were within the control of the group or were external aspects that the group felt they could influence. By referring to the internal integration and external adaptation models these were used to help identify problems that the group felt were feasible to address. It was important that initially simple things were tackled so that the group gained confidence in their ability to challenge and change aspects of the service.

3. Prioritise and select

Suggested rationale for topic selection included:

- High risk
- High volume
- High cost
- Wide variation in clinical practice
- Local clinical anxiety
- Important to providers, consumers and purchasers

In part 3 of the cycle staff has already prioritised links in the external adaptation models, thus staff were encouraged to refer to this.

4. Bring appropriate people together

Initially all members from DEDC or at least representatives from different professions were present. As meetings continued and topics were selected, at times it would be appropriate to bring in people from other departments, where problems identified involved external customers and suppliers who could help in problem analysis and designing appropriate solutions.

5. and 6. Gather data and identify underlying reasons for failure

For stages 5 and 6 staff were encouraged to identify underlying reasons for failure by analysing whether the problem was related to structure, process or outcome and to check whether routinely stored data was available or easy to access. In this case the development of customer-supplier micro models was advocated, for identifying process problems and whether two-way information flow existed between customer and supplier. The use of other analysis tools such as process flow diagrams, pareto analysis and control charts was also proposed.

7. Develop and assess alternatives

At stage 7, it was particularly important that appropriate people were working together so that a variety of ideas and alternatives could be generated. It was also vital that only practical solutions were proposed which did not require large investments. Considerable emphasis was placed on re-allocation of existing resources.

8. Implement change

Once the group had agreed on the intervention, it was necessary to put together a plan of action, with defined activities, time-scales and persons responsible for carrying out each activity.

9. See how things have changed and decide what to do next

The final stage of the cycle was to ensure that staff evaluated whether changes produced the desired results and to analyse the reasons for any failure to achieve what was desired.

Obviously the time limitations of this study make it very difficult to observe significant changes in the quality of service provision, although even within one year certain organisational changes resulted in the way that services were provided.

Examples of schemes/interventions implemented and in progress resulting from the audit meetings included:

- 'Let us know' patient comment scheme
- In-depth study carried out into access to diabetes care for Afro-Caribbean patients
- Improved patient information in waiting area
- Eye testing and dilating protocol developed
- Doctor rota revised to improve continuity of patient care
- Staff newsletter produced on a bimonthly basis to improve internal communications
- Desk diary re-introduced to keep group informed of staff movements and availability

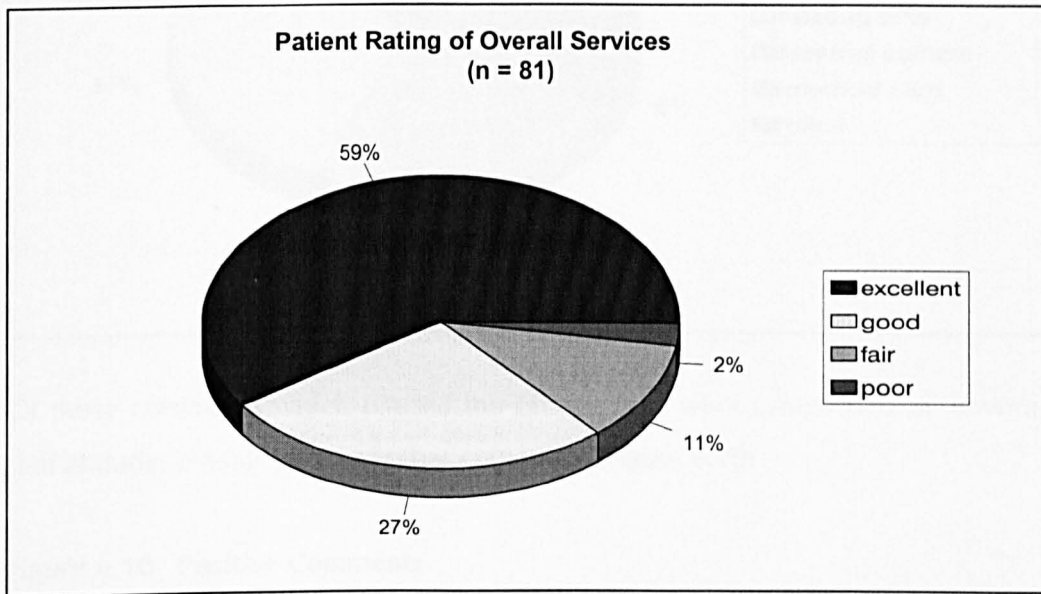
The first two examples above are expanded in Sections 5.7 and 5.8 to detail how these studies resulted from using customer-supplier modelling and the QA cycle.

6.7 'Let Us Know' Patient Comment Scheme – Case Study 1

By reviewing the customer-supplier **macro** level models, it became quite clear that patient perceptions and expectations of health services had not been sufficiently addressed. A particular concern of day centre staff was that more regular feedback from patients was important in order to ensure that patient perceived problems were being systematically addressed. This resulted in the launch of the 'let us know' patient suggestion scheme, which had already been successfully implemented at Guy's Hospital (Appendix V). Patients were asked to write down any comments they had concerning the day centre in terms of what was being done well and what could have been done better. Each patient was also asked to give an overall grade of the service, rating it from very poor to excellent.

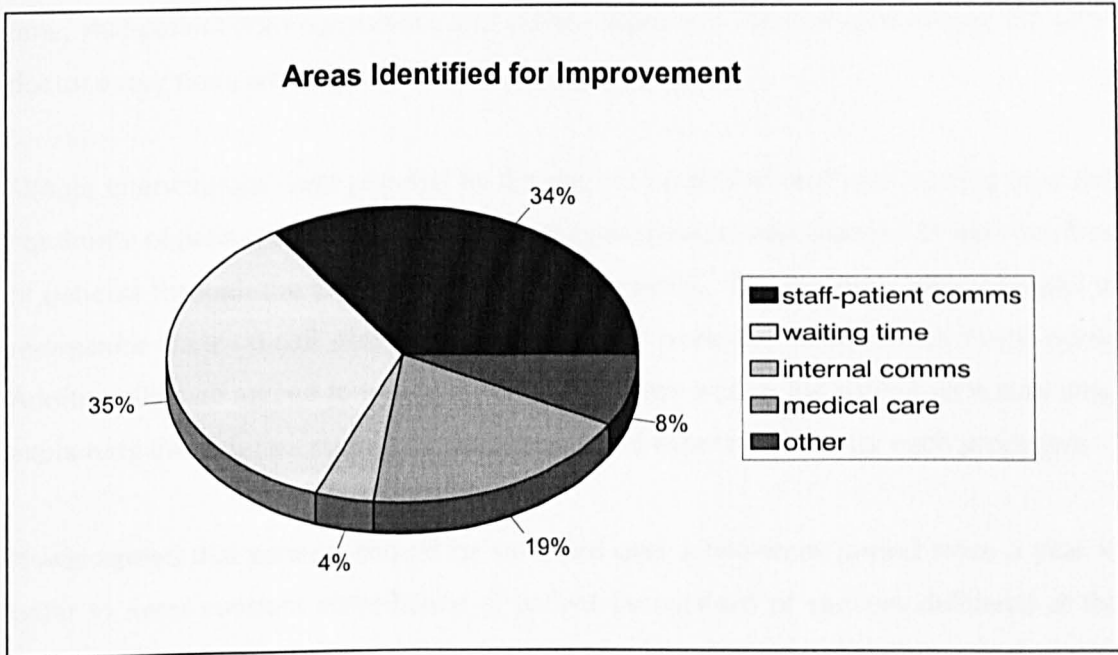
Each patient attending for annual review or follow-up diabetes care over a two-month period was asked to complete a suggestion card after they had seen the doctor. In total 81 completed cards were returned. Of these cards, 52 contained additional written comments. The patient rating of the overall service ranged from poor to excellent, as shown in Figure 6.8.

Figure 6.8: Overall Patient Satisfaction



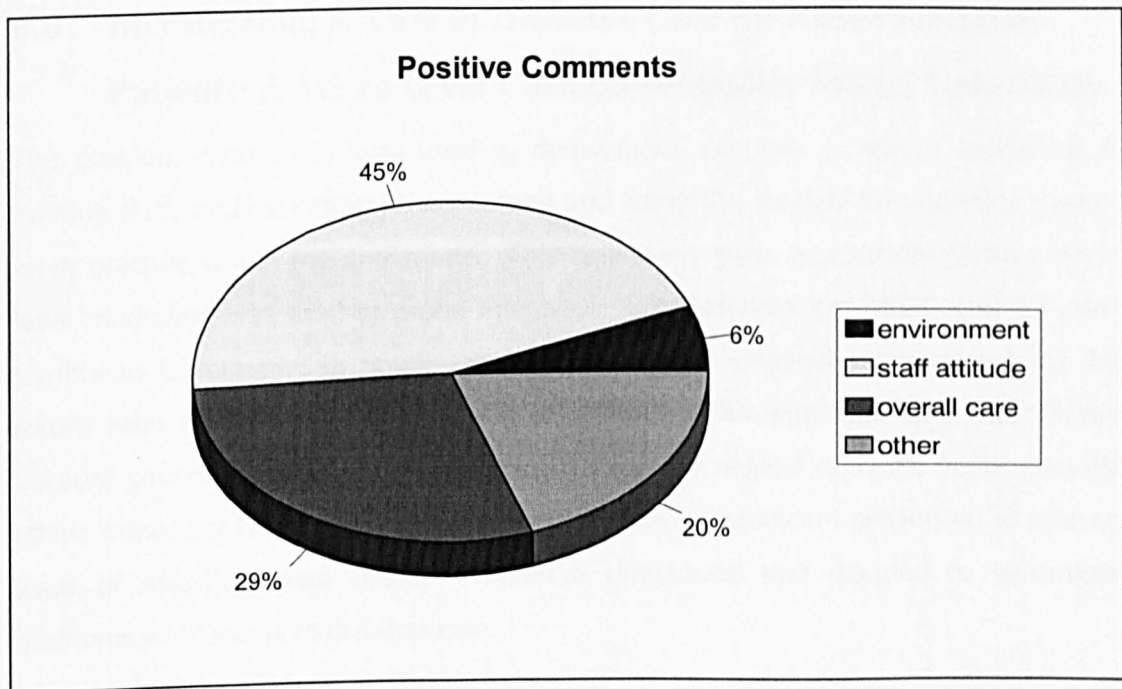
Additionally 64% (n=52) of those patients who completed a card made comments about the service they received. Of these comments, 35% suggested improvement and 65% praised the services. Areas that caused most dissatisfaction included staff-patient communications and waiting time in the clinic and for an appointment (Figure 6.9)

Figure 6.9: Patient Suggestions



Of those comments which praised the service they were categorised by environment, staff attitude, overall care and other comments (Figure 6.10)

Figure 6.10: Positive Comments



Whilst overall, general satisfaction was fairly high, it also became clear that waiting time, staff-patient communications and certain aspects of medical care (seeing the same doctor every time) were issues of concern to patients.

Simple interventions were planned by the day centre staff to deal with waiting time and continuity of patient care. The allocation of appointments was changed to improve flow of patients through the clinic and reduce bottle necks. The registrars also managed to re-organise their on-call duty so that they could work the same clinics every week. Additionally staff agreed to mount a flowchart on the wall in the patient reception area, explaining the different stages of a patient visit and expected times for each procedure.

It was agreed that patients should be surveyed over a two-week period twice a year in order to keep constant surveillance of patient perceptions of services delivered at the day centre. Whilst all these solutions were very simple and straightforward, it can be argued that none of these interventions would have been carried out without a systematic analysis being carried out by the day centre staff and interdisciplinary team working.

6.8 Investigating Access to Diabetes Care for Afro-Caribbean

Patients; A Micro Level Customer-Supplier Model Case Study

The previous case study was used to demonstrate the role of macro modelling in training staff, understanding group culture and using the models for analysing current work practice within the directorate. This case study gives an example of how micro level modelling was used to probe into weak links between the DEDC and the Afro-Caribbean Community in South London, focusing on external relationships (for full results refer to Appendix VI, Doyle *et al*, 1993b). This particular area was chosen because government had expressed concern about the neglect of health needs amongst ethnic minorities (DoH, 1992) and within the DEDC a significant proportion of patients were of Afro-Caribbean origin. Therefore directorate staff decided to investigate problems with access to diabetes care.

By using the DIABETA system it showed that there were higher 'did not attend' (DNA) rates for black patients than Caucasian patients, reflecting the fact that black patients

were experiencing greater problems with accessing the services of the day centre. Using the QA cycle and customer-supplier modelling, the effectiveness of the customer-supplier link in relation to health care delivery was evaluated, by analysing the level of service provision and information flow between the two bodies.

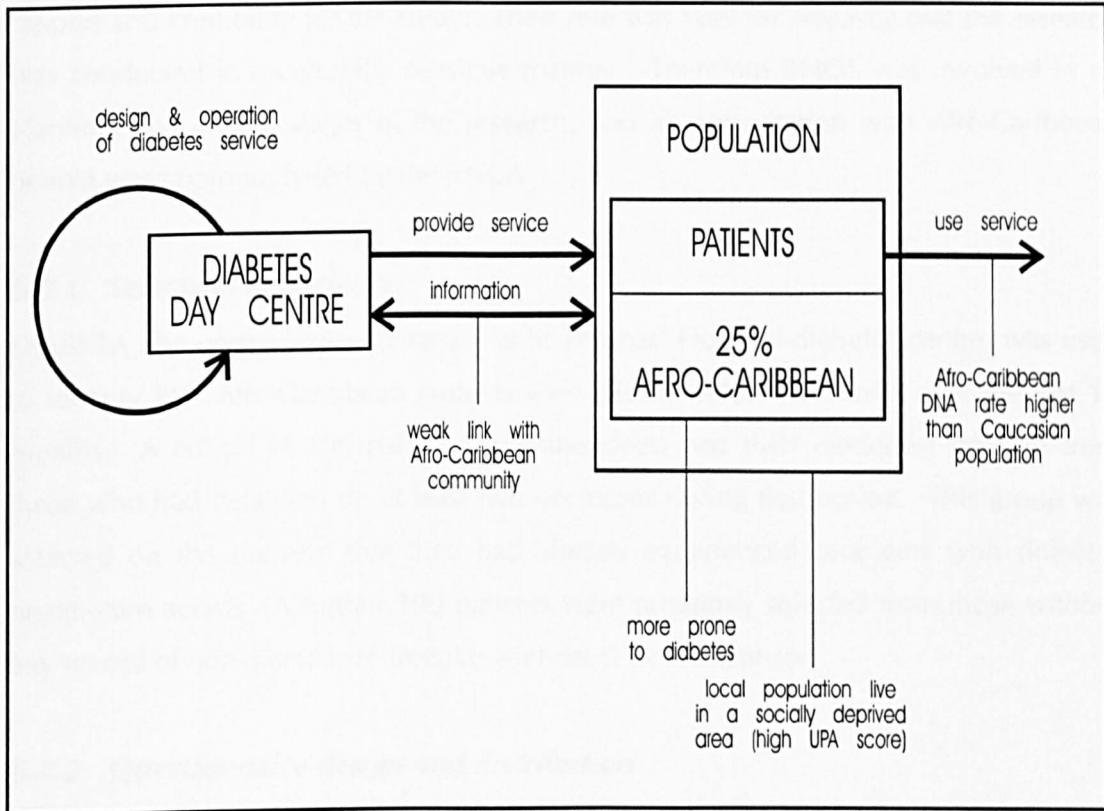
Therefore stages 1, 2 and 3 of the QA cycle were already completed, in that from observing current practice, a problem had been identified and prioritised. Stage 4 was that appropriate people were brought together to work on the problem. Because this link was from an external adaptation model it followed that appropriate people from the community should be brought together with directorate staff to probe and analyse the problem further. Therefore the Brixton Neighbourhood Community Association (BNCA) and three local general practitioners were invited to participate. The BNCA also expressed similar fears about problems with access to services and education for their community. Many of its members were patients at St Thomas' DEDC or were being treated by local GPs for diabetes. Stage 5 of the cycle was where the particular link with the hospital and BNCA was analysed at a micro level in an attempt to identify the underlying causes of the problem through looking at current processes and available information.

Using the DEDC computerised patient record system it was possible to ascertain that 25% of patients were of Afro-Caribbean origin and that the DNA (did not attend) rate was higher than in Caucasian patients. Other characteristics taken into consideration were that black people are more prone to diabetes (Cruickshank, 1980, 1989; Karmi 1993; Mather 1985; Odugbesan 1989; Nikolaodes 1981) and that the local population live in a socially deprived, inner city area with a high under-privileged area (UPA) score (Jarman 1983). Although the DEDC had carried out patient satisfaction surveys before, no race specific data was collected (Doyle 1990a,b).

Thus by producing a micro-level model with the current information available (Figure 6.11), it became clear that there was very little information specific to Afro-Caribbean patients. By analysing each link in turn it could be said that the design and operation of the diabetes service was not race sensitive, although 25% of the 'customers' were non-Caucasian and more prone to diabetes. The information link between the Afro-

Caribbean patients and DEDC was very weak with very little 'genuine' dialogue between the two groups and this may explain why the DNA rate was higher.

Fig 6.11: Customer-Supplier Model of Micro Link with A/C Community



Therefore by referring back to the original simple customer-supplier model presented in Chapter 4, it was necessary to find out more about the values and expectations of this particular group, by collecting additional data (stage 6 of the cycle).

Thus the principal objectives of the study were to investigate problems experienced by Afro-Caribbean people in gaining access to diabetes care by:

- Identifying Afro-Caribbean diabetics not receiving regular diabetes care
- Discovering the problems they have in obtaining the appropriate advice and treatment
- Assessing diabetes knowledge in both diabetic and non-diabetic members of the Afro-Caribbean community

The active involvement of the community (Anderson *et al*, 1991) was considered to be a key component of obtaining accurate and realistic information about health care needs in the community. The BNCA therefore took on a substantial organising role and played an important part in encouraging community involvement and establishing rapport and credibility for the study. Their role was vital for ensuring that the research was conducted in a culturally sensitive manner. Therefore BNCA was involved in all planning and design stages of the research, and all consultation with Afro-Caribbean people was community-led by the BNCA.

6.8.1 Selection of patients

DIABETA (the computerised database at St Thomas' Hospital diabetes centre) was used to identify 697 Afro-Caribbean patients who had attended the centre over the last 18 months. A cohort of 100 patients (non-attendees) was then randomly selected from those who had defaulted on at least two occasions during that period. This group was selected on the premise that they had already experienced problems with diabetes health care access. A further 100 patients were randomly selected from those without any record of non-attendance (regular attendees) for comparison.

6.8.2 Questionnaire design and distribution

A postal questionnaire (Appendix VII) was specifically designed to establish the salient issues regarding problems with access to diabetes services. The questionnaire focused on:

- Health beliefs
- Doctor/patient relationships
- Appropriateness of services
- Waiting time
- Socio-economic issues
- Language difficulties

These were sent out to both patient cohorts in hand addressed and post-office stamped envelopes. Patients were asked in a covering letter to complete the questionnaire as accurately as possible, to return it to the BNCA and to expect to be telephoned by a

BNCA member to clarify details. Those patients who did not have telephones were followed up by house visit.

Five volunteers from the BNCA were trained to phone patients on receipt of the questionnaire, to check the validity of the answers and to ask patients for any additional problems they had experienced concerning access to diabetes health care.

6.8.3 Focus groups and open meeting

As a complementary approach, two focus group interviews (n = 8 and n = 10) and a large open forum meeting (n = 80) were held at the BNCA to elicit any further views which the structured questionnaire might not have picked up (Armstrong *et al*, 1992).

6.8.4 Knowledge questionnaires

To assess levels of basic understanding concerning diabetes, knowledge questionnaires were issued to a randomly selected group in the BNCA community (n = 122). Three types of questionnaire (Appendices VIII, IX, X) were used to assess knowledge in:

- Insulin dependent diabetics
- Diet and/or tablet treated diabetics
- The general population

The sophistication of the questions reflected the level of knowledge expected from each group.

6.8.5 Results

6.8.5.1 Patient access questionnaire

A 62% response rate was achieved (n = 63 regular attendees, n = 60 non-attendees) over a four-week period. The non-attendees were in as much agreement as were the regular attendees over the importance of seeing a doctor/nurse on a regular basis (93% vs. 96%), although they had defaulted on at least two occasions over the last 18 months. More non-attendees felt that the health care professional did not have enough time for them and significantly more felt that their visits might be a waste of time. Half the non-attendees felt that if the DEDC employed more black staff it would be a help to them, as opposed to a quarter of regular attendees. As expected both groups, but particularly the non-attendees, thought that clinic waiting time was a barrier to health care access. Of

the specific problems with health care access, the non-attendees especially felt that transport, their job and language skills were a significant problem.

Additional comments were made by 98% of both non-attendees and regular attendees. Of these the most frequent were that they wanted:

- More specific education and information about diabetes
- More support in the community
- More frequent appointments
- More doctors and nurses

6.8.5.2 Focus groups/open meeting

In the focus group interviews common patterns emerged in terms of lay views on the nature of diabetes, its causes, and its management. Overall, the treatment obtained from both general practice and hospital was praised. Nonetheless given the nature of diabetes it would seem that their understandings of their illnesses were not always conducive to best long term management. It appeared that their views about diabetes were embedded in much deeper-seated cultural beliefs about health and illness. Whilst overall they were satisfied with treatment and had faith in medical science, they had difficulties with:

- Communication with doctors
- The extended role of the nurse
- Seemingly irrelevant dietary advice

Again, there were very many spontaneous remarks, requesting more specific information about diabetes that could be readily understood by the Afro-Caribbean community.

6.8.5.3 Knowledge questionnaires

The results from the knowledge questionnaires showed that non-diabetics had a fair general understanding and awareness about diabetes. However the results from known diabetics indicated a marked lack of necessary specialist knowledge about diabetes, and all should have had an opportunity for individual or group education sessions. For instance only 18% of insulin dependent diabetics and 17% of diet, or diet and tablet, treated diabetics, knew the normal range for blood glucose. Also only 29% of diet

treated diabetics knew that butter was mainly fat. This discrepancy may be attributed in part to lack of culturally sensitive patient education programmes and materials and failure of the health care professional to understand the culture of Afro-Caribbean patients (Anderson *et al*, 1991).

6.8.6 Summary of findings

Thus the results from this study showed that:

- Important cultural differences in obtaining access to diabetes health care exist and must be overcome
- There is a pressing need, and desire, by the community for more culturally sensitive information and education about diabetes
- Conventional problems with health care access for diabetes are still very relevant for the Afro-Caribbean population

This view is strongly supported by Donovan *et al* (1984).

6.8.7 Worth of micro-level modelling

This study highlighted how many problems happen at boundaries, and that by taking a structured, systematic approach, customer-supplier micro-level modelling provided a framework whereby it was possible to:

- Be aware of different customers and their values and expectations
- Understand how people and processes relate
- Explain consequences of actions or inactions in a logical systematic way

This example also tackled different levels of care (community based, GP based and hospital based), the critical links (patient and community participation), contributions by all professionals, and both the clinical and non-clinical, aspects of the service.

6.9 Beatrice Ward

Complementary to the DEDC research programme, a second pilot study was established in Beatrice Ward, a 28 bedded gynaecological ward, dealing with both minor and major surgery patients. Access reasons prevented this work developing as far. Although the

external adaptation modelling was completed by all staff, the application of the models to aid quality improvement activities was never tested.

The same training materials and methodologies were used as in the case of the DEDC, however unlike the DEDC training sessions, the doctors' training was carried out separately from the other staff. The 'natural' team consisted of the nurses and other ward staff. Although six doctors (consultants, registrars and junior doctors) were assigned to the treatment of the ward's gynaecological patients, their time was split between in-patient and out-patient care and both day case and major surgery. This resulted in the medics spending much less time physically on the ward. In fact contact time between the medics and ward staff was extremely low and only formally occurred during ward rounds. Unlike the DEDC which was managed by physicians, Beatrice Ward was managed by a sister and senior staff nurse. Therefore the ward was a far more homogenous environment than the day centre, relying to a much greater extent on the services of other departments within the hospital.

Appendix XI describes the structure of Beatrice Ward, including a flow-chart of gynaecological in-patients from admission on to the ward until discharge, as well as the external adaptation model that was produced.

This experience provided the opportunity to pilot the training materials with a second group as well as to test the applicability of customer-supplier modelling in a different domain (an in-patient area of the hospital). Although it was demonstrated that it is equally possible to apply customer-supplier modelling to an in-patient area, problems arose in terms of defining the group. Whilst the natural group consisted of the nurses and ward staff, it seemed inconceivable to exclude the medics from this group. However, logistically it proved to be impossible to involve the doctors in joint training sessions. One can argue that in the case of an in-patient area, the external adaptation models will have greater relevance due to the homogeneous ward environment and greater reliance on services external to the ward. Also the issue of whether the medics should have been internal or external to the group and classified as external customers/suppliers is important. These themes of modelling relevance and natural groupings are discussed further in Chapter 7.

6.10 Role of the Quality Facilitator

In bringing together these different initiatives, the role of the quality facilitator was vital. The facilitator worked to enable staff to take ownership for addressing quality issues; prioritising areas for problem solving, and pulling together key staff from relevant areas to work as a team towards meaningful solutions. Some of the problems experienced by the quality facilitator throughout the implementation of the quality programme related to human resource development needs, such as:

- Communication
- Team building
- The use of management tools and techniques
- Staff empowerment

One of the major roles of the facilitators was to assist staff in taking time out from routine duties and bring the focus to local concerns, helping them to change their thinking and believing that something could actually be done. In Chapter 7, a model of the expert facilitator is presented.

6.11 Summary

This chapter has focused on the construction and application of customer-supplier models for quality improvement. The customer-supplier modelling process was described in relation to the Diabetes and Endocrine Directorate and internal integration and external adaptation models were presented. Examples were given of how the customer-supplier modelling process was used to identify internal quality problems and also to highlight a particularly weak link with the local Afro-Caribbean community. The importance of interdisciplinary team working and the role of the expert facilitator were discussed in relation to the construction and use of these models.

Customer-supplier models were shown to provide the framework for pin-pointing where current quality problems exist and for identifying weak inter-departmental and external relationships. It was demonstrated that the modelling technique aids interdisciplinary audit rather than specific medical, nursing or paramedical audit since it is describing the total health care package that the patient receives. It also helped staff to prioritise needs and provide the much needed structure for interdisciplinary audit activities. It is

important to point out that the customer-supplier models were used in stages 1-6 of the QA cycle (problem identification and analysis) and that for defining solutions and implementing these interventions, this depended on well defined action plans and teamwork.

Thus the models were shown to provide an holistic, interdisciplinary focus, help prioritise needs, identify current work practice, pinpoint quality and organisational problems, highlight poor relationships and acknowledge outside organisations.

Difficulties with the modelling process included getting the commitment from all staff, identifying different levels of interaction and regularly updating the model when organisational changes occurred.

It was demonstrated that team working is an essential component for any quality improvement initiative. The major strength of having all staff involved in the programme meant that staff were empowered to agree on changes required and that the appropriate expertise was always on hand, whether it was an administrative, medical, paramedical, nursing, computing or clerical problem. Staff also demonstrated an ability to work as a team in identifying areas of concern and achieving desired results in service improvement. One can argue that by working as a team, it can have considerable impact on the perceptions of staff about their ability to deal with important issues in their own working environment.

In Chapter 7 these results are discussed from both systems and health care perspectives. Major issues arising from this research study will be discussed, including considerations of choice of methodology, systems complexity, practical implementation issues and health sector reforms.

Chapter Seven

Discussion

“Every reasonably established method in the armamentarium of quality assurance has been shown to work in some situations.....They all work. And yet, no one method is demonstrably superior in every situation, or in most.”

Donabedian, 1996

7.0 Introduction

In Chapter 6, the construction and application of customer-supplier models for quality improvement in the Diabetes and Endocrine Directorate were described. This highlighted how customer-supplier models were used as an aid to drive the whole quality improvement process with case-studies at both macro and micro level.

In this chapter the development and application of customer-supplier modelling is discussed from both systems and health care perspectives. Major issues arising from this research study are examined, including considerations of choice of methodology, systems complexity, practical implementation issues and issues arising from health sector reforms. Finally the value of customer-supplier modelling will be analysed and suggestions for further development of this work will be proposed.

7.1 Methodological Issues

Underlying many initiatives world-wide is the belief that QA offers health service providers the chance to improve health care and public satisfaction based on existing resource constraints. A core assumption throughout this thesis is that if QA systems are established and implemented appropriately then quality improvements will be realised. Specific methodological issues encountered in the design and implementation of customer-supplier modelling are now discussed.

7.1.1 Justification for customer-supplier modelling

The case for a TQM philosophy was argued in Chapters 2 and 4 as being the only truly holistic approach to quality improvement. Deming enunciates that the only road to success is through continuous quality improvement with:

- A focus on the customer in defining quality
- Recognition that all work takes place in systems
- Use of statistical tools in defining and evaluating the performance of the system

He insists that senior management must provide the leadership and direction for an environment in which fear and blame are removed from the workplace and are replaced by vigorous programmes of training and education of all employees. Team

work and employee empowerment replace traditional, hierarchical control in the management process (Eastman, 1992a).

Whilst this appears intuitively obvious, translating these principles into practice is often overwhelming and usually requires many years of commitment. To succeed in creating a TQM environment, most organisations require a fundamental change in their culture so that the philosophy of TQM becomes integrated into every aspect of the organisation's management and practice, whereby people, processes and systems truly interrelate.

In both commercial and health sectors there are many examples of people using QA tools but without a common framework and philosophy to drive the process or conversely, examples of organisations strong on the philosophical and spiritual aspects of TQM, but with no tangible tools or framework to anchor and fully integrate TQM principles into the centrality of the organisation. Also the tools which accompany the TQM philosophy have mainly been adopted from the partial approaches to quality improvement which were described in Chapters 2 and 4. This in itself implies that the tools and techniques will only have the capability of delivering what they were designed for. This is not to devalue the worth of the different tools and techniques which are proposed for use in TQM organisations, but to suggest that by even using a combination of these methods it will not necessarily encourage an holistic, interdisciplinary, customer-focused approach.

Bicheno (1991) lists the seven major tools and twelve techniques supported by the 'top' quality gurus (Tables 7.1 and 7.2).

Table 7.1: Quality Improvement Tools

7 TOOLS
1. Process charts/ Flow charts
2. Pareto analysis
3. Ishikawa diagram (fishbone diagram)
4. Histograms
5. Run diagrams
6. Statistical process control charts
7. Check sheets

Table 7.2: Quality Improvement Techniques

12 TECHNIQUES
1. Benchmarking
2. Nominal group technique
3. Time charting and analysis
4. Six sigma
5. The 'five whys'
6. Cost of quality
7. Quality function deployment
8. Failure modes and effect analysis
9. Force field analysis
10. Value engineering and value management
11. Soft systems methodology
12. Moments of truth

The tools and techniques have been widely used in industry for problem identification, analysis and solution. Originally they were designed to support partial quality improvement approaches, so the voice of the customer can quite easily become lost although it is one of the driving tenets of the TQM philosophy.

In this research study customer-supplier modelling was developed out of a necessity to have a modelling methodology designed for the TQM philosophy. This methodology builds on marketing concepts as defined by Parasuraman *et al*, (1985) but also on the interdisciplinary, systemic nature of providing health care services. The methodology aims to systematically describe the way people view themselves and their customers in the organisation and how they act at the different systems levels which represent differing levels of complexity. Thus this modelling technique aimed to move away from

a mono-professional focus on treatment of disease, to a more holistic view of how people, processes and systems interact.

7.1.2 Utility of customer-supplier modelling

It is important to have a technique that helps individuals and groups to develop an understanding about people, processes and systems. Customer-supplier modelling helps to define group culture by virtue of mapping out and describing the different types of interactions that take place when providing services or products and to give people the opportunity to reflect on their own responsibilities and dependencies. The utility of this methodology will almost entirely depend on the:

- Leadership of the group
- Facilitation of the group
- External directives from higher authorities
- Team work

(This applies to the utility of implementing any QA system.)

Within the group the methodology will depend on the members, their common values and expectations and way of dealing with complex problems. Whilst no one tool or technique is totally invaluable, the utility of customer-supplier modelling is that it aids understanding of complex issues in a systemic and systematic way. One could argue that without customer-supplier modelling the same problems would have been identified and solutions defined and implemented. However, one would question whether the problem identification analysis and solution process would have had the same regard for different customer groups internally, externally and at different levels.

In the case of the Diabetes and Endocrine Day Centre, the construction of customer supplier models at directorate level allowed staff to develop a more formal understanding of how they integrated their work internally and also how the group as a whole adapted externally to other hospital departments and outside organisations. In fact, this provided a method for analysing and understanding group culture, in that staff were mapping out their own perceived roles in relation to one another. Interestingly not all staff were aware of the various links which existed between the directorate and different external bodies. The process of constructing customer-supplier models helped

them understand as a group how they externally adapted with other people, departments and organisations

The very nature of this modelling technique ensures inter-disciplinarity because all professional and non-professional groups have to be taken into consideration. It includes both clinical and non-clinical aspects of the service. It tackles the different levels of care (community based, GP based and hospital based) and the critical links between and within the levels of care.

7.1.3 Benefits of customer-supplier modelling

Customer-supplier models provided the framework for pinpointing where current quality problems existed and for identifying weak inter-departmental, external and internal relationships. It was demonstrated that the modelling technique aided interdisciplinary audit rather than specific medical, nursing or paramedical audit since it described the total health care package that the patient receives. By using customer-supplier modelling in combination with other problem identification and solution techniques and the QA cycle, this helped staff to prioritise concerns and provide a structure for interdisciplinary audit activities.

An extremely important aspect of this research was that customer-supplier modelling provided a technique for identifying problems which occur at boundaries, where it is often easy to shirk responsibility. By taking a structured, systematic approach it also provided a framework whereby it was possible to:

- Be aware of different customers and their values and expectations
- Understand how people and processes relate
- Explain consequences of action or inaction in a logical, systematic way

In all, the models were shown to:

- Provide an holistic, interdisciplinary systems approach
- Improve understanding of group culture
- Identify current work practice
- Pinpoint quality and organisational problems
- Highlight weak relationships with different suppliers/customers

- Help prioritise quality problems
- Acknowledge different levels of care and outside organisations
- Identify the critical links between different levels of care
- Recognise the contributions to care given by all professional and support staff
- Include both the clinical and non-clinical aspects of the health care system

Therefore the benefits of customer-supplier modelling, over other tools and techniques used for quality improvement activity, are that it helps improve understanding of not only the problem but also the context within which the service or product is being provided and, in line with the TQM philosophy, gives a holistic view of the context rather than the partial views proffered by other QA tools and techniques. However customer-supplier modelling must not be seen as a panacea but as a tool to help understand complex issues. To improve quality requires not only understanding of the factors contributing to the problem but concerted action to overcome the problem.

7.1.4 Limitations of modelling methodology

Difficulties with and limitations of the modelling process included both practical and technical issues:

- Staff commitment and time
- Feedback from different customers and suppliers
- Systematic use of the models
- Eloquence and accuracy of the models
- Integrating the voice of patient/local population

7.1.4.1 Staff commitment and time

The initial training and model construction requires both commitment and time to ensure that accurate, representative models can be produced. In the case of the DEDC, the researcher was responsible for both data collection and analysis. This was important in terms of retaining objectivity in the modelling process and also in reducing staff time to a minimum. Also regular updating of the models is needed when organisational changes occur. Other directorates wishing to go through the same procedure would inevitably need to secure the support of a QA/audit facilitator.

7.1.4.2 Feedback from different customers and suppliers

One of the limitations of this modelling methodology was that the defined group (ie clinical directorate) was responsible for determining the different types of interactions taking place without direct consultation with their different external customers and suppliers. This was because it would have taken a considerable amount of time and effort to construct and validate the models with every single customer and supplier group. Instead direct feed-back was obtained from customer-supplier groups as and when problems were identified and tackled by the group e.g. case-study with the Afro-Caribbean community and the 'let us know' patient suggestion scheme. In constructing the internal integration models feedback was obtained from all customers and suppliers since a smaller number of actors were involved.

7.1.4.3 Systematic use of models

Once the intense phase of model construction was completed staff were encouraged to refer to and use the models in identifying and analysing quality problems and to develop micro level models to help understand particular processes or interactions under investigation. Although staff were becoming familiar with this tool the models were only used during QA meetings but not in routine day to day activities. In order to promote more systematic use of the models it would have been beneficial to link their development to standards setting and quality specifications used in contracting (this is discussed in section 7.5.2.). In this way their use would have directly related to the most prominent of health reforms taking place at the time (contracting for services).

7.1.4.4 Eloquence and accuracy of the models

In this research only formal levels of interaction were defined in terms of the functional roles and responsibilities of each member of staff, organisation or individual, eg clinical management, home monitoring, advice and secretarial support. However to truly model customer-supplier relationships one could also argue the case for taking into account the informal levels of interaction which may determine the level of compliance of different customers and suppliers to their defined formal responsibilities. For example, an element of social interaction between co-workers may well strengthen the other more professional aspects of working relationships. Equally important are the intangible aspects of service provision. That is, 'how' the defined interactions take

place, which can make a significant impact on the effectiveness of the customer-supplier link. Whilst it is fairly straightforward to define a customer-supplier relationship between a doctor and a nurse e.g. doctor providing specialist advice to a nurse, the model does not allow for the manner in which this interaction takes place. For example perhaps the interaction is rushed, unfamiliar language is used or the manner is unacceptably rude to the customer. Therefore, even when the customer-supplier link functions in terms of the interaction taking place, there is still a question of the efficacy of the interaction, due to intangible (interpersonal) factors. Intangible aspects include:

- Empathy
- Language use
- Manner
- Tone
- Hurriedness
- Attitude
- Timeliness

A way of dealing with this issue would be to request staff to rate interaction types not only on whether the interaction took place but also the manner in which it occurred. Satisfaction scores could be developed based on a set of criteria as those mentioned above.

There is also the question of defining the level of complexity in interaction types. This is concerned with the balance of making the models too generalist or overtly complex. In terms of macro level modelling the models should remain generalist, and only in the case of micro level modelling should the levels of complexity be introduced, but only if it is deemed necessary.

7.1.4.5 Integrating the voice of the patient/local population

Obtaining a representative voice of the patient or population still remains elusive to most organisations. Expectation and need, wants and preferences all place conflicting demands on the supplier. At times patients have ‘perverse preferences’ that the practitioner believes are contrary to the patient’s own best interests, or preferences that are contrary to the practitioner’s social obligations, or to the practitioner’s personal convictions. At other times, the opinions and preferences of patients are not freely chosen, but are the result of established inequities in the social order. Donabedian (1994) questions whether such opinions and preferences should guide care, or if the practitioner should override them in some way. This model of an active, egalitarian partnership between patient and practitioner is contrary to established norms of a patient who delegates decision making to an authoritarian practitioner who, presumably, is expected to act in the patient’s best interest. A culture of class distinctions and authoritarianism, in general, reinforces this traditional model.

Customer-supplier modelling aims to promote better understanding and genuine dialogue between the patient and practitioner. For this to be achieved it demands that as a minimum, regular feedback from patients should be obtained in terms of exit surveys, focus group discussions and patient suggestions and complaints. These activities are only effective if this information is used in the customer-supplier models, that patients can see that their suggestions are taken seriously and that providers give feedback on what has been done.

7.1.5 Terminology

“Labelling is the social process by which people are classified as exhibiting certain social behaviours, and it indicates deviancy from a norm and certain valued attributes” (Bond, 1986).

The issue of terminology is also one requiring discussion. The modelling process has been labelled customer-supplier modelling, where the supplier is a person or unit which provides a product or service as requested (tacitly or emphatically) by the customer. The supplier is responsible for the design and/or operation of that product or service in partnership with and taking into account the customer’s values and expectations. The

customer is the person or unit who requests (tacitly or emphatically) the product or service and/or is the person who uses or consumes that product or service. The customer can be any person along the path of a process who receives something as the product of that process. This usage therefore does not distinguish patients from other participants, nor does it recognise that patients are simply on the receiving end of a commodity process. However many health professionals and users of health services feel uncomfortable with the word customer which is associated with activities of trade and commerce (Thompson, 1995). Stacey (1976) argues that although rarely passive, in part the patient presents herself in the health-care system as a 'work-object', to have things done to rather than for her, which is an inappropriate concept for a consumer. Williamson (1992) stresses the traditional problem of professionals, in particular doctors, in the way they objectify patients as parts of the body or diseases to be treated, rather than giving respect to the actual self of the patient. The need to be 'cared about', rather than 'cared for' is of vital importance to both clients and their informal carers (Wilson 1993).

Thus how many labels do we have? We have the patient as:

- Customer
- Consumer
- User
- Client

In this thesis, rather than becoming involved in sociological interpretations of labels, these terms have been used interchangeably, to refer to the patient depending on the context. In terms of the modelling methodology and in describing TQM, staff, patients, GPs, carers and other groups have been referred to as customers and consumers. In many cases the patient is also referred to as client or user because of the passivity implied in the term patient, which has mainly been used for distinguishing the person under medical treatment from other customer groups.

7.2 Systems Complexity and TQM

“Systemic properties are destroyed when a system is dissected into isolated elements”
(Capra, 1997).

The health care enterprise may be seen as a culture, or a set of cultures, to which quality assurance effort must adapt or which may have to be modified if quality assurance is to flourish. One of the biggest challenges the NHS faces is that it represents the largest professional bureaucracy in Europe. Whilst the different professions or ‘tribes’ within it persist in working autonomously, the quest for quality will remain obscured.

In Chapter 2, the professional bureaucracy model and TQM model were described as containing irreconcilable differences. However it was highlighted that the only way a TQM environment can be created is through accommodating both models into the NHS; thus respecting professional values and skills whilst also recognising the value of inter-professionalism. The application of the TQM philosophy to a health setting implies that everything that is done is done for the ultimate beneficiary - the patient. The patient depends on a package of care delivered by a range of professionals. Unless a culture of inter-professionalism, co-operation, partnerships and interdependence is valued and supported, isolated professional activity will continue to remain the norm and thus compromise the patient.

In a complex environment customer-supplier modelling can be particularly fruitful, where it is vital that different professional groups consider the importance of each other’s roles and responsibilities. One could argue that the application of customer-supplier modelling to complex conglomerates has greater value than its application in fairly homogeneous organisations. Customer-supplier modelling provides a tool for unravelling the mystique of medicine and provides a systematic approach to breaking down health care activity into a series of interrelated processes supported by a team of staff. The more complex the organisation the greater the potential value of customer-supplier modelling.

If we contrast the two pilot areas (DEDC and Beatrice Ward), the DEDC consisted of a wide skill-mix of professionals, reliant on one another to support the management of

patients with less reliance on external customers and suppliers. In the case of Beatrice Ward, the skill mix was a far more homogeneous mix of professionals with greater reliance on external customers and suppliers. In the case of the day centre the utility of both internal integration and external adaptation modelling was clear. However in the case of Beatrice Ward it probably would have been more beneficial to concentrate on the external adaptation models since a high proportion of staff time was spent dealing with external customers and suppliers. This implies that the modelling process is also very dependant on the group, the context and work environment.

7.3 Implementation Issues

“Another response to the certain uncertainty in choosing what method is best, is to postulate that effectiveness depends not on the method alone, but on an interaction between the method and the situation in which it is to be implemented. One looks, therefore, for a kind of fit between method and situation. The study of effectiveness becomes, then, a study of contexts, and the interventions appropriate to each of these” Donabedian (1996).

In this section the feasibility, acceptability and appropriateness of establishing QA systems based on customer-supplier modelling in a clinical directorate are analysed. In particular the role of the quality facilitator and team working are described. Once a firm foundation is achieved, it is then possible to consider the issue of when can an organisation say it is a TQM organisation.

7.3.1 Role of the quality facilitator

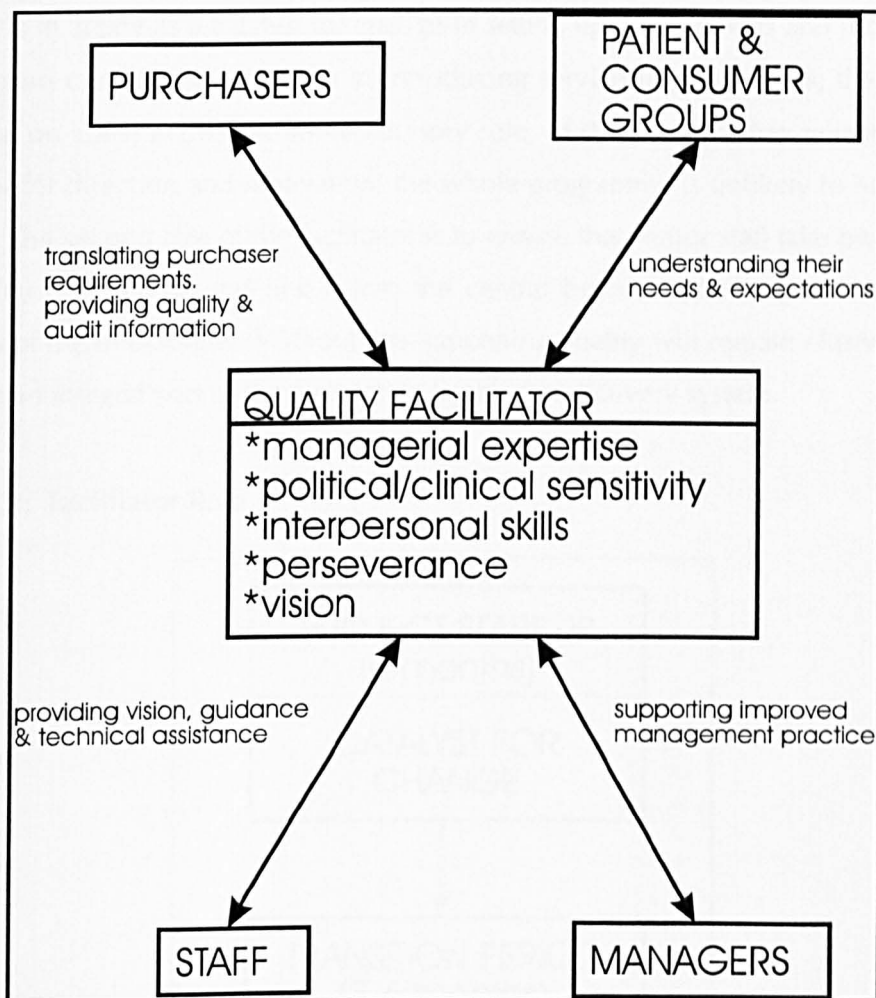
The role of the quality facilitator was briefly mentioned in Chapter 6 and it was argued that this role is extremely important for establishing and maintaining a sustainable programme of continuous quality improvement. During the implementation of this quality programme some of the problems experienced by the quality facilitator in getting staff to work together related to human resource development needs such as communication, team building, the use of management tools and techniques and staff empowerment.

The key responsibilities of the facilitator included: encouraging staff ownership for addressing issues relating to quality, prioritising areas for problem solving, and pulling together key staff from relevant areas to work as a team towards meaningful solutions. This was achieved by persuading staff to take time out from routine duties and focus on local concerns, helping them to change their thinking and to believe that something could actually be done. In light of this experience, a model of the expert facilitator is presented.

7.3.2 Expert facilitator model

The expert facilitator (Figure 7.1) is a member of the organisation who takes on a role to empower multi-disciplinary teams of staff to improve the way they work together as a team and to increase their understanding of management, purchaser and consumer needs and expectations. In consultation with senior directorate staff he/she works very closely alongside key members of the multi-disciplinary team and assists them in reviewing performance and developing appropriate management strategies. The facilitator ensures that staff can remain in their own working environment whilst receiving training and technical assistance as and when required.

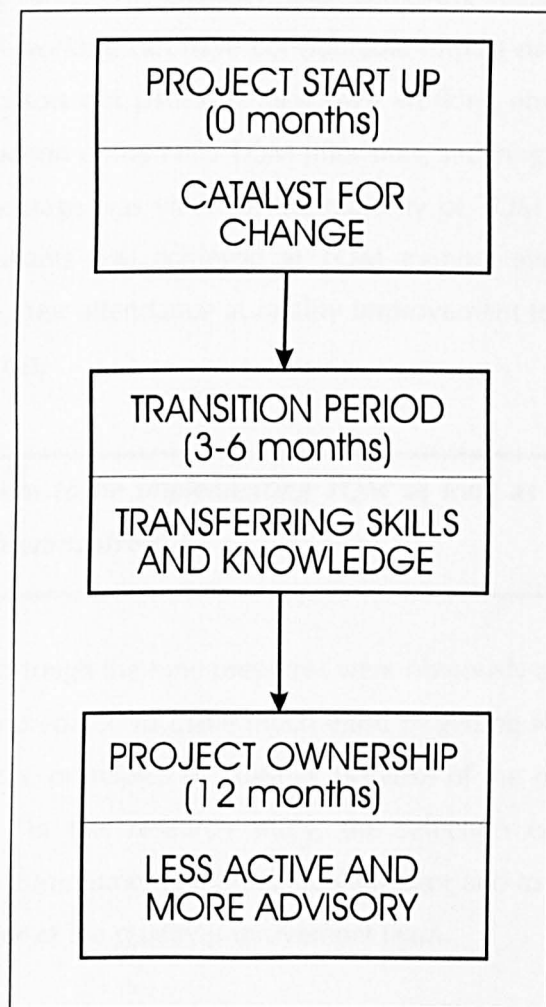
Figure 7.1: Expert Facilitator Model



The ability to persuade, to motivate, to inspire trust, to establish a personal commitment to and elicit personal participation in the quality assurance enterprise requires excellent leadership and facilitation. Thus the roles of the clinical director and facilitator are paramount in establishing and maintaining a sustainable programme of continuous quality, especially in turbulent times with hospital mergers, restructuring and changes in the funding of health services. As an internal member of staff, the facilitator can remain sensitive to the economic and political climate and culture of the hospital whilst maintaining a degree of objectivity when working at directorate level. Thus in this context the expert facilitator must demonstrate high levels of managerial expertise, good interpersonal skills, clinical and political sensitivity, perseverance and vision.

It must be recognised that the facilitator has two important roles to play (Figure 7.2). The first is in acting as a catalyst for change in setting up new projects and programmes. As staff gain confidence and skills in introducing service improvements, the facilitator must take on a less active and more advisory role. If staff become too reliant upon the facilitator for direction and motivation, the whole programme is unlikely to have lasting impact. The second role of the facilitator is to ensure that senior staff take ownership of the quality programme and link it into the central business planning and monitoring activities of the directorate. Without this happening quality will remain elusive and will never be an integral part of the directorate health care delivery system.

Figure 7.2: Facilitator Role



7.3.3 Team work

“In an NHS based on partnership it will be increasingly important for the staff of NHS Trusts to work efficiently and effectively in teams within and across organisational boundaries” (DoH, 1997).

It was demonstrated that team working is an essential component for any quality improvement initiative. Having all staff from the DEDC involved in the programme meant that staff were empowered to agree on changes required and that the appropriate expertise was always on hand, whether it was an administrative, medical, paramedical, nursing, computing or clerical problem. Staff also demonstrated an ability to work as a team in identifying areas of concern and achieving desired results in service improvement. Team-working can have considerable impact on the perceptions of staff about their ability to sort out issues in their own working environment. In Joss and Kogan's (1995) evaluation of the NHS TQM pilot sites, securing the co-operation of key clinicians at an early stage was vital. In the majority of TQM pilot sites only a 1-5% attendance of consultants was achieved at TQM training events and it was almost impossible to secure their attendance at quality improvement team meetings. Joss and Kogan (1995) assert that:

“One can hardly claim to be implementing TQM as long as a large and influential group of staff remain uninvolved”.

They conclude that although the time pressures were obviously a factor, it was clear that most doctors were unprepared to make much effort in getting involved, either because they disagreed with the principles of TQM or because of the manner in which it was being implemented. In this research study, the selection criteria for pilot groups included assuring the commitment of the clinical director and to assign a registrar to the position of co-ordinator of the quality improvement team.

The experience of working in Beatrice Ward reflect the sentiments of Joss and Kogan. Although the medics had verbally agreed to participate in the pilot QA programme it was impossible to organise meetings between the medics and the rest of the staff from

Beatrice Ward. Thus the official QA team included the medics, nursing and support staff although the 'natural' team in fact consisted of the ward-based staff.

7.3.4 Enabling factors for successful application of TQM

Eastman *et al* (1992b) believe that to successfully switch to TQM practices and systems presumes a large degree of autonomy within an organisation to implement and select changes deemed by senior management of the organisation to be necessary for improved productivity and efficiency. Unless there is devolution of management responsibility and control from centralised health departments, it will be very difficult to adopt TQM. This also strengthens the argument put forward in Chapter 4 for driving the QA process through clinical directorates.

The QA working group at the 1st European Conference on Tropical Medicine, Hamburg, October '95, take the argument further and define certain enabling factors which will allow quicker acceptance and implementation of QA systems based on international experiences. Doyle *et al* (1996b) assert that the "enabling factors" for implementing and sustaining a successful QA programme include 11 different factors which are described in Table 7.3.

If some or all of these factors are in place it should facilitate QA institutionalisation since these structures provide the basis for QA systems. If many of these factors are weak or non-existent then QA implementation will be more difficult due to the inherent weaknesses in the management of the health delivery system. In relation to this research study the customer-supplier modelling process directly contributed to fulfilling factors 1,2,3,4,6 and 7. This highlights that customer-supplier modelling used in isolation will not fulfil all criteria for ensuring a sustainable QA system, but that it must be combined with the use of the QA cycle and other management tools and techniques.

No organisation or group can call itself a TQM organisation until a culture of quality is inherent in the systems of service delivery and linked to overall mission and business strategy of the organisation. Experiences from industry have shown that this can take at least five years.

Table 7.3 Enabling Factors

ENABLING FACTORS FOR SUCCESSFUL IMPLEMENTATION AND SUSTAINABILITY OF QA SYSTEMS

1 Integrated systems approach

The QA system must not place an unwarranted administrative burden on staff, but rather form an integral part of the existing management and information system.

2 Senior management commitment and leadership (especially senior doctors)

Responsive senior managers who are willing to get involved in and visibly support new initiatives by committing resources can have a significant impact on the success of new programmes. Equally important is support from senior doctors. Without their support only partial success can be achieved.

3 Quality culture

Raising awareness about quality is vital, not only within institutions but among professional associations. A culture of quality comes about when there is knowledge, awareness and understanding of the issues contributing to quality health services.

4 Inter-disciplinary teams

Health personnel who already have a philosophy of working inter-professionally will find QA culturally acceptable, since most quality problems are inter-disciplinary in nature, crossing traditional professional boundaries. Inter-disciplinary working is better than individual forces.

5 Monitoring and supervision systems

Monitoring is an integral part of QA. If monitoring and supportive supervisory structures are already in place as part of the management and information system they will facilitate QA implementation and long term sustainability.

6 Decentralised decision making power

If local QA teams do not have the power to make decisions and reallocate resources, ownership for QA will deteriorate and make QA a frustrating exercise.

7 Capacity building

When training is already sufficiently recognised as a tool for improving the management and quality of health service delivery, it will facilitate QA implementation. Training must be part of a continuous programme interspersed with periods of action learning.

8 Reliable management and information system

Often routine data which is already being collected can be used to make quality assessments. Therefore a reliable and accurate information system may save time and money.

9 Agreed standards and communication of standards

It is important that standards are relevant to local conditions and that providers are aware of and understand them. Mechanisms for standards review to ensure their continuing effectiveness should form part of the standards system.

10 Incentives

Recognition and awards for quality teams can stimulate quality improvement initiatives.

11 Community involvement

Involving the community in QA promotes confidence, improves communication and allows clearer understanding of community needs and expectations when developing new programmes.

7.4. Health System Reform Issues

Whatever QA system is designed, it must be flexible and robust enough to cope with the rapid and sometimes radical changes associated with health sector reform. When this study was first initiated it was during the implementation of the 1989 reforms which with the introduction of the 'internal market' demanded medical audit and patients' charter standards. The recent government white paper, *The New NHS: Modern, Dependable* (DoH, 1997), describes how the NHS will have 'quality at its heart'. It intends to support this statement by driving this through nationally with the establishment of a new:

- Evidence-based National Service Framework to help ensure consistent access to services and quality of care
- National Institute for Clinical Excellence to give a strong lead on clinical and cost-effectiveness
- Commission for Health Improvement to support and oversee the quality of clinical services at local level and to tackle short comings

The government intends to introduce legislation to place a new statutory duty on Health Authorities to improve the health of their populations. NHS Trusts will be accountable to Health Authorities and Primary Care Groups for services they deliver, and to the NHS Executive for their statutory duties. Primary Care Groups and Trusts will be accountable to Health Authorities for the way in which they discharge their functions, including financial matters.

Although the previous government placed quality quite firmly on the agenda through non-legal 'contracts' for payment for services between providers and purchasers for defined workloads, it was not a statutory requirement and far more emphasis was placed on cost and volume. Those Trusts which failed to deliver high quality were not severely reprimanded.

With the emergence of the concept of 'clinical governance', all NHS Trusts will have to ensure that quality is really at the core of their work. Government will bring forward legislation to give them a new duty for the quality of care. Under these arrangements, chief executives will carry ultimate responsibility for assuring the quality of the services

provided by their NHS Trusts, just as they are already accountable for the proper use of resources. Black (1998) comments that unless each level of the NHS is prepared to provide adequate funds for clinical data collection and analysis, the good intentions contained in the white paper will not be realised although he does point out that by making chief executives personally accountable it might prove to be just the incentive needed. NHS Trust boards will expect to receive monthly reports on quality, in the same way as they now receive financial reports, and to receive an annual report on what they are doing to assure quality. Quality will quite literally be on the agenda of every NHS Trust board.

The vocabulary of New Labour promotes long standing issues of contention which include concepts such as interdependence, partnerships, inter-professionalism, clinical governance and statutory duty for quality of care. It would appear that with the latest government health reforms, the philosophy of TQM and the relevance of customer-supplier modelling are even more important. Similarly to the previous government a very free rein is being given to providers to determine exactly how quality will be 'at its heart'. The difference now is that chief executives who do not ensure that provider units adopt a quality culture and consistently deliver quality services can be legally convicted for poor quality!

7.5 Further Developments

Whilst the importance and utility of customer-supplier modelling has been demonstrated for a clinical directorate in a tertiary level hospital, further development and application of this modelling methodology needs to be investigated relating to:

- Construction of models
- Quality specifications
- Applicability in different settings
- Other applications

7.5.1 Construction of models

In this research study the data collection, processing and model construction was manual and therefore time consuming. This kind of work lends itself to automation since computers can process and handle large amounts of data far more accurately and

efficiently than humans. This would also make updating the models a very simple process. Now that the customer-supplier modelling methodology has been designed and the data requirements are known a useful future development for this research would be in the development of customised software to collect and process the necessary data and to produce computer generated models. This would ensure that staff would still go through the process of defining customers and suppliers and types of services provided but alleviate staff from manually having to cross-check the data and draw up the models.

7.5.2 Quality specifications

An important way of developing the models further would be to include quality specifications for each external customer-supplier link. In some cases these already exist either in terms of internal/external agreements/contracts and national initiatives, e.g. external quality control of laboratories, contracts between purchasers and the directorate, Patient's Charter. By reviewing already existing quality specifications between customer and supplier and by agreeing specifications where they do not exist would ensure that both customer and supplier are aware of the quality standards and provide a basis for the QA monitoring system against these agreed standards. Additionally when the customer-supplier models are reviewed on an annual basis, this would also include a review of the agreed quality specifications. This would also promote more systematic use of the models and genuine dialogue between customer and supplier.

7.5.3 Setting

This modelling was demonstrated in a tertiary level hospital, within a clinical directorate. By virtue of the modelling process, primary and secondary level facilities, associated NHS bodies, external organisations and local support groups were all taken into account. Although this modelling technique has only been tested in limited settings, the simplicity and flexibility of the technique should allow its easy application in community, primary and secondary health care settings. By applying the simple stages of both internal and external adaptation modelling, customer-supplier modelling should be equally applicable to both commercial and public sectors. The two most important steps will be in determining a well defined group (department, speciality, unit

etc.) and in defining the different interaction types. This will require careful thought to ensure that all eventualities are catered for so that reliable and informative models can be produced.

7.5.4 Application of models to activities other than domain of QA

Whilst customer-supplier modelling was originally devised as a method to aid the development of context-specific QA systems, this technique could be particularly valuable in the domain of human resource development, since its very essence is to improve understanding of how people, processes and systems interrelate. Particular areas of application include:

Staff induction: modelling could prove to be very useful for induction of new staff to immediately obtain functional descriptions of different groups and sub-groups, key processes and how they relate to the overall system.

Annual appraisal: A potential application of customer-supplier modelling could be its use in annual appraisals to identify weak links and also for defining scope of work and how perhaps it could be extended. Annual review of individual customer-supplier models could demonstrate process and system changes in relation to co-workers.

Job Description: This could be an innovative way of providing a graphical job description to accompany the traditionally presented version. The advantage of a graphical presentation is that it would ensure that both employer and employees are clear about roles and responsibilities and their relation to co-workers and other departments.

Within the time frame of this research it was not possible to test the applicability of customer-supplier modelling in other domains, however it would be highly desirable to extend this research to human resource development issues.

7.6 Summary

This chapter has examined the extent to which evidence gained in conducting this research has contributed towards providing clearer thought and practical insight into the utility of customer-supplier modelling as an aid to quality improvement in a health setting. The case for customer-supplier modelling was highlighted as a way of closing

the gap between customer and supplier perceptions and expectations of services. The benefits of this technique were shown to promote inter-disciplinarity, genuine dialogue between customer and supplier, co-operation and an holistic approach to health service provision.

In a tertiary hospital - a complex organisation - the utility of customer-supplier modelling was shown to be particularly useful for better understanding the heterogeneous work environment. Its application was found to be particularly applicable and beneficial to the clinical directorate - the front end of health care delivery. In particular, practical application issues were highlighted which included the importance of leadership from the clinical director, support from medical doctors and the role of the quality facilitator. But tantamount to all these requirements was team working without which TQM can never be achieved. It was also suggested that certain management and systems characteristics will enable groups in achieving TQM quicker than those which do not have these factors in place.

It was suggested that whatever QA model is proposed, it must be flexible enough to accommodate government reforms. The new NHS reforms in fact bear direct relation to the study of this thesis and provide an even stronger justification for the use and institutionalisation of customer-supplier modelling particularly for Trust Hospitals, where the chief executive has a personal, statutory duty for quality.

Reflecting on what was achieved in this research, further developments of the methodology were discussed such as defining certain aspects of the customer-supplier models in more detail. This included describing how interactions should take place and also the flexibility in defining interaction types. Future developments to further this research could include designing a customised software package to improve the efficiency and accuracy of model construction, applying this modelling methodology to community health services, primary health care and secondary health care and integrating the development of quality specifications between customers and suppliers into the modelling process. Further research into the applicability of this modelling in the domain of human resource development could also provide highly beneficial results.

Taking into account the issues that have been raised in the discussion, no one sums up the situation more accurately than Donabedian, who remains the most outstanding quality guru of the health care quality assurance enterprise:

“The most important single condition for success in quality assurance is the determination to make it work. If we are truly committed to quality, almost any reasonable method will work. If we are not, the most elegantly constructed of mechanisms will fail” (Donabedian, 1996).

Chapter Eight

Conclusions

“Quality assurance will not produce results unless one is willing to stay with it, to practise it over long periods of time, to be persistent and to put in the necessary commitment and effort.”

(Baker, 1993)

8.0 Introduction

This research study has reviewed the global advances made in quality assurance in health care, tracing its origins from the manufacturing and service industries through to the context of the health care industry. The Total Quality Management model, originally adopted by the industrial sector was investigated as a possible paradigm for the health sector. Customer-supplier modelling, a novel methodology founded on the TQM philosophy, was developed and applied to a clinical directorate to test whether it could provide the framework for interdisciplinary quality improvement. In essence this thesis examined whether it was possible to implement a clinical directorate quality assurance system in a large London teaching hospital based on the TQM philosophy, and whether the development of customer-supplier models could provide the framework for coherent, interdisciplinary, continuous quality improvement.

This final chapter concludes the dissertation by reviewing the extent to which the original objectives of this research study were met based on analysing the issues that have arisen out of what has been achieved and by critiquing how this thesis has contributed to knowledge both in terms of systems thinking and from a health care perspective. Finally this brief chapter will identify directions in which health care quality assurance might profitably develop in future years based on the experience of this research.

8.1 Extent to Which the Objectives Were Met

The hypothesis underlying this research study was that the TQM philosophy could be successfully adopted in a hospital clinical directorate through developing and establishing appropriate quality assurance systems that took into account the new structures of the reforming NHS. This research aimed to test this hypothesis through five distinct study objectives:

1. To critically review quality assurance approaches in order to identify which had potential for application in the health sector
2. To examine whether Total Quality Management was applicable and appropriate in relation to a health care delivery system
3. To develop a customer-supplier modelling methodology for understanding how people, processes and systems interrelate

4. To construct customer-supplier models of a clinical directorate
5. To establish a directorate quality assurance system, using customer-supplier models to provide the basic framework for interdisciplinary quality improvement

In Chapters 2 and 4 a critical review of the QA literature was undertaken. This demonstrated that most QA approaches used in industry and health care have been partial and that the only truly holistic approach to continuous quality improvement is TQM. The need to develop new QA tools and techniques was highlighted since the methodologies adopted by TQM have originated from partial approaches to QA and thus failed to fully embrace the major tenets of the TQM philosophy. Therefore customer-supplier modelling, a novel technique for understanding how people, processes and systems interrelate at different levels was proposed and developed.

In Chapters 5 and 6 it was shown how customer-supplier models could be, and were developed for a variety of applications including in-patient and out-patient care, the interface between out-patient care and the Afro-Caribbean community and the interface between St Thomas' Hospital and key groups external to the hospital.

In relation to objective 5 of this study, this was only partially achieved. Infact the development of customer-supplier models provided a tool for identification and analysis of quality problems and for identifying weak inter-departmental, external and internal relationships as opposed to providing an overall framework for interdisciplinary quality improvement. Although a directorate quality assurance system was established based on the TQM philosophy, from this experience it became clear that by using customer-supplier modelling in combination with other problem identification and solution techniques and the QA cycle, this could provide a structure for interdisciplinary audit activities.

The evidence gained from this research has provided clear support for the research hypothesis. However, whilst the utility of customer-suppliers models was demonstrated, the actual success of interventions was dependent on the ability to persuade, to motivate, to inspire trust, to establish a personal commitment to and elicit personal participation in the quality assurance enterprise. This required excellent

leadership, expert facilitation and interdisciplinary team working. Without these three vital ingredients quality will remain elusive to any organisation on the quest for quality.

8.2 Contribution to Knowledge

As in most research studies, many issues have arisen as a result of this work. More questions have been raised than have been answered, but distinct contributions to both systems thinking and health care delivery have emerged.

8.2.1 Systems thinking

In terms of systems thinking, TQM challenges the core organisational culture of how any enterprise works; its underlying philosophy, policies and procedures. In this research a new modelling methodology has been developed which embodies the holism of the TQM philosophy and which bridges the gap between the partial TQM tools and techniques which are currently being used. Not only does this methodology pick up on the technical issues for quality improvement, but also on the political and cultural sensitivities of how groups interact and provide services to both their internal and external customers. This modelling methodology has provided a mechanism for understanding organisational culture and in parallel has contributed to providing a framework for guiding interdisciplinary continuous quality improvement. The importance of and distinctions between leadership, facilitation and teamwork have proved crucial for ensuring practical application and institutionalisation of QA, so that it is integral to routine work practice.

8.2.2 Health care delivery

Customer-supplier modelling was fully implemented and tested in a clinical directorate. It was demonstrated that the modelling technique aided interdisciplinary audit rather than specific medical, nursing or paramedical audit since the total health care package that the patient receives is taken into consideration during the modelling process. Customer-supplier modelling helped staff to prioritise concerns and provide a more holistic approach to interdisciplinary audit activities. Customer-supplier modelling was shown to be particularly useful for better understanding the heterogeneous work environment found in a complex, tertiary hospital. Its application was found to be particularly applicable and beneficial to the clinical directorate - the front end of health

care delivery. In particular, practical application issues were highlighted which included the importance of leadership from the clinical director, support from medical doctors and the role of the quality facilitator. But tantamount to all these requirements was team working without which TQM can never be achieved. The overall benefits of customer-supplier modelling were that it promoted inter-disciplinarity, genuine dialogue between customer and supplier, co-operation and an holistic approach to health service provision.

With the latest government health reforms (DoH, 1997), due to be implemented within the next two years, where quality is being pushed to the very top of the NHS agenda, it appears that customer-supplier modelling will be particularly relevant not only to Trust hospitals, but also community and primary levels of health care.

8.3 Future Directions

“...the health care system is not a configuration of providers only. Consumers are and integral component; and if the system fails to produce quality, it is also because consumers have not acted concertedly to exercise their rights and bear their responsibilities” (Donabedian, 1994).

Health care quality assurance is becoming an increasingly important element of public and private health systems alike. The technical, political and cultural pressures are unlikely to weaken as public expectation of health services continues to rise. Access to consistently high quality health services is more and more viewed as being a right rather than a privilege. As the public becomes more informed about their own health and health needs so does their desire for more reliable and accurate information become an issue. Valid, comprehensive, and timely information about the quality of care offered by alternative sources of care is rarely available just as information about the risks, costs and benefits of alternative disease management strategies is very difficult to obtain and interpret. Quality assurance systems need to look at and solve these very real concerns.

The need to develop a new professional cadre is currently being addressed and reflected by MSc courses in quality assurance and clinical audit as well as newly developed QA director posts and quality assurance support staff. However, even with

newly created posts, until the health practitioners themselves, particularly medical doctors, have quality assurance and general management training built into university undergraduate curricula, we will continue working in an age of scouting out the enlightened doctors to convert the rest of the sceptics.

Customer-supplier modelling is one method that has been developed for inter-professional activities and for quality management systems. More tools and techniques are required which foster and facilitate dialogue between professionals and other groups such as managers, support workers and consumers.

The results from this research have contributed towards the goal of inter-professionalism and genuine dialogue with the customer. What is required now is to encourage the application of customer-supplier modelling into other health care domains and to look towards more participative ways of involving consumers in the definition, evaluation, monitoring, supervision, production and reformation of health care quality and health care delivery systems.

References

References

- Anderson RM, Herman WH, Davis JM, Freedman RP, Funnell MM, Neighbors HW (1991). Barriers to improving diabetes care for blacks. *Diabetes-Care* **14(7)**:605-609.
- Armstrong D, Pierce M (1992). *Diabetes in Afro-Caribbeans, A Report on Two Group Interviews*. London: Department of General Practice, United Medical and Dental Schools.
- Baker R (1993). Avedis Donabedian: an interview. *Quality in Health Care* **2**:40-46.
- Berwick D (1989). Continuous improvement as an ideal in health care. *The New England Journal of Medicine* **320(1)**:53-56.
- Berwick D (1992a). 'Heal thyself or heal thy system: can doctors help to improve medical care?' *Quality in Health Care* **1**:S2-S8.
- Berwick D, Enthoven A, Bunker JP (1992b). Quality management in the NHS: the doctor's role - I. *British Medical Journal* **304**:235-239.
- Berwick D, Enthoven A, Bunker JP (1992c). Quality management in the NHS: the doctor's role - II. *British Medical Journal* **304**:304-308.
- Bicheno J (1991). *34 for Quality: A Guide to 8 Gurus, 7 Tools, 7 Wastes, 12 Techniques*. Buckingham: PICSIE Books.
- Black N (1990). Quality assurance of medical care. *Journal of Public Health Medicine* **12(2)**:97-104.
- Black N (1998). Clinical governance: fine words or actions? *British Medical Journal* **316**:297-298.
- Bond J, Bond S (1986). *Sociology and Health Care*. Edinburgh: Churchill Livingstone.
- Bowling A (1997). *Research Methods in Health: Investigating Health and Health Services*. Buckingham: Open University Press.
- Brook R, Avery A (1976). *A Question of Quality*. London: Oxford University Press.
- British Standards Institute (1987a). *BS5750: Part 0: Section 0.1 Guide to Selection and Use*. UK:BSI.
- British Standards Institute (1987b). *BS5750: Part 0: Section 0.2 Guide to Quality Management and Quality System Elements*. UK:BSI.
- British Standards Institute (1987c). *BS5750: Part 1: Specification for Design/ Development, Production, Installation and Servicing*. UK:BSI.
- British Standards Institute (1987d). *BS5750: Part 2: Specification for Production and Installation*. UK:BSI.

- British Standards Institute (1987e). *BS5750: Part 3: Specification for Final Inspection and Test*. UK:BSI.
- British Standards Institute (1991). *BS5750: Part 8: Quality Management and Quality System Elements - Part 2: Guidelines for Services*. UK: BSI.
- British Standards Institute (1992). *BS7850: Part 1: Total Quality Management - Part 1. Guide to Management Principles*. UK: BSI.
- British Standards Institute (1994). *BS7850: Part 2: Total Quality Management - Part 2. Guidelines for Quality Improvement*. UK: BSI.
- Buck C, McWhinney I (1980). The assessment of quality. In: Fry J (ed) *Primary Care*: pp266-278. Trowbridge and Esher, Great Britain: Redwood Burn Ltd.
- Calman KC (1992). Quality: a view from the centre. *Quality in Health Care* **1**:S28-33.
- Centre for Evaluation of Public Policy and Practice (1991). *Evaluation of TQM in the NHS: First Interim Report*. UK: CEPPP, Brunel University.
- Chantler C (1990). Historical background: where have clinical directorates come from and what is their purpose? In: Hopkins A (ed) *The Role of Hospital Consultants in Clinical Directorates - The Syncromesh Report*: pp1-12. London: Royal College of Physicians.
- Clark G (1989). Managing the intangibles of service quality. *Total Quality Management* **1(1)**:89-92.
- Codman EA (1916). *A Study of Hospital Efficiency*. Boston: Thomas Todd.
- Collings (1950). General practice in England today: a reconnaissance. *Lancet* **1**:555-575.
- Crosby PB (1979). *Quality is Free*. Washington: McGraw-Hill.
- Cruickshank JK, Beevers DG, Osbourne VL, Haynes RA, Cortlett JCR, Selby S (1980). Heart attack, stroke, diabetes, and hypertension in West Indians, Asians and whites in Birmingham, England. *British Medical Journal* **281**:1108.
- Cruickshank JK, Beevers DG (1989). *Ethnic Factors in Health and Disease*. London: Wright.
- Davies H (1992). The role of the Audit Commission. *Quality in Health Care* **1**:S36-S39.
- De Geyndt W (1995). *Managing the Quality of Health Care in Developing Countries*. Technical Paper: **258**. Washington: World Bank.
- Deming WE (1986). *Out of the Crisis*. Massachusetts: Cambridge University Press.
- Department of Health and Social Security (1983). *National Health Service Management Enquiry: The Griffiths Report*. London: HMSO.
- Department of Health (1989a). *Working for Patients*. London: HMSO.

Department of Health (1989b). *Caring for People: Community Care in the Next Decade and Beyond*. London: HMSO.

Department of Health (1990). *Contracts for Health Services: Operating Contracts*. London: HMSO.

Department of Health (1991). *The Patient's Charter*. London: HMSO.

Department of Health (1992). *On the State of Public Health 1991*. London: HMSO.

Department of Health (1997). *The New NHS; Modern, Dependable*. London: HMSO.

Department of Trade and Industry (1987). *BS5750/ISO9000:1987, A Positive Contribution*. MidGlamorgan: DTI.

Department of Trade and Industry (1989). *Total Quality Management; A Practical Approach*. UK: DTI.

Develin & Partners (1989). *The Effectiveness of Quality Improvement Programmes in British Business*. London: Develin & Partners.

DiPrete Brown L, Miller Franco L, Rafeh N, Hatzell T (1992). *Quality Assurance of Health Care in Developing Countries*. Bethesda: The Quality Assurance Project.

Dixon N, Darlington J (1992). *Healthcare Quality in the UK - Future Direction for the National Association of Quality Assurance in Healthcare*. Birmingham: National Association of Quality Assurance in Healthcare.

Donabedian A (1966). Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly* **44**:166-203.

Donabedian A (1980). *Definition of Quality and Approaches to its Assessment*. Michigan: Ann Arbor Press.

Donabedian A (1989a). Institutional and professional responsibilities in quality assurance. *Quality Assurance in Health Care* **1(1)**:3-11.

Donabedian A (1989b). The end results of health care: Ernest Codman's contribution to assessment and beyond. *The Milbank Quarterly* **67(2)**:233-256.

Donabedian A (1994). *The Contribution of Consumers to Promoting the Quality of Health Care*. Paper presented at 11th International Conference on Quality Assurance in Health Care, International Society for Quality in Health Care (ISQua), Venice, Italy.

Donabedian A (1996). *The Effectiveness of Quality Assurance*. Paper presented at 13th International Conference on Quality Assurance in Health Care, International Society for Quality in Health Care (ISQua), Jerusalem, Israel.

Donovan JL (1984). Ethnicity and health: A research review. *Social Science and Medicine* **19(7)**:663-670.

Doyle V (1990a). *Systems Analysis, Design and Evaluation of a Diabetic Day Centre*. MEng dissertation. London: City University.

Doyle V (1990b). *Evaluation of a Diabetic Day Centre 6 Months On...* London: St Thomas' Hospital.

Doyle V, Carson E, Macleod A, Sönksen P, Winder E (1992). Total quality management in the health sector. In: MK Chytil, G Guru, Wvan Eimeren, CD Flagle (eds) *Health Systems - The Challenge of Change*: pp131-124. Prague: Omnipress.

Doyle V, Carson E, Sönksen P (1993a). Customer-supplier modelling as a framework for quality improvement. In: Malek M, Rasquinha J, Vacani P (eds) *Strategic Issues in Health Care Management*: pp21-27. Chichester: John Wiley and Sons Ltd.

Doyle V, Macleod A, Sönksen P (1993b). *Improving Access to Diabetes Health Care for Black People*. Paper presented at 1st International Conference on Strategic Issues in Health Care Management. St Andrews, Scotland.

Doyle V, Carson E, Macleod A, Sönksen P (1993c). *Customer Supplier Modelling in the Delivery of Diabetes Care - A Systems Approach*. Paper presented at 10th International Conference on Quality Assurance in Health Care, International Society for Quality in Health Care (ISQua), Maastricht, Netherlands.

Doyle V, Kavet M (1994). *The New Role of the Quality Facilitator; Helping Staff Cope with Strategic Change*. Paper presented at 2nd International Conference of Strategic Issues in Health Care Management, St Andrews, Scotland.

Doyle V, Haran D (1996a). Making quality count. *Health Action* **15**:4-5. London: AHRTAG.

Doyle V, Rojas Z, Borchert M, Sauerborn R et al (1996b). Enabling factors; what are the factors that allow for a successful quality assurance programme? *Health Action* **15**:6. London: AHRTAG.

Eastman CJ (1992a). Total quality management: the challenge for hospitals in the 1990s. *The Medical Journal of Australia* **157**:219-220.

Eastman CJ (1992b). Total quality management: the challenge for hospitals in the 1990s (response to letter to the editor). *The Medical Journal of Australia* **157**:573.

Economist (1995). The straining of quality. *Economist* **Jan 14**:65-66.

Ellis R, Whittington D (1993). *Quality Assurance in Health Care, A Handbook*. London: Edward Arnold.

Ellwood PM (1988). Outcomes management: a technology of patient experience. *New England Journal of Medicine* **318**:1549-56.

Feigenbaum AV (1956). Total quality control. *Harvard Business Review* 94-98.

Feigenbaum AV (1987). *Total Quality Control* (4th edn). Washington: McGraw-Hill.

Flood RL (1990). Examining total quality management through systemic metaphor. *Systems Practice* **3(5)**:415-421.

Galbraith J (1973). *Designing Complex Organisations*. Reading, Massachusetts: Addison-Wesley.

Garvin D (1988). *Managing Quality*. New York: Macmillan.

Gibson JL, Ivancevich JM, Donnelly JH (1990). *Organisations*. Texas: Business Publications Inc.

Gilson L (1988). *Government Health Care Charges: Is Equity Being Abandoned?* EPC Publication: **15**. UK: London School of Hygiene and Tropical Medicine.

Gilson L (1992). *Value for Money? The Efficiency of Primary Health Care Units in Tanzania*. PhD Thesis. UK: London School of Hygiene and Tropical Medicine.

Gourlay R (1992). The costs of poor quality. *International Journal of Quality in Health Care* **5(3)**:3

Grant K, Collini E (1996). *The Evolution of Management in the UK National Health Service (1948-1995)*. London: Institute for Health Sector Development.

Gronroos C (1982). *Strategic Management and Marketing in the Service Sector*. Helsingfors: Swedish School of Economics and Business Administration.

Gummesson E (1989). Nine lessons on service quality. *Total Quality Management*: 83-87.

Guy's and St Thomas' Trust (1993). *Working Together: We're Here When You Need Us*. London: Trident Press.

Haran D (1996). *Health Sector Reform Work Programme Annual Report*. UK: Liverpool School of Tropical Medicine.

Hart E, Bond M (1995). *Action Research for Health and Social Care: A Guide to Practice*. Buckingham: Open University Press.

Henry T (1994). Quality: the Jurassic Park experience. *Quality in Health Care* **3**:S35-S36.

Hill S (1991). Why quality circles failed but total quality management might succeed. *British Journal of Industrial Relations* **29(4)**:541-568.

Hirschmann AO (1970). *Exit, Voice and Loyalty. Response to Decline in Firms, Organisations and States*. Cambridge: Harvard University Press.

Hodgson A (1987). Deming's never-ending road to quality. *Personnel Management* **July**:40-44.

Hopkins A (1990). *Measuring the Quality of Medical Care*. London: Royal College of Physicians.

Hurst K, Ball J (1990). Service with a Smile. *Health Service Journal* **25 Jan**:120-121.

Ishikawa K (1985). *What is Total Quality Control? - The Japanese Way*. Englewood Cliffs, NJ: Prentice-Hall.

James K (1992). *The Department of Health's View on the Quality Transformation*. Paper delivered at the Annual Conference of the National Association of Quality Assurance in Health Care, Solihull, UK.

Jarman B (1983). Identification of under privileged areas. *British Medical Journal* **286**:705-9.

Joss R, Kogan M (1995). *Advancing Quality: Total Quality Management in the National Health Service*. Buckingham: Open University Press.

Juran JM (1988a). *Quality Control Handbook*. Washington: McGraw-Hill.

Juran JM (1988b). *Juran on Planning for Quality*. New York: Free Press.

Karmi G (1993). Equity and health of ethnic minorities. *Quality in Health Care* **2**:100-103.

King's Fund (1992). *London Healthcare 2010: Changing the Future of Services in the Capital*. London: King's Fund.

Koch H (1991). Obstacles to total quality in health care. *International Journal of Health Care Quality Assurance* **4(3)**:30-31.

Koch H (1992). *Total Quality Management in Health Care*. London: Longmans.

Kogure M, Akao Y (1983). Quality function deployment and CWQC in Japan. *Quality Progress*, **Oct 25**.

Laing W, Williams R (1989). *A Model for Health Care Management*. No 92. London: Office of Health Economics.

Lever P (1989). Management by targets: Is coverage an adequate measure for health care? *Health Policy and Planning* **4(4)**:356-359.

Leigh A (1989). A passion for quality. *Social Work Today* **21(13)**:20-21.

Lohr KN (1990). *Medicare: A Strategy for Quality Assurance*, Vol 1. Washington: National Academy Press.

Macdonald J, Piggott J (1990). *Global Quality - The New Management Culture*. London: Mercury Books.

Mason MA (1993). The blood that runs through the veins - the creation of identity and a client's experience of Cuban-American Santeria. *The Drama Review* **37(2)**:119-130.

- Mather HM, Keen H (1985). The Southall diabetes survey: prevalence of known diabetes in Asians and Europeans. *British Medical Journal* **291**:1081-84.
- Mathews J, Katel P (1992). The cost of quality; faced with hard times, business sours on 'total quality management'. *Newsweek* **Sep 14**:37-38.
- Maxwell R (1984). Quality assessment in health. *British Medical Journal* **288**:1470-1472.
- Maxwell R (1992). Dimensions of quality revisited: From thought to action. *Quality in Health Care* **1**:171-177.
- McLaughlin CP, Kalzuny AD (1990). Total quality management in health: Making it work. *Health Care Management Review* **15(3)**:7-14.
- Ministry of Health (1956). *Committee of Enquiry into the Cost of the National Health Service: The Guillebaud Report*. London: HMSO.
- Moss F (1992a). Quality in health care. *Quality in Health Care* **1**:1-3.
- Moss F (1992b). Achieving quality in hospital practice. *Quality in Health Care* **1**:S17-S19.
- Nichol D (1989). *Health Service Journal* **29 June**.
- Nicholas D, Heiby J, Hatzell T (1991). The quality assurance project: introducing quality improvement to primary health care in less developed countries. *Quality Assurance in Health Care* **3(3)**:147-165.
- Nightingale F (1859). *Notes on Nursing: What Is and What Is Not*. London: Harrison and Sons.
- Nikolaodes K, Barnett AH, Spiliopoulos AJ, Watkins PJ (1981). West Indian diabetic population of a large inner city diabetic clinic. *British Medical Journal* **283**:1374-75.
- Oakland JS (1989). *Total Quality Management*. Oxford: Butterworth-Heinemann.
- Odugbesan O, Rowe B, Fletcher J, Walford S, Barnett AH (1989). Diabetes in the UK West Indian community: the Wolverhampton survey. *Diabetic Medicine* **6**:48-52.
- Øvretveit J (1990). What is quality in health services. *Health Services Management* **June**:132-133.
- Øvretveit J (1991). Costing Quality. *Health Services Management* **August**:184-185.
- Øvretveit J (1992). *Health Service Quality: An Introduction to Quality Methods for Health Services*. Oxford: Blackwell Scientific Publications.
- Øvretveit J (1994). A comparison of approaches to health service quality in the UK, USA & Sweden and of the use of organisational audit frameworks. *European Journal of Public Health* **4**:46-54.

- Parasuraman A, Zeithaml VA, Berry LL (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing* **49(Fall)**: 41-50.
- Parasuraman A, Zeithaml VA, Berry LL (1988). SERQUAL: a multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing* **64(1)**:12-40.
- Parasuraman A, Zeithaml VA, Berry LL (1991). Understanding customer expectations of service. *Sloan Management Review* (**Spring**):39-48.
- Pfeffer N, Coote A (1991). *Is Quality Good For You? A Critical Review of Quality Assurance in Welfare Services*. Social Policy Paper 5. London: Institute for Public Policy Research.
- Pfeffer N, Coote A (1992). Strings attached. *Health Service Journal* **2 April**:22-23.
- Pollitt C (1991). *The Politics of Medical Quality: Auditing Doctors in the UK and the USA*. Paper presented to the European Group on Quality and Productivity. The Hague, Netherlands.
- Pollitt C (1992). Doing Business in the temple? Managers and quality assurance in the public services. *Public Administration* **68(Winter)**:435-452.
- Price F (1992). Right first time and every time? The partly failed promises of total quality. *Business Age* **June**:125.
- Reerink E (1991). Arcadia revisited: quality assurance in hospitals in The Netherlands. *British Medical Journal* **302**:1443-1445.
- Relman AS (1988). Assessment and accountability: the third revolution. *The New England Journal of Medicine* **321**:1220-1222.
- Rodriguez AR (1988). An introduction to quality assurance in mental health. In: Stricker G, Rodriguez AR (eds) *Handbook of Quality Assurance in Mental Health*. New York: Plenum.
- Roemer M, Montoya-Aguilar C (1988). *Quality Assessment and Assurance in Primary Health Care*. Offset Publication **105**. Geneva: World Health Organization.
- St. Thomas' Hospital (1990). *Serving the Community - 24 Hours a Day*. London: St Thomas' Hospital.
- St Thomas' Hospital (1991). *A Framework for Quality*. London: St Thomas' Hospital.
- Sasser WE, Olsen RP, Wyckoff DD (1978). *Management of Service Operations*. Boston: Allyn and Bacon.
- Schein E (1985). *Organisational Culture and Leadership*. San Francisco: Jossey-Bass.
- Shewart WA (1931). *Economic Control of Quality of Manufactured Product*. New York: Van Nostrand.

- Smith P (1990). Information systems and the White Paper proposals. In: Culyer A, Maynard A, Posnett J (eds) *Competition in Health Care: Reforming the NHS*. London: Macmillan Press.
- Sönksen PH, Till S, Mozakka N, Carey S, Williams CD (1991). Computerised clinic visit. In: Rifkin H, Colwell JA, Taylor SI (eds) *Excerpta Medica: pp977-980*. Amsterdam, London, New York, Tokyo: Elsevier Science.
- Stacey M (1976). The health service consumer: a sociological misconception. In: Stacey M (ed) *The Sociology of the National Health Service*, Sociological Review Monograph **22**. Keele: University of Keele.
- Thompson A (1995). Customising the public for health care. In: *The Politics of Quality in The Public Sector*. Kirkpatrick.
- Tomlinson B et al (1992). *Report of the Inquiry into London's Health Service, Medical Education and Research (The Tomlinson Inquiry)*. London: HMSO.
- Ullah P (1991). The psychology of TQM. *Managing Service Quality* **1(2)**:79-81.
- Van Norren B, Ties Boerma J, Sempebwa K (1989). Simplifying the evaluation of primary health care programmes. *Social Science and Medicine* **28(10)**:1091-1097.
- Vera H (1993). The client's view of high-quality care in Santiago, Chile. *Studies in Family Planning* **24(1)**:40-49.
- Vuori H (1992). Quality assurance in Finland. *British Medical Journal* **304**:162-4.
- Weakliam D (1994). *Development of Quality Indicators Based on Patients' Perceptions of Quality for Health Service Monitoring at Health Centres in Ghana*. Research Report. UK: Liverpool School of Tropical Medicine.
- Webb I (1991). *Quest for Quality*. Industrial Society Press.
- World Health Organisation (1985). *The Principles of Quality Assurance*. European Reports and Studies **94**. Copenhagen: World Health Organisation.
- World Health Organisation (1994). *Report of the WHO working group on Quality Assurance*. WHO/SHS/DHS /94.5. Geneva: World Health Organisation.
- Williamson C (1992). *Whose Standards?* Buckingham: Open University Press.
- Williamson JD (1991). Providing quality care. *Health Services Management* **Feb**:18-23.
- Wilson C (1993). Users and providers: different perspectives on community care services. *Journal of Social Policy* **22(4)**:307-26.
- Wouters A (1994). *Quality and Costs in Health Care Services Delivery for Developing Countries - A Trainer's Manual*. Baltimore: John Hopkins School of Public Health.
- Zaltman G, Duncan R (1977). *Strategies for Planned Change*. New York: Wiley.

Zeithaml VA, Berry LL, Parasuraman A (1988). Communication and control processes in the delivery of service quality. *Journal of Marketing* **52**:35-48.

CUSTOMER-SUPPLIER RELATIONSHIPS

Appendix I

External Adaptation Modelling

customer and supplier exploring their needs and expectations. This should be two way.

Even in the most simple of transactions there is rarely more than one supplier and one customer involved. While as we move to more complex examples there tends to be many different suppliers and suppliers in order to satisfy one customer. We get a multi-tiered model of different customers and suppliers, some of which will be external to the department/organisation. The structure reflects the internal and external customers.

AN EXAMPLE - request for Mid-Stream Urine (MSU) test

Dr. X is seeing a routine follow up patient, Patient Y has a cough and Dr. X decides that patient Y needs an MSU. Dr. X asks nurse Z to take a sample of urine (2). Nurse Z takes a sample from patient Y (3) and sends the sample to microbiology (4). The clinic clerk receives the results (5) and informs Dr. X (6). Dr. X sees the results and decides what action is necessary. Nurse X also has the option of getting the results from the lab (7).

This example shows that the work, data, plans and documents within health care organisations are interconnected. As such, people and departments vary as they are both suppliers and customers and their interactions with each other need to involve the external customer. The diagram illustrates the interacting supplier-customer model at all levels of the organisation and it helps to develop an understanding of how the department integrates itself internally and then as a department which is external to other departments and the organisation. The model can also be used for pin-pointing where responsibility

CUSTOMER-SUPPLIER RELATIONSHIPS

Customer-supplier relationships are an important feature of quality improvement programmes. The supplier is a person or unit which supplies a product or service as requested by the customer. The supplier is also responsible for the design and operation of that product/service. The customer is the person who has requested that product/service and/or is the person who uses the product/service. Normally there is a form of dialogue between customer and supplier explaining their needs and expectations. This should be two way.

Even in the most simple of transactions there is very rarely only one supplier and one customer involved. When we turn to more complex examples there tends to be many different customers and suppliers in order to satisfy one operation. We get a multi-tiered model of different customers and suppliers, some of whom will be external to the department/organisation. This introduces the idea of internal and external customers.

AN EXAMPLE - request for Mid Stream Urine (MSU) test

Dr. X is seeing a routine follow up patient. Patient Y feels unwell and Dr. X decides that patient Y needs an MSU (1). Dr X asks nurse Z to take a sample of urine (2). Nurse Z Takes a sample from patient Y (3) and sends the sample to microbiology (4). The clinic clerk receives the results from microbiology (5a) and places the results in the patient notes (6) so that the doctor can refer to the results and decide what action is necessary. (Doctor X also has the option of getting the results from bulletin board (5b)).

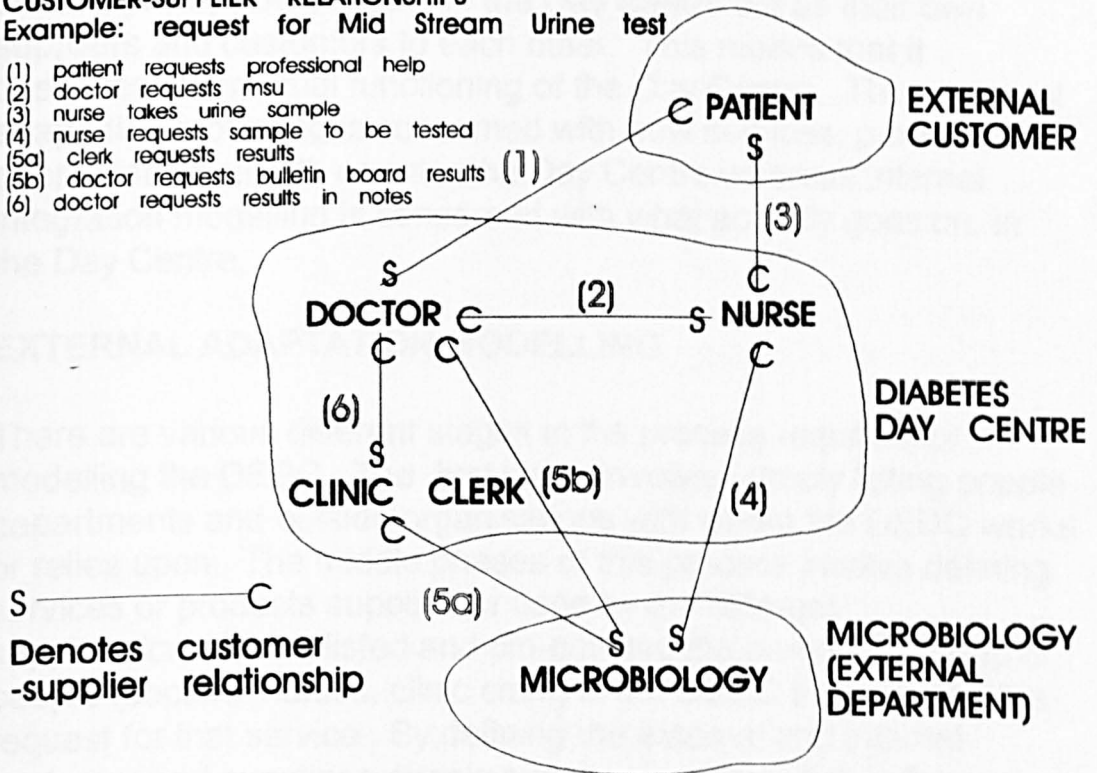
This example shows that the work of individuals and departments within health care organisations are interconnected. As such people and departments serve as their own internal suppliers and customers and their interconnected activities are intended to benefit the external customer. Therefore by departments constructing supplier-customer models at an individual and departmental level, it helps to develop an understanding of how the department integrates itself internally and how as a department it adapts externally to other departments and outside organisations. This model can also be used for pin-pointing where current quality

problems exist and for pin-pointing the weak links in the chain. By having this model it puts the identification of quality problems into a far more structured context. The model can also be used for identifying current work practice (ie does it need to be modified) and for identifying important links which may need strengthening due to external demands placed on the department.

CUSTOMER-SUPPLIER RELATIONSHIPS

Example: request for Mid Stream Urine test

- (1) patient requests professional help
- (2) doctor requests msu
- (3) nurse takes urine sample
- (4) nurse requests sample to be tested
- (5a) clerk requests results
- (5b) doctor requests bulletin board results
- (6) doctor requests results in notes



To design and construct these models in the first place requires total involvement of the department in question, since it is these people who can identify what services they supply and to whom. As mentioned earlier it is necessary to be able to model internal as well as external links. This can be achieved by involving staff in pin-pointing who at a personal level they define as their customers, and then at a departmental level who they define as their customers. It is also necessary to define at a personal and departmental level their suppliers and then, to define explicitly what services are being provided.

CUSTOMER-SUPPLIER MODELLING FOR DEDC

There are two quite separate parts to this modelling process. These are *external adaptation modelling* and *internal integration modelling*. The former involves pin-pointing external bodies which have an influence over and active involvement in the way the Day Centre functions and delivers health care. These external bodies may be suppliers, customers or both. The latter involves defining quite explicitly how the staff in the Day Centre act as their own suppliers and customers to each other. This means that it describes the internal functioning of the Day Centre. Thus external adaptation modelling is concerned with how services, products and people interface with or enter the Day Centre whereas internal integration modelling is concerned with what actually goes on, in the Day Centre.

EXTERNAL ADAPTATION MODELLING

There are various different stages in the process required for modelling the DEDC. The first stage involves simply listing people, departments and outside organisations with whom the DEDC works or relies upon. The middle phases of this process involve defining services or products supplied or used by the different suppliers/customers listed and pin-pointing the person or group of people (doctors, nurses, clinic clerk) in the DEDC that initiated the request for that service. By defining the external and internal customer and supplier a simple supplier-customer link is formed. The final stage involves constructing an external adaptation model. This is a formal depiction of all the different suppliers and customers, showing the services or products provided and their link into the DEDC.

Although the process may sound quite complex, collecting the data is in fact a very straight forward task and can be carried out by staff completing the following form (see overleaf).

Column (1) requires you to list all the external bodies who interact with the DEDC. This includes other hospital departments (haematology, ultrasound, pharmacy, bed manager, portering, waste disposal etc...). It also includes external organisations such as drug companies, FHSA, SELCA etc. External people includes

GPs, patients etc. This section may also include other categories which have not been mentioned.

Columns (2) and (3) require you to tick either one of the two columns but *not* both. You must decide whether the external body is providing a service (supplier) or consuming a service (customer).

Column (4) requires a *brief* description of what service or products are being supplied or consumed. A detailed description is *not* required.

Column (5) requires you to list the other half of the supplier-customer chain. In some cases you may feel you can limit it to a person, in some cases a grouping of people (eg doctors, nurses, dietitian, cleaning staff) and in some cases you may wish to have a very general entry such as DEDC staff. Remember that the person or grouping you enter in this column is the *initiator* of the request for services.

EXAMPLES

(i) If you have chemical pathology in column (1), you should tick column (2) since chemical pathology normally supplies results and ignore column (3), then enter blood test results in column (4) preferably listing the most regularly ordered tests and in column (5) enter doctor since the request was initiated by the doctor.

(ii) If you have portering in column (1) you should tick column (2) since portering provides a service to DEDC, then enter portering service in column (4) and enter clinic clerk in column (5).

Name.....

Job Title.....

Please make sure that you have read the attached sheets before attempting to fill this table in. Spare sheets are available from Catriena if you need them. Please try to fill in this form as completely as possible. If you don't have time to fill these forms in individually, I would suggest you pair up with one or two other people (maximum). If it is a joint submission please ensure all contributors put their names at the top of the form.

Column (1) External Bodies (hosp. depts, suppliers, people etc.)	Col (2) Supplier (tick if Column (1) is a supplier)	Col (3) Customer (tick if Column (1) is a customer)	Column (4) Service or product supplied or used (describe in less than 10 words)	Column (5) DEDC initiator / link (doctor,nurse clerk, DEDC staff etc.)

Appendix II

Rating System for External Adaptation Modelling

DIAGNOSTICS		RATE IN TERMS OF IMPORTANCE (1= VERY IMPORTANT 5= QUITE IMPORTANT)	WHAT FEATURES OF THEIR SERVICE ARE MOST IMPORTANT (EG DELIVERING ON TIME, CORRECT DELIVERY, ACCURATE RESULTS)	DO YOUR SUPPLIERS ALWAYS MEET YOUR REQUIREMENTS? (YES/NO) AND HOW DO YOU THINK THEY COULD IMPROVE?
CHEM PATH	DOC/SN/RES/MLSO/CK			
MICROBIOLOGY	DOC/SN			
IMMUNOLOGY	DOC/SN			
HAEMATOLOGY	DOC/RES			
ECG DEPT	DOC/RES			
X RAY	DOC/SEC/CK			
EMG	DOC			
TREATMENTS				
PHARMACY	DOC/SN/DIET			
MIDWIFERY	SN			
OPHTHAMOLOGY	DOC/DEC			
EYE DEPT	DOC/DEC/CK			
DIETETICS	DIET			
SOCIAL WORK	DIET/PSY			
PSYCOOTHERAPY	PSY			

		RATE IN TERMS OF IMPORTANCE (1= VERY IMPORTANT 5= QUITE IMPORTANT)	WHAT FEATURES OF THEIR SERVICE ARE MOST IMPORTANT (EG DELIVERING ON TIME, CORRECT DELIVERY, ACCURATE RESULTS)	DO YOUR SUPPLIERS ALWAYS MEET YOUR REQUIREMENTS? (YES/NO) AND HOW DO YOU THINK THEY COULD IMPROVE?
SURGICAL UNIT	DOC			
RENAL UNIT	DOC			
OBSTETRICS	DOC			
HAND SURGERY	DOC			
RHEUMATOLOGY	DOC			
RADIOTHERAPY	DOC			
NUCLEAR MEDICINE	DOC/RES			
CARDIAC	DOC			
ENT	DOC			
SCUTARI	DOC			
UROLOGY	DOC			
ICU	DOC			
GI	DOC			
OTHER DEPTS	SEC/CK			
WARD NURSING	SN/CN			
SURGICAL/ MEDICAL FIRMS	SN/CN/ DIET			

		RATE IN TERMS OF IMPORTANCE (1= VERY IMPORTANT 5= QUITE IMPORTANT)	WHAT FEATURES OF THEIR SERVICE ARE MOST IMPORTANT (EG DELIVERING ON TIME, CORRECT DELIVERY, ACCURATE RESULTS)	DO YOUR SUPPLIERS ALWAYS MEET YOUR REQUIREMENTS? (YES/NO) AND HOW DO YOU THINK THEY COULD IMPROVE?
BUSINESS MNGR	DOC			
SENIOR NURSE MNGR	SN/CN			
O/P MNGR	SN/CN/ SEC/CK			
COMPUTER SERVICES DEPT	DIET/ COMP/CK			
CONTRACTING & INFO DEPT	DOC/ COMP/CK			
CHEST DEPT-	COMP			
HEALTH PROMOTION	DIET			
PUBLIC RELATIONS	DEDC			
MED ILLUSTRATIONS	DEDC			
TRAINING DEPT	DEDC			
WORKS DEPT	DEDC			
TRANSPORT/ PORTERING	SN/CN/CK			
SWITCHBOARD	DEDC			
CATERING	RES/CN			
LINEN	CN			
CSSD	CN			
HOSP SUPPLIES	SEC			

		RATE IN TERMS OF IMPORTANCE (1= VERY IMPORTANT 5= QUITE IMPORTANT)	WHAT FEATURES OF THEIR SERVICE ARE MOST IMPORTANT (EG DELIVERING ON TIME, CORRECT DELIVERY, ACCURATE RESULTS)	DO YOUR SUPPLIERS ALWAYS MEET YOUR REQUIREMENTS? (YES/NO) AND HOW DO YOU THINK THEY COULD IMPROVE?
POST ROOM	DEDC			
FILING ROOM	CK			
STATISTICIAN	PSY			
MED SCHOOL LIBRARY	PSY			
EXTERNAL BODIES				
SUPRA REGIONAL LABS	DOC			
DRUG COMPANIES	DOC/RES/ SN/SEC			
WYETH	DOC/RES			
INSTRUMENT COMPANIES	MLSO			
S/W & H/W SUPPLIERS	COMP			
BUILDING CONTRACTORS	DOC			
DVLC/INSURANCE COMP	SEC			
REGIONAL SUPPLIES	CN			
SCHOOLS	DIET			
MEALS ON WHEELS	DIET			
COMCARE	DIET			

		RATE IN TERMS OF IMPORTANCE (1= VERY IMPORTANT 5= QUITE IMPORTANT)	WHAT FEATURES OF THEIR SERVICE ARE MOST IMPORTANT (EG DELIVERING ON TIME, CORRECT DELIVERY, ACCURATE RESULTS)	DO YOUR SUPPLIERS ALWAYS MEET YOUR REQUIREMENTS? (YES/NO) AND HOW DO YOU THINK THEY COULD IMPROVE?
FAMILY	DEDC			
SCHOOL OF NURSING	SN/DIET			
STUDENTS/ VISITORS	DEDC			
OTHER HOSPITALS	SEC			
MANSLEY HOSPITAL	PSY			
ST GEORGES-	PSY			
PRACTICE NURSE	DEDC			
GP	DEDC			
GP FUNDHOLDER	DOC			
SELCA	DOC			

KEY

DOC = DOCTOR

SN = SPECIALIST NURSE

RES = RESEARCH NURSE

CN = CLINIC NURSE

MLSO

DIET = DIETITIAN

DEC = DECS

CHIR = CHIROPODY

PSY = PSYCHOTHERAPY

COMP = COMPUTING STAFF

CK = CLINIC CLERK

SEC = SECRETARY

DEDC = DIABETES & ENDOCRINE DAY CENTRE

CUSTOMER-SUPPLIER RELATIONSHIPS

Appendix III

Internal Integration Modelling

This should be two way

Even in the most simple of transactions there is a very tight relationship between supplier and customer involved. When we look at more complex examples there tends to be many different suppliers and suppliers in order to satisfy one customer. The customer's model of internal transfer of products and services is often different from external relationships. The management's job is to integrate internal and external customers.

INTERNAL INTEGRATION MODELLING

There are two quite separate parts to this modelling process. There are external integration modelling and internal integration modelling. The former involves pin-pointing external issues which have an influence over and over again in the way the Day Centre functions and delivers health care. These external issues may be suppliers, customers or both. The latter involves defining quite explicitly how the staff in the Day Centre act as their own suppliers and customers to each other. This means that it describes the internal functioning of the Day Centre. Thus, external adaptation modelling is concerned with how services, products and people interface with or enter the Day Centre whereas internal integration modelling is concerned with what actually goes on in the Day Centre.

CUSTOMER-SUPPLIER RELATIONSHIPS

Customer-supplier relationships are an important feature of quality improvement programmes. The supplier is a person or unit which supplies a product or service as requested by the customer. The supplier is also responsible for the design and operation of that product/service. The customer is the person who has requested that product/service and/or is the person who uses the product/service. Normally there is a form of dialogue between customer and supplier explaining their needs and expectations. This should be two way.

Even in the most simple of transactions there is very rarely only one supplier and one customer involved. When we turn to more complex examples there tends to be many different customers and suppliers in order to satisfy one operation. We get a multi-tiered model of different customers and suppliers, some of whom will be external to the department/organisation. This introduces the idea of internal and external customers.

CUSTOMER-SUPPLIER MODELLING FOR DEDC

There are two quite separate parts to this modelling process. These are *external adaptation modelling* and *internal integration modelling*. The former involves pin-pointing external bodies which have an influence over and active involvement in the way the Day Centre functions and delivers health care. These external bodies may be suppliers, customers or both. The latter involves defining quite explicitly how the staff in the Day Centre act as their own suppliers and customers to each other. This means that it describes the internal functioning of the Day Centre. Thus external adaptation modelling is concerned with how services, products and people interface with or enter the Day Centre whereas internal integration modelling is concerned with what actually goes on, in the Day Centre.

INTERNAL INTEGRATION MODELLING

This follows a very similar technique to external adaptation modelling but as described earlier it is concerned with modelling the internal customer-supplier chains of the DEDC. In this case the first stage involves defining people who supply a service to you in the ward or nominating yourself as the supplier. The middle phases involve defining services or products supplied by the different suppliers/customers listed and then pin-pointing the other half of the customer-supplier chain. The final stage involves constructing an internal integration model. This is a formal depiction of the internal functioning of the ward.

The data can be collected in a very similar way to the external adaptation method, see the attached form overleaf.

Column (1) requires you to enter yourself or your profession.

Columns (2) and (3) require you to tick either one of the two columns but *not* both. You must decide whether you are providing a service (supplier) or consuming a service (customer).

Column (4) requires a *brief* description of the type of interaction occurring. A detailed description is *not* required. A suggested format is:

- request specialist services (patient referral)
- seek/provide advice
- seek/provide secretarial/administrative support
- carry out tests/investigations etc...

Column (5) requires you to list *all* the people who you work and interact with in the DEDC. This means all the DEDC staff and of course patients. You may find that for some of the services you list it will be more useful to categorise patients by treatments they are receiving rather than just as "patient", ie follow up, new patient etc.

When filling in this form you might find it easier to start by listing in column (4) all the different services you provide eg new patients, follow up clinics, pre assessment tests, providing patient notes etc.. Then put yourself in column (1), tick column (2) or (3) depending on whether you are supplying or requesting services and put your customer or supplier in column (5) be it a patient, doctor etc.

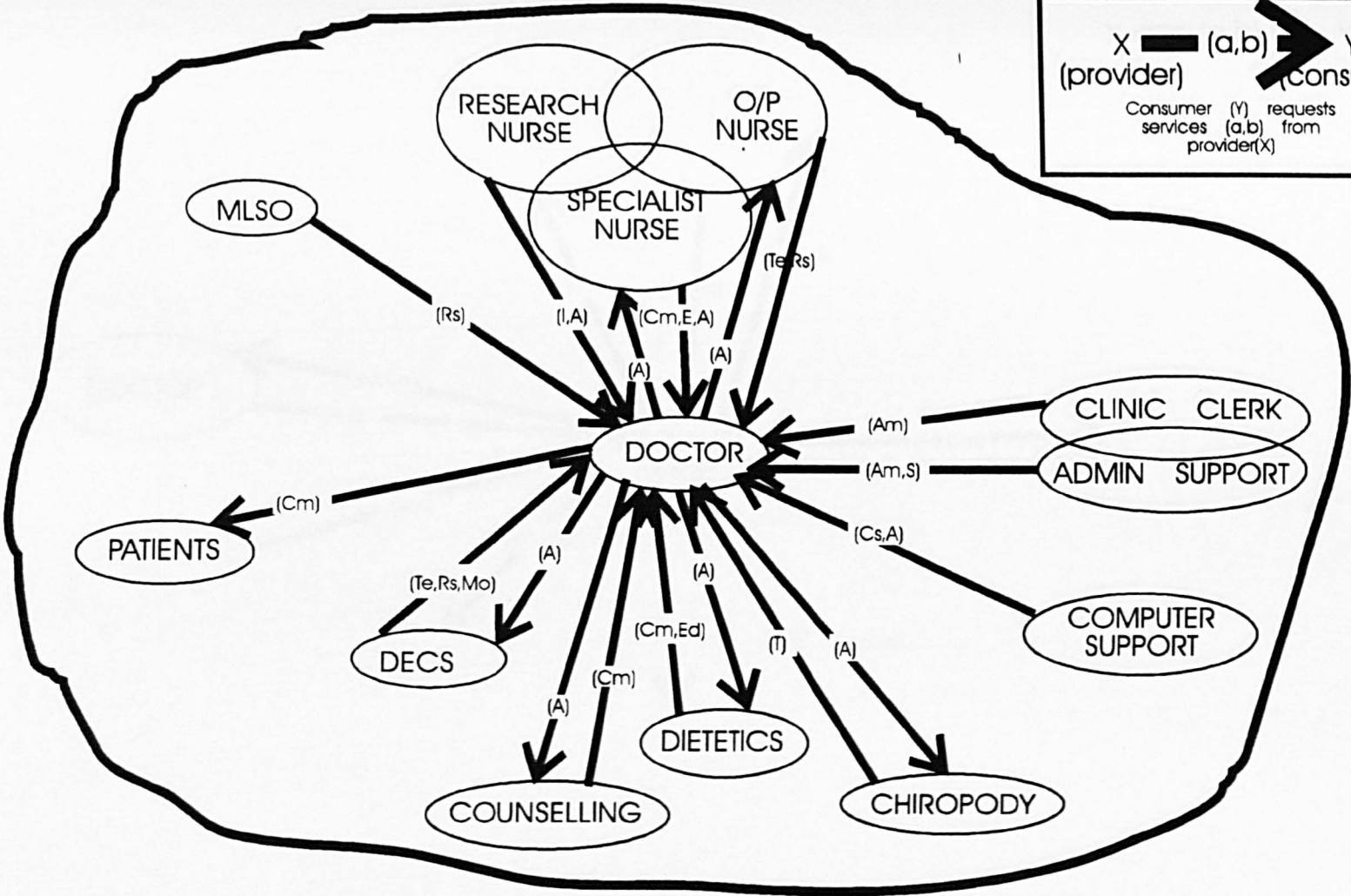
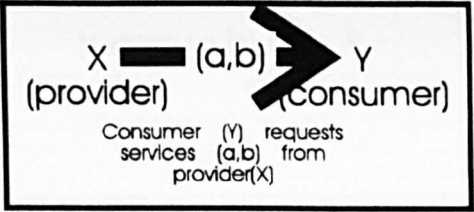
EXAMPLE

(i) Assuming you are a doctor and you wish to describe that you are requesting dietetic services for your patient. Put dietetic services (patient referral) in column (4), enter doctor (yourself) in column (1) and tick column (3) since you are the customer (ie you are requesting for a service to be provided), and fill in dietitian in column (5).

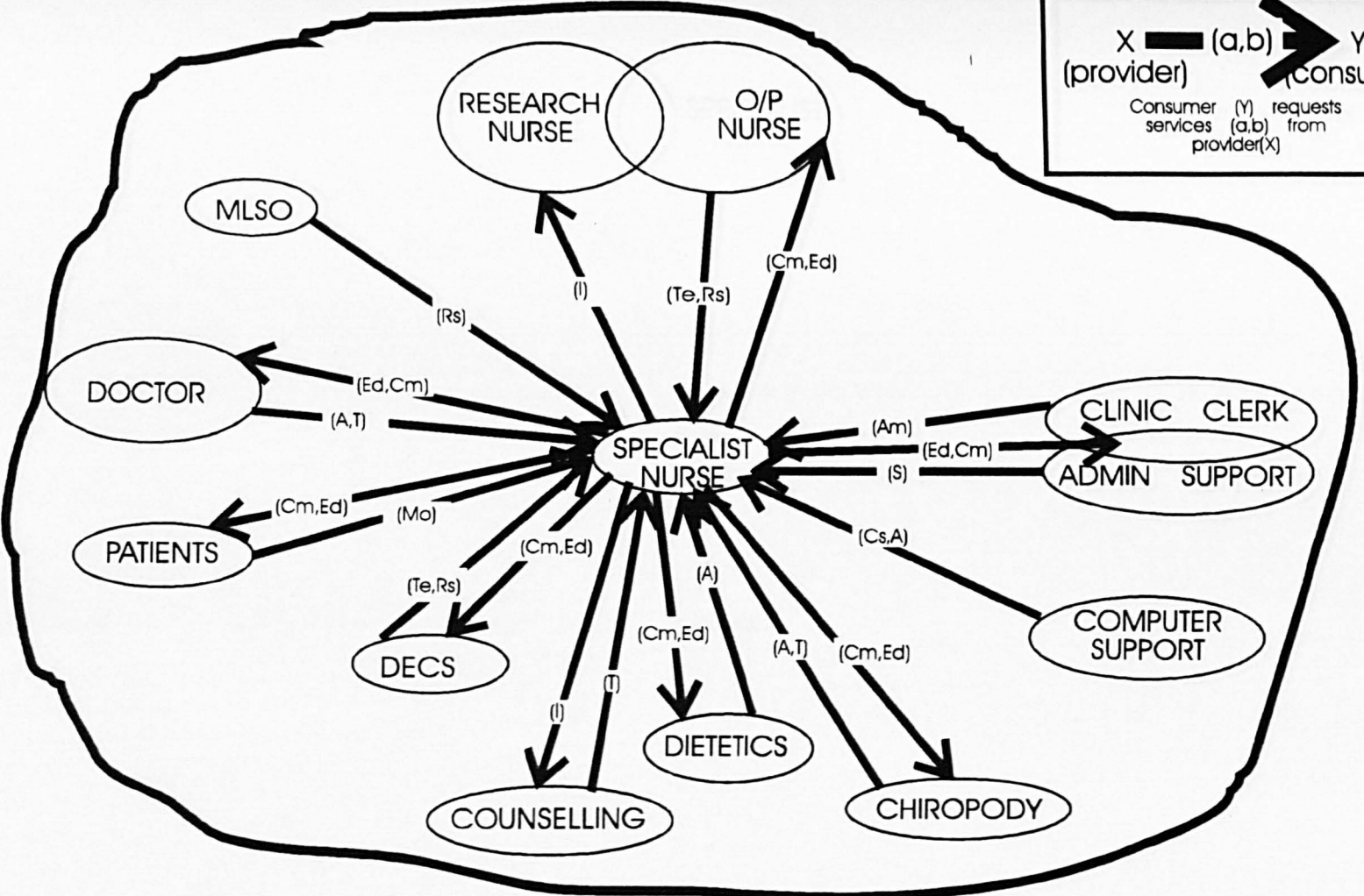
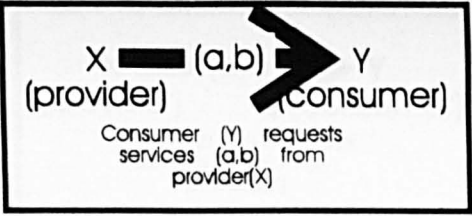
Continuation Sheet

Name

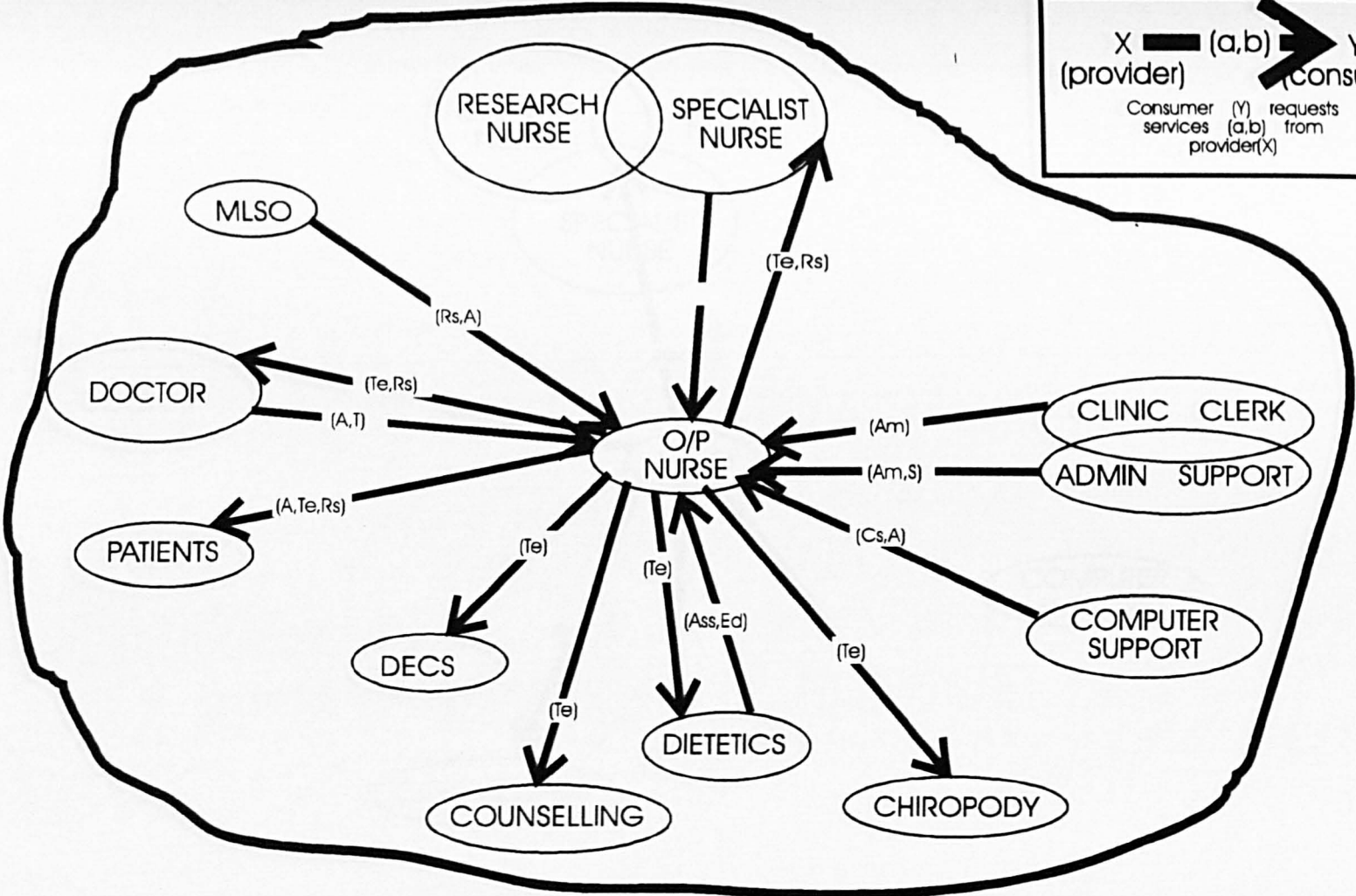
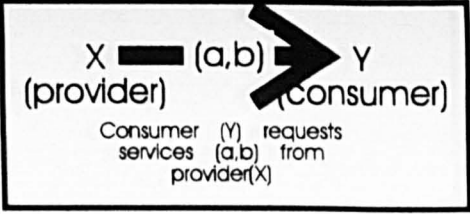
Column (1) Yourself or your profession (doctor, clerk.specialist nurse etc.)	Col (2) Supplier (tick if you are a supplier - supplying services)	Col (3) Customer (tick if you are a customer - requesting services)	Column (4) Service or product supplied or requested.	Column (5) DEDC staff and patients. (ie person with whom you interact)



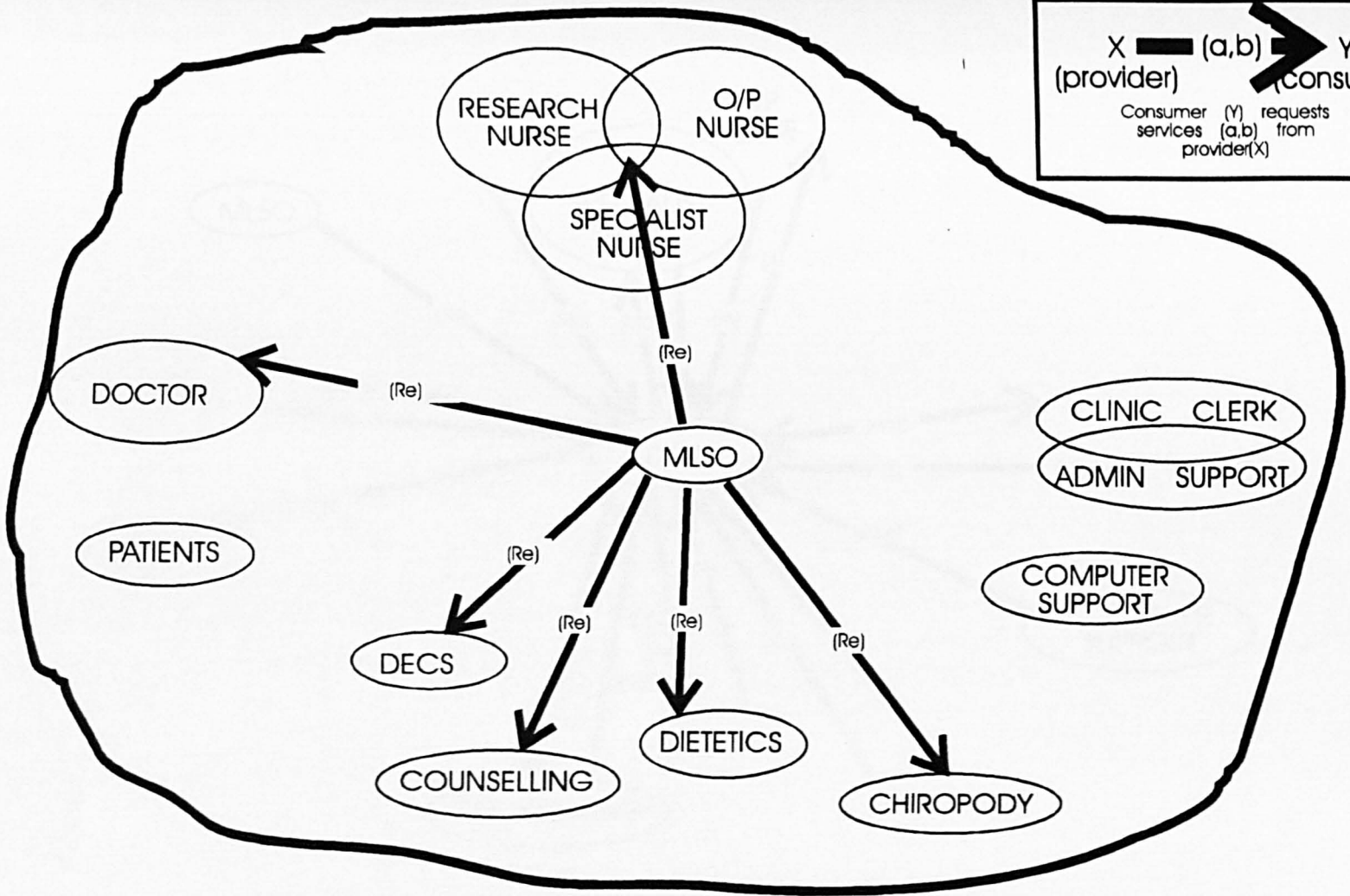
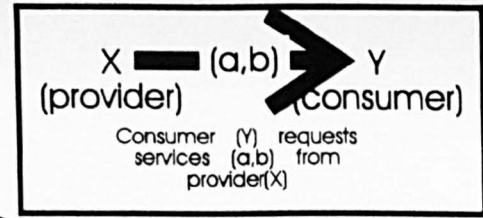
(Cm): CLINICAL MANAGEMENT	(I): INVESTIGATIONS	(A): ADVICE	(Os): OPERATIONAL SUPPORT
(As): assessment	(Te): tests	(E): EDUCATION	(S): secretarial
(Mo): monitoring	(Rs): results	(M): MANAGEMENT	(Sp): supplies
(T): treatment			(Cs): computer support
			(Am): administration



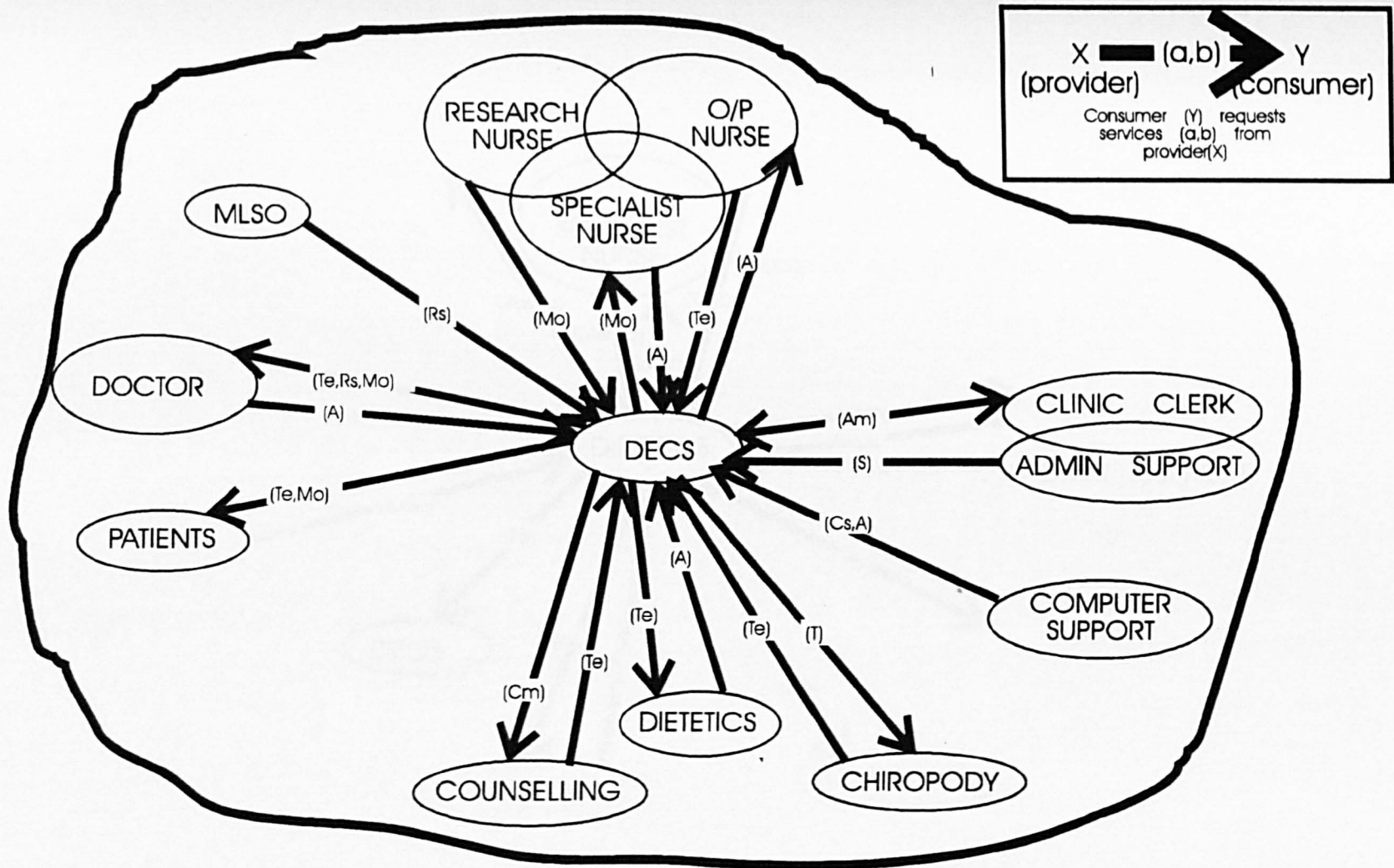
(Cm): CLINICAL MANAGEMENT	(I): INVESTIGATIONS	(A): ADVICE	(Os): OPERATIONAL SUPPORT
(As): assessment	(Te): tests	(E): EDUCATION	(S): secretarial
(Mo): monitoring	(Rs): results	(M): MANAGEMENT	(Sp): supplies
(T): treatment			(Cs): computer support
			(Am): administration



(Cm): CLINICAL MANAGEMENT	(I): INVESTIGATIONS	(A): ADVICE	(Os): OPERATIONAL SUPPORT
(As): assessment	(Te): tests	(E): EDUCATION	(S): secretarial
(Mo): monitoring	(Rs): results	(M): MANAGEMENT	(Sp): supplies
(T): treatment			(Cs): computer support
			(Am): administration

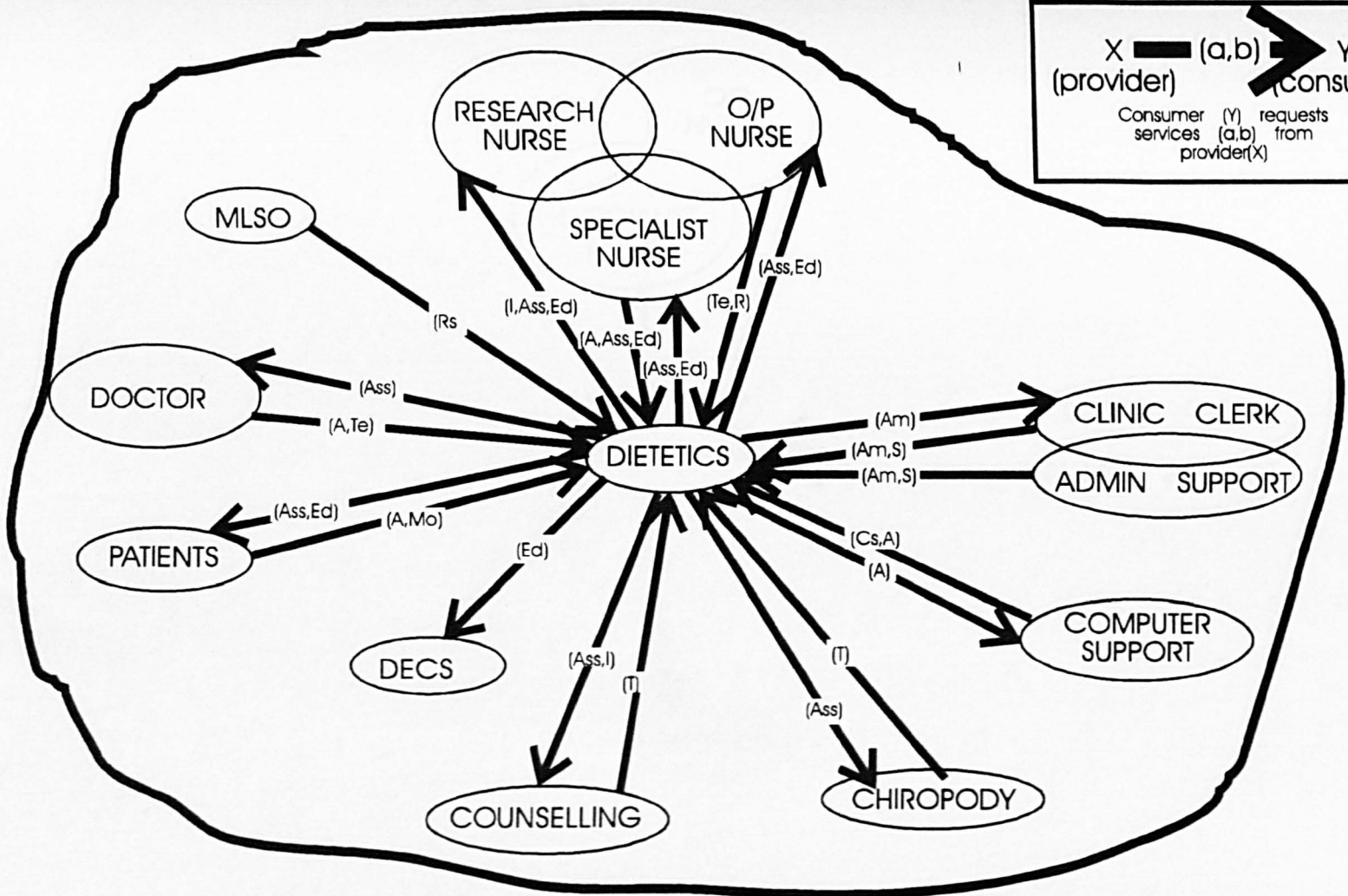


(Cm): CLINICAL MANAGEMENT	(I): INVESTIGATIONS	(A): ADVICE	(Os): OPERATIONAL SUPPORT
(As): assessment	(Te): tests	(E): EDUCATION	(S): secretarial
(Mo): monitoring	(Rs): results	(M): MANAGEMENT	(Sp): supplies
(T): treatment			(Cs): computer support
			(Am): administration



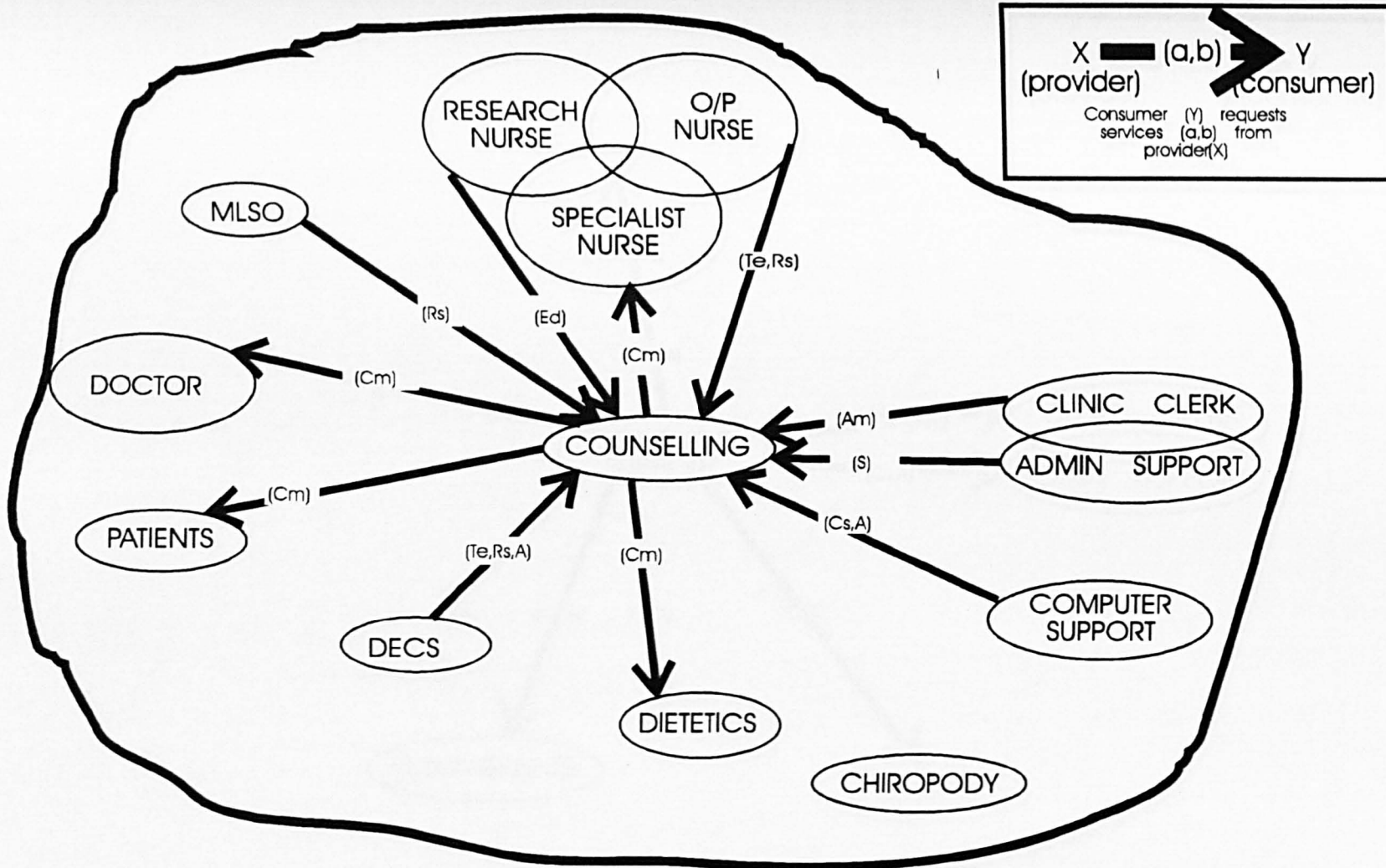
X (provider) — (a,b) —> Y (consumer)
 Consumer (Y) requests services (a,b) from provider(X)

(Cm): CLINICAL MANAGEMENT	(I): INVESTIGATIONS	(A): ADVICE	(Os): OPERATIONAL SUPPORT
(As): assessment	(Te): tests	(E): EDUCATION	(S): secretarial
(Mo): monitoring	(Rs): results	(M): MANAGEMENT	(Sp): supplies
(T): treatment			(Cs): computer support
			(Am): administration

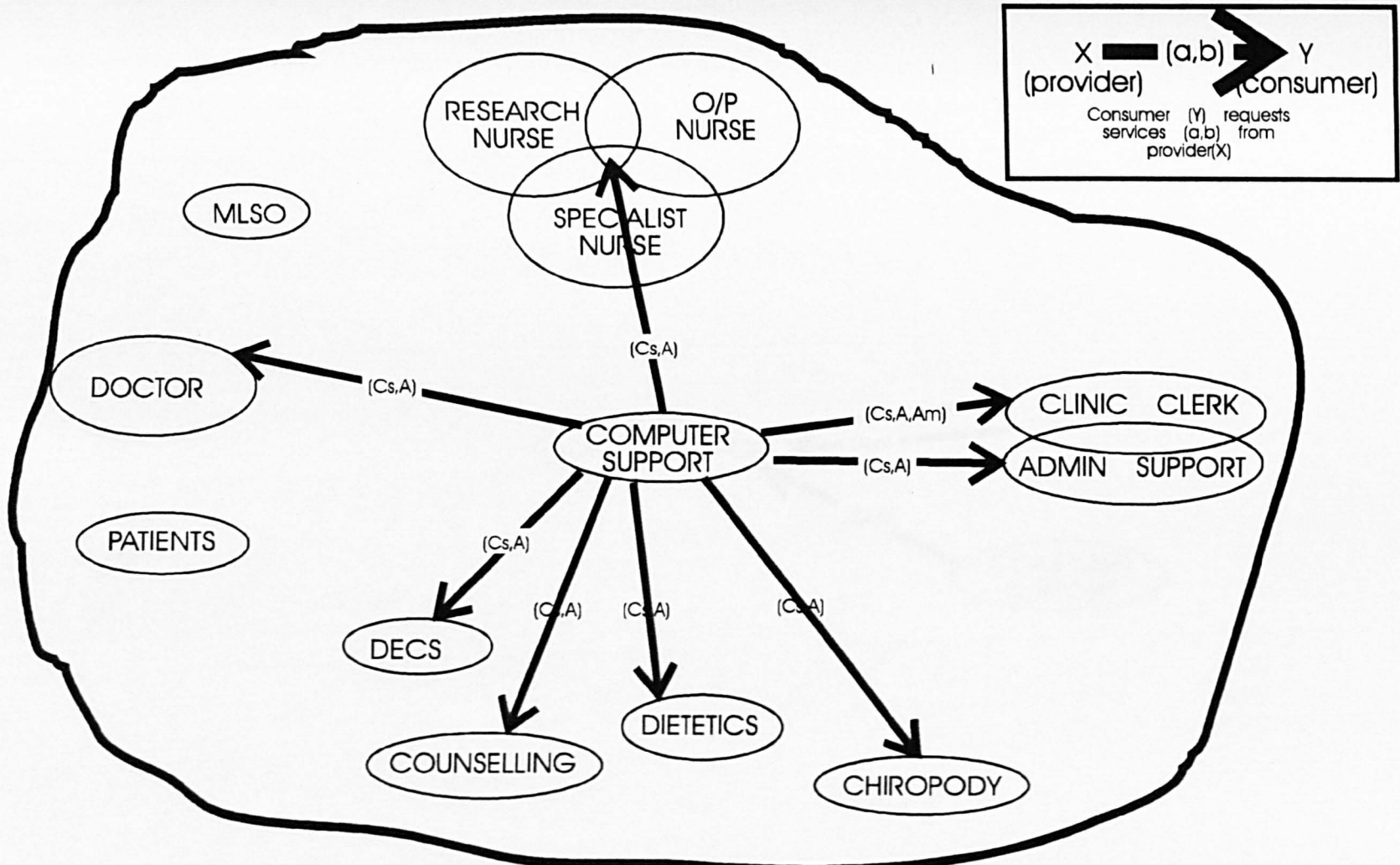


X $\xrightarrow{(a,b)}$ Y
 (provider) $\xrightarrow{(a,b)}$ (consumer)
 Consumer (Y) requests services (a,b) from provider(X)

(Cm): CLINICAL MANAGEMENT	(I): INVESTIGATIONS	(A): ADVICE	(Os): OPERATIONAL SUPPORT
(As): assessment	(Te): tests	(E): EDUCATION	(S): secretarial
(Mo): monitoring	(Rs): results	(M): MANAGEMENT	(Sp): supplies
(T): treatment			(Cs): computer support
			(Am): administration

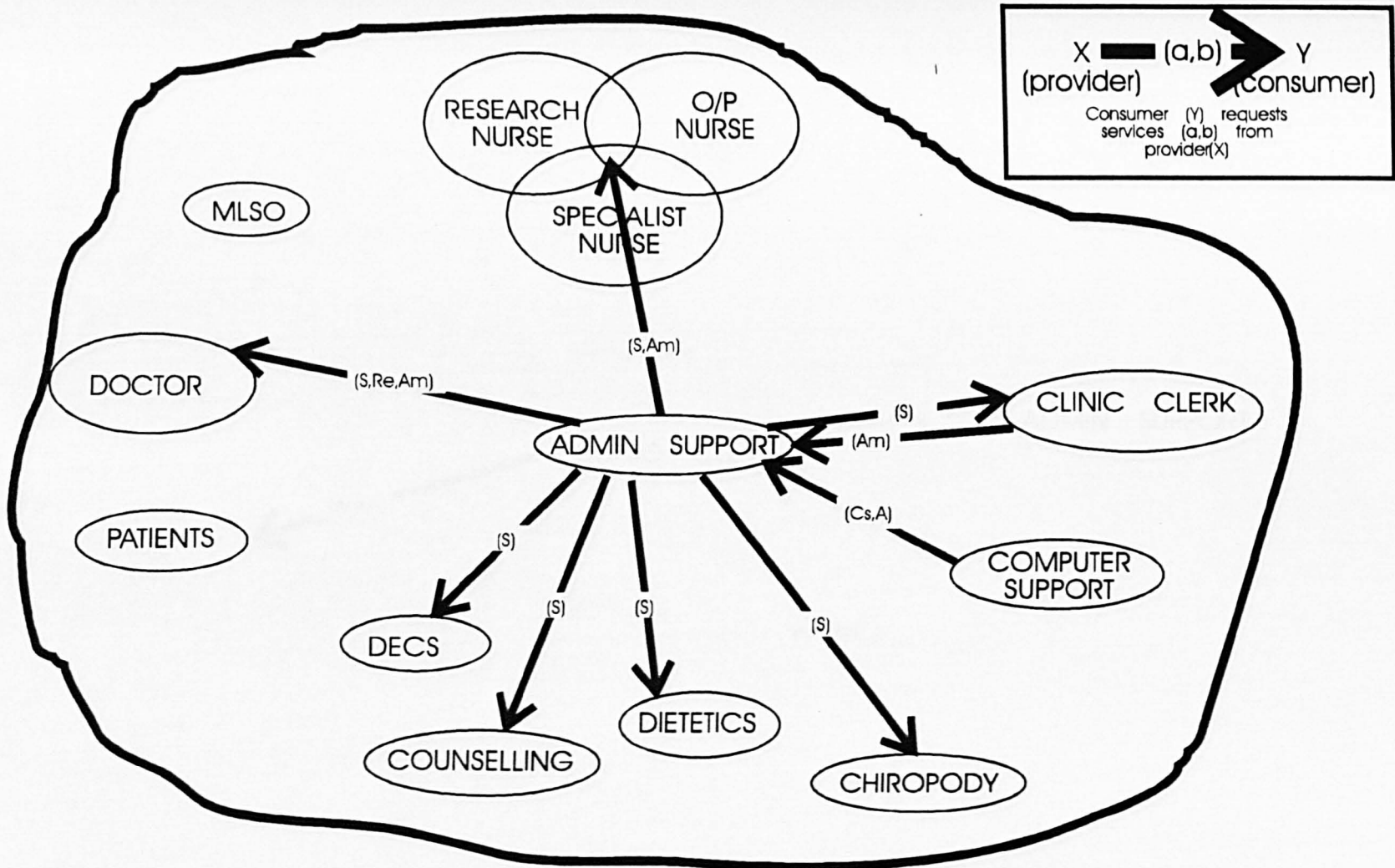


(Cm): CLINICAL MANAGEMENT	(I): INVESTIGATIONS	(A): ADVICE	(Os): OPERATIONAL SUPPORT
(As): assessment	(Te): tests	(E): EDUCATION	(S): secretarial
(Mo): monitoring	(Rs): results	(M): MANAGEMENT	(Sp): supplies
(T): treatment			(Cs): computer support
			(Am): administration



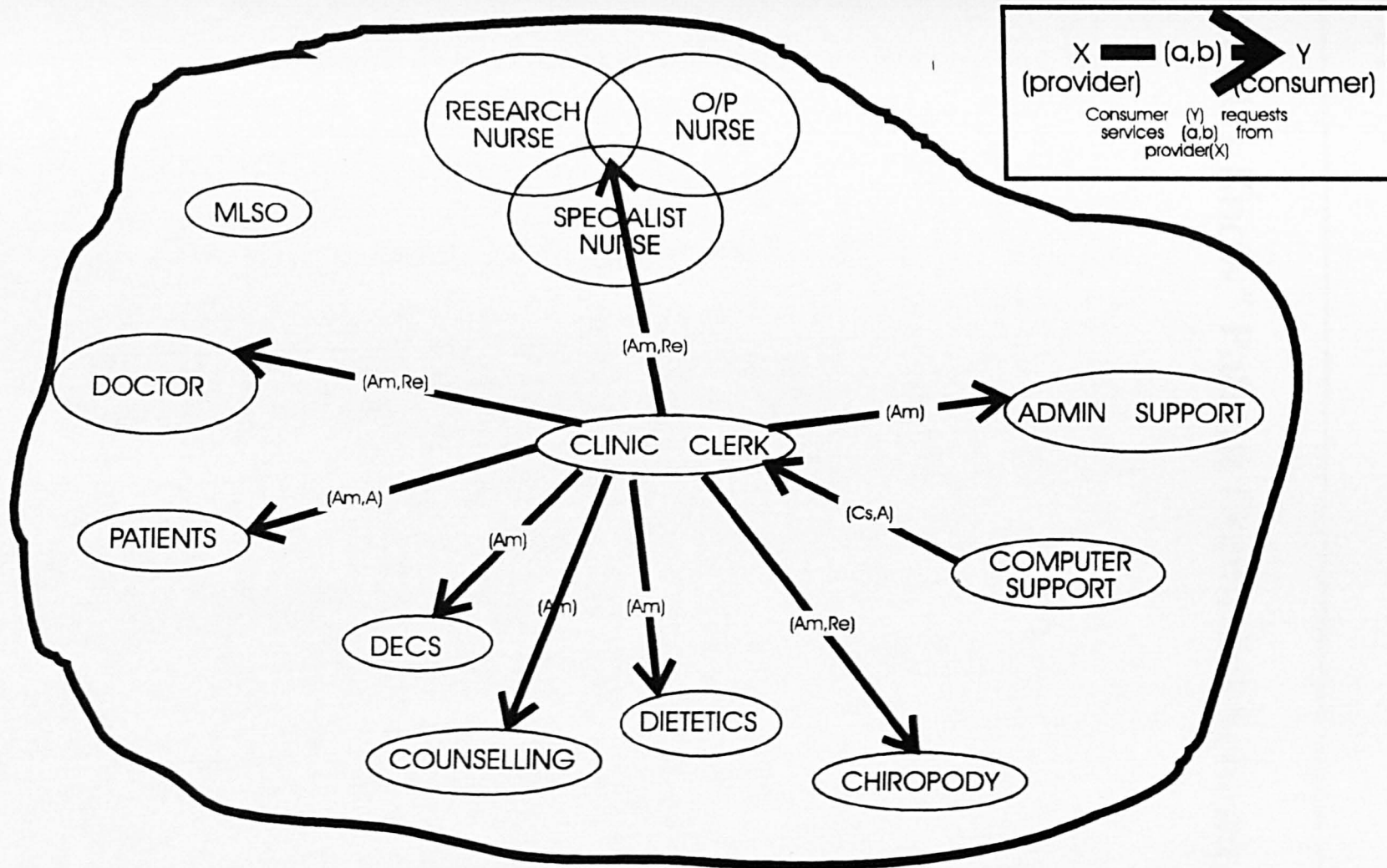
X (provider) — (a,b) —> Y (consumer)
 Consumer (Y) requests services (a,b) from provider(X)

(Cm): CLINICAL MANAGEMENT	(I): INVESTIGATIONS	(A): ADVICE	(Os): OPERATIONAL SUPPORT
(As): assessment	(Te): tests	(E): EDUCATION	(S): secretarial
(Mo): monitoring	(Rs): results	(M): MANAGEMENT	(Sp): supplies
(T): treatment			(Cs): computer support
			(Am): administration



X (provider) → (a,b) → Y (consumer)
 Consumer (Y) requests services (a,b) from provider(X)

(Cm): CLINICAL MANAGEMENT	(I): INVESTIGATIONS	(A): ADVICE	(Os): OPERATIONAL SUPPORT
(As): assessment	(Te): tests	(E): EDUCATION	(S): secretarial
(Mo): monitoring	(Rs): results	(M): MANAGEMENT	(Sp): supplies
(T): treatment			(Cs): computer support
			(Am): administration



(Cm): CLINICAL MANAGEMENT	(I): INVESTIGATIONS	(A): ADVICE	(Os): OPERATIONAL SUPPORT
(As): assessment	(Te): tests	(E): EDUCATION	(S): secretarial
(Mo): monitoring	(Rs): results	(M): MANAGEMENT	(Sp): supplies
(T): treatment			(Cs): computer support
			(Am): administration



LET US KNOW

Please help us Fill in a card and let us know what we are doing well and what we could do better

İsteğimiz sizlere daha iyi hizmet etmek. Onun için neleri iyi yaptığımızı ve neleri daha iyi yapabileceğimizi bize söylüyerek yardımcı olmanızı rica ediyoruz. Eğer söyleyeceğiniz bir şey varsa servislerimiz hakkında lütfen bu karda yazınız ve ya buradaki kutuya koyunuz yada hastanedeki işçilerden birine veriniz.

Queremos melhorar os nossos serviços. Por favor ajude-nos e de-nos a sua opinião sobre o que estamos a fazer bem e o que podemos fazer melhor. Por favor escreva qualquer comentário que queira fazer sobre os nossos serviços neste cartão e ponha o cartão na caixa existente ou de-o a qualquer funcionario do hospital.

我們正致力改善服務，請告之我們
妥善之處及可以改善的地方。請在此
卡上寫上對於本服務之任何意見，然
後放置在意見箱內或交與本醫院之
員工。

আমরা আমাদের দ্বারা যোগানো সার্ভিসের উন্নতি করতে ইচ্ছুক। দয়া করে
আমাদের এ ব্যাপারে সহায়তা করুন এ কথা জানিয়ে যে কোন প্রকার কাজ
আমরা সুষ্ঠু ভাবে সম্পন্ন করছি এবং কোন গুণির উপর আমাদের আরো
নজর দেওয়া উচিত। আপনারদির বন্দত্বা দয়া করে এই কার্ডের উপর লিখুন
এবং এই কার্ডটি ব্যক্তুর মধ্যে জমা করুন অথবা যে কোন হাসপাতাল কক্ষের
হাতে জমা দিন।

Ward / Outpatients Dept : DDC

Date : 21.7.93 Time : 10.20 AM

Any comments you have will help us to know what we are doing well and what we could do better.

I WOULD PREFER IT IF YOU WERE
TO SEE PATIENTS INDIVIDUALLY IN THE
PRE-ASSESSMENT ROOM THERE WAS
SOMEONE HAVING AN EYE TEST WHILE I WAS
HAVING BLOOD TAKEN. THAT ROOM SEEMS TO
BE A BIT CROWDED AT TIMES.

How would you rate our services overall :

Excellent Good Fair Poor Very Poor

Appendix VI

Improving Access to Diabetes Care for the Afro-Caribbean Community

DIABETES IN THE AFRO-CARIBBEAN COMMUNITY: IMPROVING ACCESS TO DIABETES CARE

Victoria CF Doyle, MEng¹, AF Macleod, MRCP², PH Sönksen, FRCP³

¹Research Assistant, Department of Endocrinology, St Thomas' Hospital, Lambeth Palace Road, London, SE1 7EH. (Current Position: Research Fellow, Liverpool School of Tropical Medicine, International Health Division, Pembroke Place, Liverpool. L3 5QA).

²Lecturer, Department of Medicine, St Thomas' Hospital, Lambeth Palace Road, London, SE1 7EH. (Current position: Consultant Physician, Royal Shrewsbury Hospitals, Shrewsbury, SY3 8BQ).

³Clinical Director, Professor of Endocrinology, United Medical and Dental Schools and St Thomas' Hospital, Lambeth Palace Road, London, SE1 7EH

Correspondence author: Ms V Doyle

Liverpool School of Tropical Medicine

International Health Division

Pembroke Place

Liverpool L3 5QA

Acknowledgements: Dr M Pearce and Dr D Armstrong (UMDS) for conducting focus group interviews and compiling results into a report

Mr C Laws and Mrs Y Moseley (BNCA) for unrelenting hard work in the community

Ms J Fosbury (St Thomas' Hospital) for assistance in questionnaire design

ABSTRACT

Afro-Caribbean people make up approximately 25% of all patients attending St. Thomas' Diabetes Day Centre, a large inner city diabetes and endocrine referral centre. Six hundred and seventy nine Afro-Caribbean patients were identified from our computerised patient record system as being seen by day centre staff in the last 18 months. To establish the salient issues regarding access to health care, a questionnaire was sent to 200 of these patients, half of whom were known to have defaulted from the clinic on at least two occasions. Two focus group meetings and a large open forum meeting were carried out as a complementary approach in identifying problems with access. Knowledge questionnaires were also distributed in the local community (n=122) to assess basic understanding concerning diabetes. The results showed that whilst conventional problems with access to diabetes care exist more specific cultural issues must be recognised and overcome.

Key Words: diabetes, access to health care, Afro-Caribbean, community, ethnic minorities.

INTRODUCTION

People from black and ethnic minorities now account for approximately 5% of the population in England. Although they have been living in Britain for at least 300 years, most have arrived here only relatively recently¹. It is difficult to gain a comprehensive picture of the health of black and ethnic communities because of the scarcity of published reports. It is clear however that there are considerable variations in disease patterns amongst the black and ethnic minority groups^{2,3}. There is an increasing recognition that health services must address the particular needs of the black and ethnic minorities living in this country, and take positive steps to eliminate discrimination. This sentiment is reflected in the United Kingdom Chief Medical Officers report "On the State of Public Health 1991"¹.

Diabetes mellitus is a common disease affecting 1-2% of the population in Britain. The prevalence of diabetes in Asians is reported to be three to four times higher⁴ than its equivalent Caucasian population. Whilst there are no complete epidemiological studies of Afro-Caribbean patients in the UK, the indication is that diabetes is also more prevalent in this group^{5,6,7} than in the indigenous Caucasian population. Certainly studies from the USA suggest that the prevalence of non insulin dependent diabetes in black Americans is higher than in whites⁸. The disease is important because it is associated with serious complications which can be ameliorated by early and continuing treatment of the diabetes. A particular feature of the disease is that much of the treatment requires understanding and active participation by the patient who has the central role in controlling the disease, particularly by adhering to an appropriate diet and taking tablets or insulin injections. In the UK between 4 and 5% of total health care expenditure is spent on diabetes⁹

The catchment area of St Thomas' Hospital's in West Lambeth has a large Afro-Caribbean population centred around the town of Brixton and one of the highest 'Under Privileged areas' (UPA) scores in the country, indicating a high degree of social deprivation¹⁰. The Brixton Neighbourhood Community Association (BNCA) formed 16 years ago, offers a diversity of services aimed at improving quality of life within the existing system. People in the community are active participants in the centre rather than passive recipients of care.

The BNCA and St Thomas' Hospital Diabetes Day Centre, driven by a common aim to seek ways to improve the delivery of diabetes care in the community, determined to set up a study to investigate problems experienced by Afro-Caribbean people in gaining access to diabetes health care. The principle objectives of this study were to:

- identify Afro-Caribbean people not receiving regular diabetes care
- discover the problems they have in obtaining the appropriate advice and treatment
- assess diabetes knowledge in both diabetic and non-diabetic members of the Afro-Caribbean community

METHODS

The active involvement of the community was considered to be a key component¹¹ of obtaining accurate and realistic information about health care needs in the community. The BNCA therefore took on a substantial organising role and played an important part in encouraging community involvement and establishing rapport and credibility for the study. They supported our team in helping us take a culturally sensitive approach and were involved in all planning and design stages. All consultation with Afro-Caribbean's was community led by the BNCA.

Patient Access Questionnaire

Selection of Patients

The computerised database at St Thomas' Hospital diabetes centre holds the medical and sociological details of some 6,500 patients. Details include such variables as ethnic status, patient's address and attendance rates¹².

The system was used to identify 697 Afro-Caribbean patients who had attended the centre over the last eighteen months. A cohort of 100 patients (non attendees) was then randomly selected from those who had defaulted on at least 2 occasions during that period. This group was selected on the premise that they had already experienced problems with diabetes health care access. A further 100 patients were randomly selected from those without any record of non attendance (regular attendees) for comparison.

Questionnaire Design and Distribution

Postal questionnaires were specifically designed to establish the salient issues regarding problems with access to diabetes services. The questionnaire focused on health beliefs, doctor/patient relationships, appropriateness of services, waiting time, socio-economic issues and language difficulties. A space for free text was included in the questionnaire so that patients also had the opportunity to express their views on any other issues they felt were pertinent. These were sent out to both patient cohorts under the cover of hand written and post-office stamped envelopes. Patients were asked in a covering letter to complete the questionnaire as accurately as possible, return it in a stamped addressed envelope to the BNCA, together with their telephone number, and to expect to be telephoned by a member of the BNCA to clarify details. Mention was made that questionnaires returned promptly would be entered into a prize draw. Those patients who did not have telephones were followed up by house visit.

Five volunteers from the BNCA were trained to phone our patients on receipt of the questionnaire, to check the validity of the answers and to ask patients for any additional problems they had experienced concerning diabetes health care access. The questionnaires were then analysed, and confidence intervals for the difference between the two populations were calculated.

Focus Groups and Open Meeting

As a complementary approach, two focus group interviews (n=8 and n=10) and a large open forum meeting (n=80) were held at the BNCA to elicit any further views which the structured questionnaire might not have covered. Participants of both were BNCA members with diabetes who had volunteered for the purpose. During these sessions detailed notes were taken and afterwards were compiled into a report (Armstrong D, Pierce M, 1992, Diabetes in Afro-Caribbean's, A Report on Two Group Interviews, Dept of General Practice, UMDS).

Knowledge Questionnaires

To assess levels of basic understanding concerning diabetes, knowledge questionnaires were issued to a randomly selected group in the BNCA community (n=122). Three types of questionnaire were used for this purpose to assess knowledge levels in:

- the general population
- insulin dependent diabetics
- diet and/or tablet treated diabetics

The sophistication of the questions in each questionnaire, reflected the level of knowledge that we expected each group to possess. Thus the questionnaire for the general population covered general diabetes issues whereas the other two questionnaires asked more specific questions about diabetes relevant to their treatment. A multiple choice format was

constructed for each questionnaire.

RESULTS

Patient Access Questionnaire

A 62% response rate was achieved (n=63 regular attendees, n= 61 non attendees) over a 4 week period. The results from the postal questionnaire are summarised in Figure 1. The percentage of positive responses are shown for each question, with 95% confidence limits. Ninety eight percent of both non attendees and regular attendees made additional comments. Of these the most frequent were that they wanted:

- more specific education and information about diabetes
- more support in the community
- more frequent appointments
- more doctors and nurses

Focus Groups/Open Meetings

Discussions from the group interviews and the open meeting complemented the results from the questionnaires but also highlighted the fact that views about diabetes were embedded in much deeper-seated cultural beliefs about health and illness. Whilst overall they were satisfied with treatment and had faith in medical science, they had difficulties with:

- communication with doctors
- the extended role of the nurse
- seemingly irrelevant dietary advice

Again, there were very many spontaneous remarks, requesting more specific information about diabetes that could be readily understood by the Afro-Caribbean community.

Knowledge Questionnaires

The results of the knowledge questionnaires for the 3 groups are given in Figures 2, 3 and 4. The percentage of correct responses is given against an abbreviation of the correct answer. The questionnaire for non-diabetics revealed an adequate knowledge of diabetes in the general population. The more specific questionnaires for diabetic patients, all of whom should have had an opportunity for individual or group education sessions, revealed more worrying deficits of knowledge about treatment, Figure 3 (Qs 6, 8, 10) and diet, Figure 4 (Qs 4, 5, 6).

DISCUSSION

There is a pressing need to improve and provide more appropriate health care to ethnic minorities in the United Kingdom^{13,14,15}. As well as the conventional problems with health care access seen in socially deprived communities, more specific cultural issues need to be addressed. We have therefore sought to address the specific needs of the Afro-Caribbean community with regards to diabetes care. Although there has been much discussion about these needs in the media¹⁶ and elsewhere, there is a distinct paucity of specific published data.

The enthusiasm and participation in this project was overwhelming. We believe its success was due to a strong community leadership and ownership of the project, and the location of the research in a familiar non-clinical setting. This was highlighted by a 62% response rate from those who completed the postal access questionnaire, even in the non attendee group. In fact the similar response rate of both groups suggests that the non attendees were equally aware of the need to improve health care access to diabetes.

Nearly all patients agreed that diabetes was a serious illness, but of concern was the fact that only 60% thought their diabetes was serious to them. This implies an unwillingness to accept the burden of disease upon themselves. The non attendees were in as much agreement as to regular attendees over the importance of seeing a doctor/nurse on a regular basis (93% vs. 96%), although they had defaulted on at least 2 occasions over the last 18 months. More non attendees felt that the health care professional did not have enough time for them and significantly more felt that their visits might be a waste of time. Half the non attendees felt more black staff would be a help to them, as opposed to a quarter of regular attendees. As expected both groups, but particularly the non attendees thought that clinic waiting time was a barrier to health care access. Of the specific problems with health care access, the non attendees especially felt that transport, their job and language skills were a problem.

In the focus group interviews common patterns emerged in terms of lay views on the nature of diabetes, its causes, and its management. Overall, the treatment obtained from both general practice and hospital was praised. Nonetheless given the nature of diabetes it would seem that their understandings of their illnesses were not always conducive to best long term management. It appeared that their views about diabetes were embedded in much deeper-seated cultural beliefs about health and illness.

The results from the knowledge questionnaires showed that non-diabetics had a fair general understanding and awareness about diabetes but the results from known diabetics indicated a marked lack of necessary specialist knowledge about diabetes. For instance only 18% of insulin dependent diabetics and 17% of diet or diet and tablet treated diabetics knew the normal range for blood glucose. Also only 29% of diet treated diabetics knew that butter was mainly fat. This discrepancy may be attributed in part to lack of culturally sensitive

patient education programmes and materials and failure of the health care professional to understand the culture of Afro-Caribbean patients¹¹.

Thus the results from this study have shown that:

- important cultural differences in obtaining access to diabetes health care exist, must be identified and overcome
- there is a pressing need, and desire, for more culturally sensitive information and education about diabetes, led by the community
- conventional problems with health care access for diabetes are still very relevant for the Afro-Caribbean population

The requirement now is for planned intervention through the development of sustainable models for improving access of Afro-Caribbean people to mainstream health services, as well as developing new services that will be more relevant and easily accessible to this community.

Certainly there is a need for more epidemiological and intervention studies in Afro-Caribbean and other ethnic communities¹¹ so that health care professionals can understand their needs and deliver a more culturally sensitive and supportive service. At the same time there is a need to raise awareness of diabetes in the community and promote community activity and collaboration with diabetes experts. Thus the emphasis must be on information and education and this should be done in a manner that reflects the particular regional and socio-economic culture¹⁷ of the people who are to be served.

REFERENCES

1. *On the State of Public Health 1991*. London:HMSO,1992. (Chapter 3, Health of black and ethnic minorities.)
2. Cruickshank JK, Beevers DG, Osbourne VL, Haynes RA, Cortlett JCR, Selby S. Heart Attack, stroke, diabetes, and hypertension in West Indians, Asians and whites in Birmingham, England. *Br Med J* 1980;281:1108.
3. Karmi G. Equity and health of ethnic minorities. *Quality in Health Care* 1993;2:100-103.
4. Mather HM, Keen H. The Southall Diabetes Survey: prevalence of known diabetes in Asians and Europeans. *Br Med J* 1985;291:1081-84.
5. Odugbesan O, Rowe B, Fletcher J, Walford S, Barnett AH. Diabetes in the UK West Indian Community: the Wolverhampton Survey. *Diabetic Medicine* 1989;6:48-52.
6. Cruickshank JK, Beevers DG. *Ethnic Factors in Health and Disease*. London:Wright 1989.
7. Nikolaodes K, Barnett AH, Spiliopoulos AJ, Watkins PJ. West Indian diabetic population of a large inner city diabetic clinic. *Br Med J* 1981;283:1374-75.
8. Harris MI. Noninsulin-Dependent Diabetes Mellitus in Black and White Americans. *Diabetes Metabolism Review* 1990;6(2):71-90.
9. Laing W, William R. A model for health care management. Office of Health Economics 1989, No 92 in a series of papers on current health problems.
10. Jarman B Identification of Under privileged areas. *Br Med J* 1983;286:1705-9.
11. Anderson RM, Herman WH, Davis JM, Freedman RP, Funnell MM, Neighbors HW. Barriers to improving Diabetes Care for Blacks. *Diabetes-Care* 1991;14(7):605-609.
12. Sönksen PH, Till S, Mozakka N, Carey S, Williams CD. Computerised Clinic Visit. In: Rifkin H, Colwell JA, Taylor SI, editors. *Excerpta Medica*. Amsterdam, London, New

York, Tokyo: Elsevier Science, 1991:977-980.

13. Ahmad WIU. Policies, Pills, and Political Will: A critique of Policies to Improve the Health Status of Ethnic Minorities. *Lancet* 1989;i:148-50.

14. Fulop N. Background Information. *Health Service Journal* 5 March 1992:28-29.

15. Mello M. Plugging the Gap. *Nursing Times* 1992;**88**(43):34-5.

16. Hall C. Health Ministry Admits Neglect of Ethnic Minorities. *The Independent* 1992 Sep 29:4.

17. Donovan JL. Ethnicity and Health: A research Review. *Soc Sci Med* 1984;**19**(7):663-670.

FIGURE 1

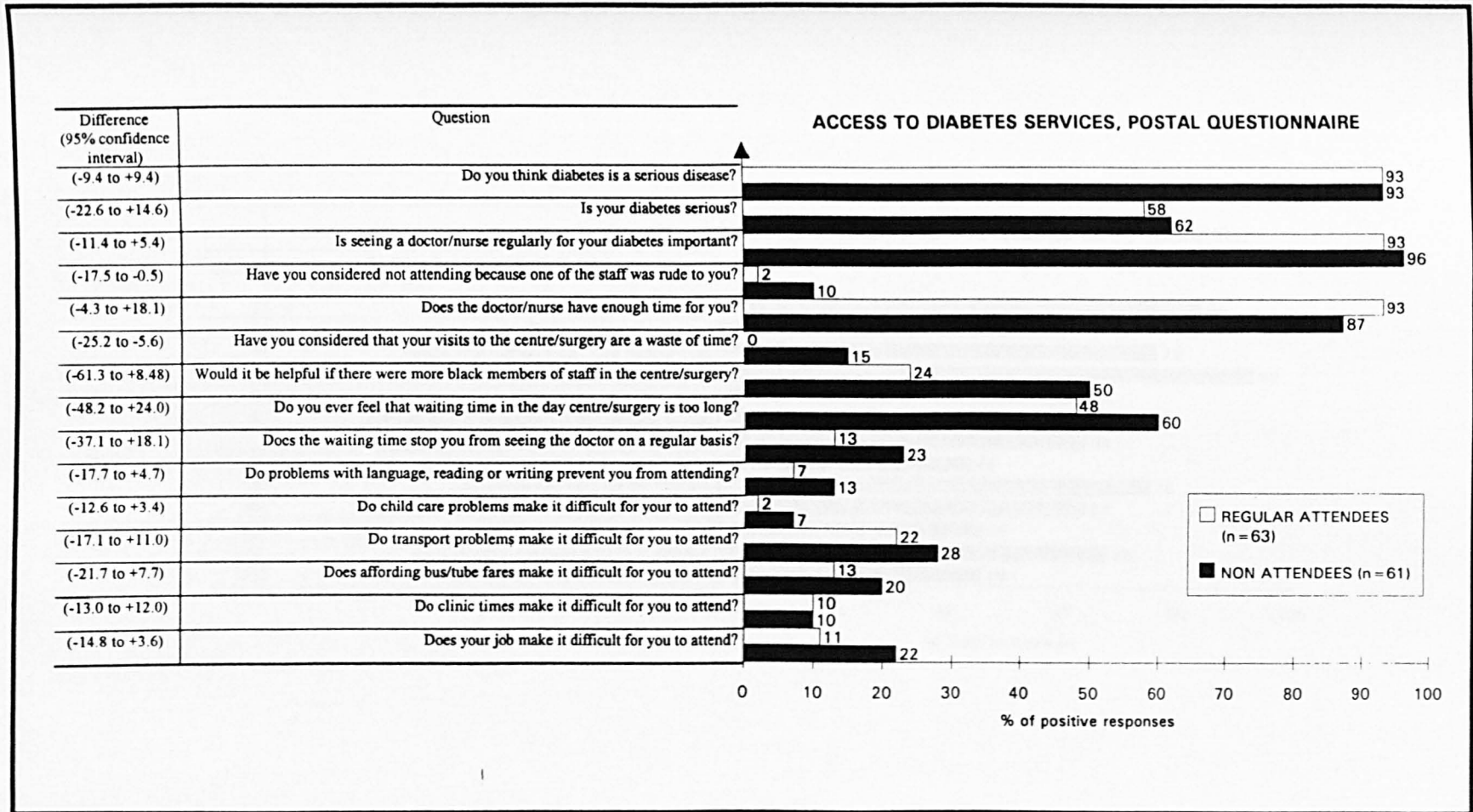


FIGURE 2

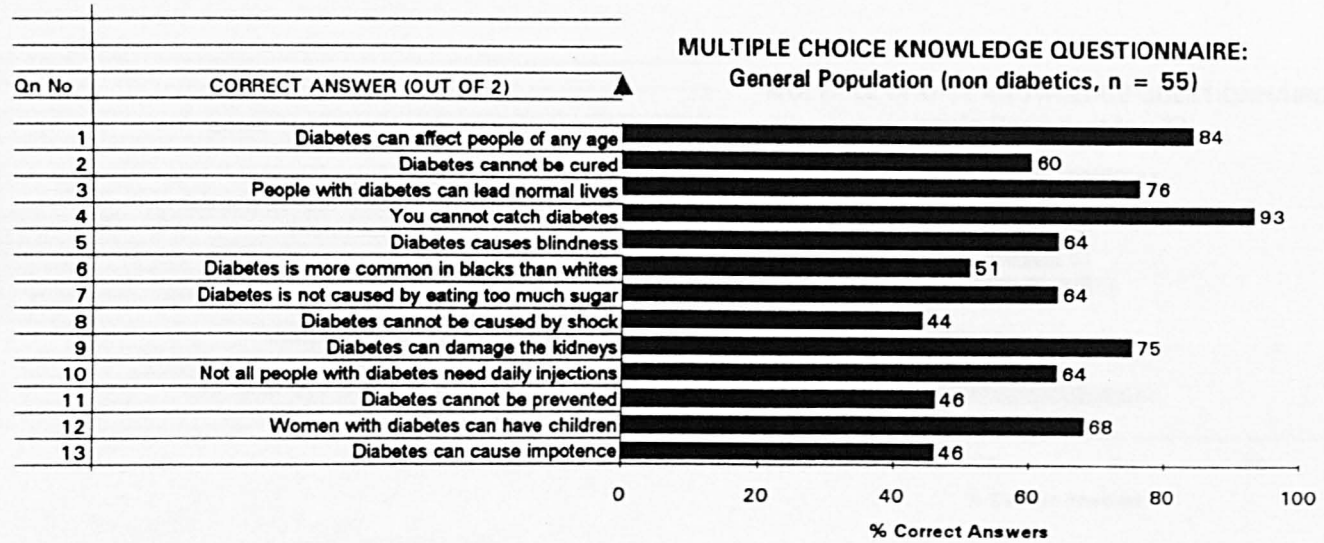


FIGURE 3

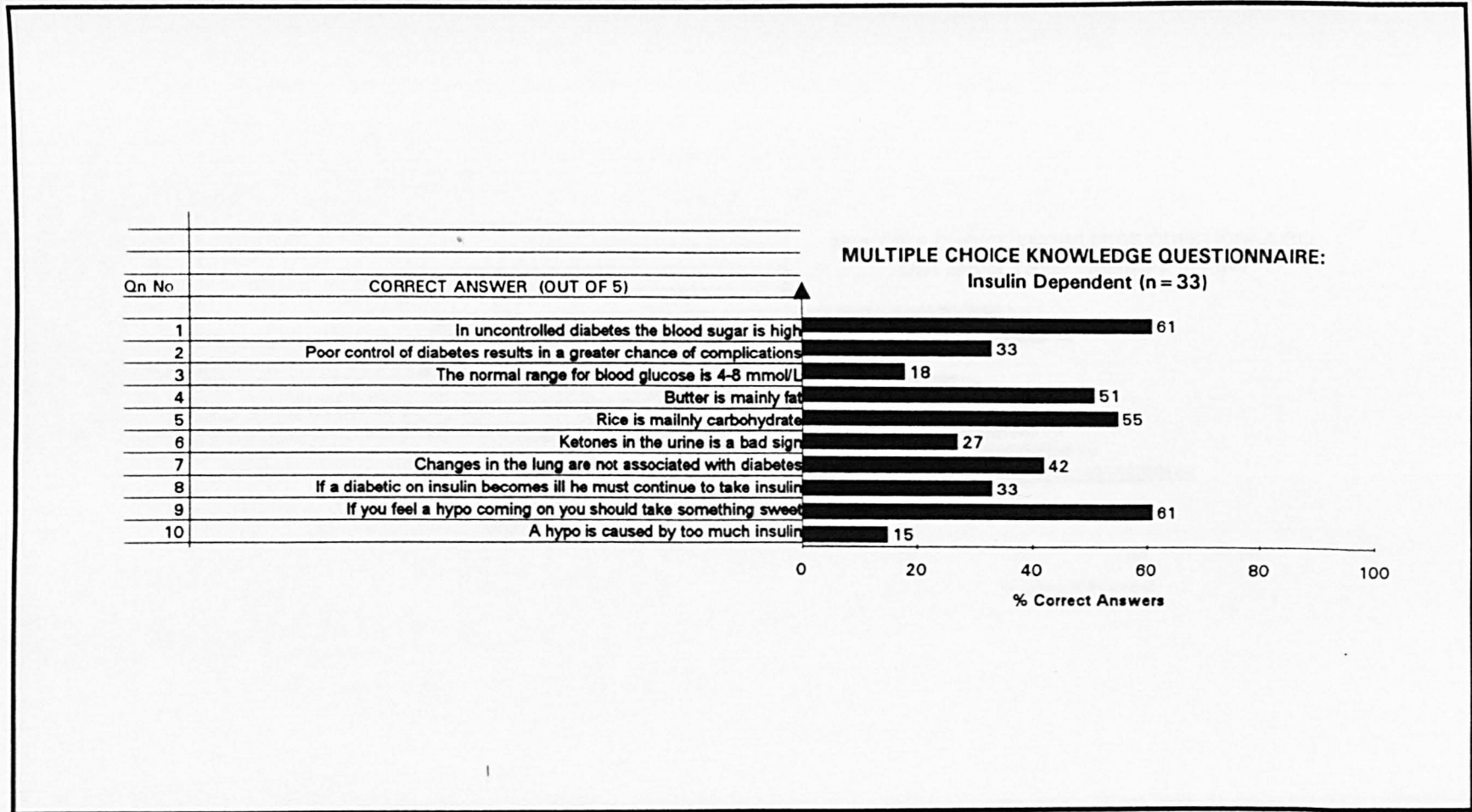
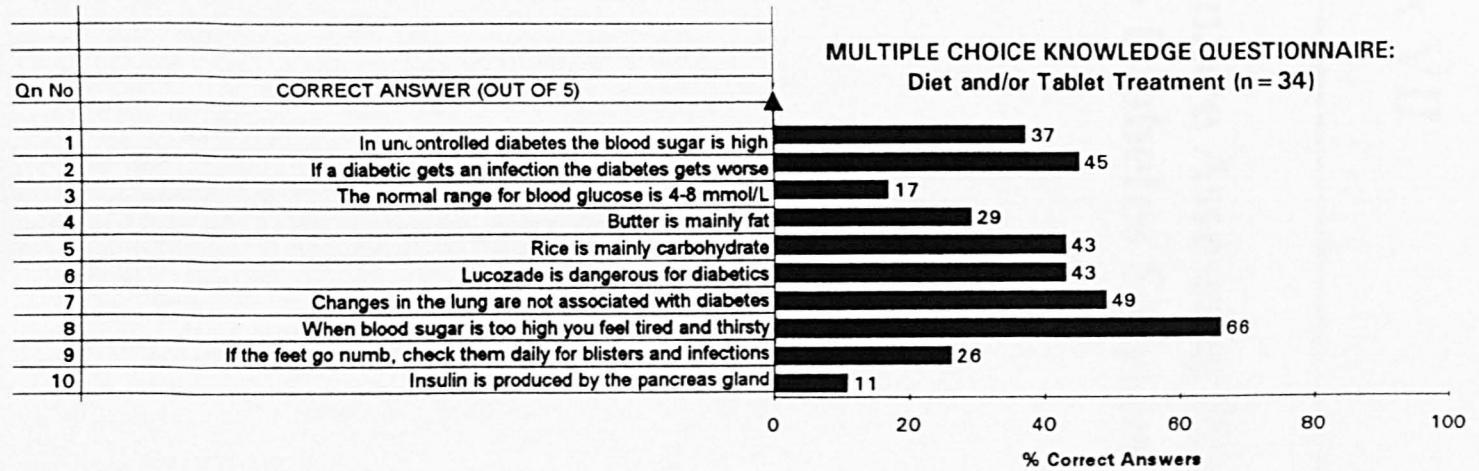


FIGURE 4



Appendix VII

Questionnaire Assessing Problems with Access to Diabetes Services

THIS QUESTIONNAIRE IS STRICTLY CONFIDENTIAL AND YOUR ANSWERS WILL BE KEPT SEPARATE FROM YOUR MEDICAL RECORDS. PLEASE ANSWER ALL THE QUESTIONS AS HONESTLY AS YOU CAN.

PLEASE TICK ONE BOX AFTER EACH QUESTION.

1. WHEN DID YOUR DOCTOR FIRST TELL YOU YOU HAD DIABETES?
LESS THAN 5 YEARS AGO 5 YEARS OR MORE I DON'T KNOW

2. HOW DO YOU FEEL ABOUT THE STATE OF YOUR DIABETES?
IS IT GETTING BETTER? WORSE ABOUT THE SAME I DON'T KNOW

3. DO YOU THINK THAT DIABETES IS A SERIOUS ILLNESS?
YES NO I DON'T KNOW

4. IS YOUR DIABETES CONTROLLED?
YES NO I DON'T KNOW

5. WHO IS THE MOST IMPORTANT PERSON YOU SHOULD ASK WITH PROBLEMS?
THE COMMUNITY NURSE
YOUR GP
THE HOSPITAL DOCTOR
THE DIABETES NURSE
MYSELF ONLY
MY FAMILY

Name
I.D.

IMPROVING DIABETES SERVICES TO THE AFRO-CARIBBEAN COMMUNITY

WE WOULD LIKE TO ASK YOU ABOUT YOUR DIABETES. THE RESULTS OF THIS QUESTIONNAIRE WILL BE USED TO IMPROVE THE TYPE OF DIABETES SERVICE PROVIDED FOR YOU.

THIS QUESTIONNAIRE IS STRICTLY CONFIDENTIAL. NONE OF THE DOCTORS OR NURSES WILL SEE YOUR INDIVIDUAL ANSWERS, SO COULD YOU PLEASE ANSWER ALL THE QUESTIONS AS HONESTLY AS POSSIBLE.

PLEASE TICK ONE BOX AFTER EACH QUESTION.

1. WHEN DID YOUR DOCTOR FIRST TELL YOU THAT YOU HAD DIABETES ?

LESS THAN 5 YEARS AGO 5 YEARS OR MORE I DON'T KNOW

2. HOW DO YOU FEEL ABOUT THE STATE OF YOUR DIABETES ?

IS IT GETTING BETTER? STABLE? GETTING WORSE? GONE AWAY?

3. DO YOU THINK THAT DIABETES IS A SERIOUS DISEASE ?

YES NO I DON'T KNOW

4. IS YOUR DIABETES SERIOUS ?

YES NO I DON'T KNOW

5. WHO IS THE MOST IMPORTANT PERSON TO HELP YOU WITH YOUR DIABETES ?

THE COMMUNITY NURSE

YOUR GP

THE HOSPITAL DOCTOR

THE DIABETES NURSE

MYSELF ONLY

MY FAMILY

6. DO YOU THINK THAT SEEING A DOCTOR OR NURSE REGULARLY FOR YOUR DIABETES IS IMPORTANT ?

YES NO I DON'T KNOW

7. HOW MANY TIMES HAVE YOU SEEN THE DOCTOR OR NURSE FOR YOUR DIABETES IN THE LAST 18 MONTHS ?

NONE ONCE 2 TIMES OR MORE I DON'T KNOW

8. HAVE YOU EVER CONSIDERED NOT ATTENDING THE DAY CENTRE / SURGERY BECAUSE ONE OF THE STAFF WAS RUDE TO YOU ?

YES NO I DON'T KNOW

9. DOES THE DOCTOR / NURSE / RECEPTIONIST HAVE ENOUGH TIME FOR YOU ?

YES NO I DON'T KNOW

10. HAVE YOU EVER CONSIDERED THAT YOUR VISITS TO THE DAY CENTRE / SURGERY ARE A WASTE OF TIME ?

YES NO I DON'T KNOW

11. WHEN YOU GO TO THE DAY CENTRE / SURGERY WOULD YOU FIND IT HELPFUL IF THERE WERE MORE BLACK MEMBERS OF STAFF ?

YES NO I DON'T KNOW

12. DO YOU EVER FEEL THAT WAITING TIME IN THE DAY CENTRE / SURGERY IS TOO LONG ?

YES NO I DON'T KNOW

13. DOES THE WAITING TIME STOP YOU FROM SEEING THE DOCTOR ON A REGULAR BASIS ?

YES NO I DON'T KNOW

14. DO YOU HAVE ANY PROBLEMS WITH LANGUAGE, READING OR WRITING WHICH PREVENT YOU FROM ATTENDING THE DAY CENTRE / SURGERY ?

YES NO I DON'T KNOW

15. ARE THERE ANY PRACTICAL REASONS WHICH MAKE IT DIFFICULT FOR YOU TO ATTEND THE DAY CENTRE / SURGERY, SUCH AS

CHILD CARE PROBLEMS ?	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	I DON'T KNOW	<input type="checkbox"/>
TRANSPORT PROBLEMS ?	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	I DON'T KNOW	<input type="checkbox"/>
AFFORDING BUS/TUBE FARES ?	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	I DON'T KNOW	<input type="checkbox"/>
CLINIC TIMES ?	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	I DON'T KNOW	<input type="checkbox"/>
YOUR JOB ?	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	I DON'T KNOW	<input type="checkbox"/>

OTHER REASONS ? _____

PLEASE CAN YOU WRITE DOWN IN THE SPACE BELOW, ANYTHING ELSE YOU WOULD LIKE TO SAY ABOUT HOW YOU THINK THE DIABETES SERVICE COULD BE IMPROVED.

THANK YOU VERY MUCH FOR YOUR ANSWERS

PLEASE CAN YOU SEND THE QUESTIONNAIRE AS SOON AS POSSIBLE TO THE BRIXTON NEIGHBOURHOOD COMMUNITY ASSOCIATION (BNCA) IN THE ENVELOPE SUPPLIED. SOMEONE FROM THE BNCA WILL RING YOU SHORTLY TO CHECK WHETHER YOU HAVE ANYTHING ELSE TO SAY AND TO ENTER YOUR NAME INTO THE HOLIDAY DRAW !

PLEASE CAN YOU LEAVE A TELEPHONE NUMBER WHERE WE CAN CONTACT YOU, BECAUSE YOU COULD BE THE LUCKY WINNER ! Telephone:

Name
I.D.

IMPROVING DIABETES SERVICES TO THE AFRO-CARIBBEAN COMMUNITY

WE WOULD LIKE TO ASK YOU ABOUT YOUR DIABETES. THE RESULTS OF THIS QUESTIONNAIRE WILL BE USED TO IMPROVE THE TYPE OF DIABETES SERVICE PROVIDED FOR YOU.

THIS QUESTIONNAIRE IS STRICTLY CONFIDENTIAL. NONE OF THE DOCTORS OR NURSES WILL SEE YOUR INDIVIDUAL ANSWERS, SO COULD YOU PLEASE ANSWER ALL THE QUESTIONS AS HONESTLY AS POSSIBLE.

PLEASE TICK ONE BOX AFTER EACH QUESTION.

1. WHEN DID YOUR DOCTOR FIRST TELL YOU THAT YOU HAD DIABETES ?

LESS THAN 5 YEARS AGO 5 YEARS OR MORE I DON'T KNOW

2. HOW DO YOU FEEL ABOUT THE STATE OF YOUR DIABETES ?

IS IT GETTING BETTER? STABLE? GETTING WORSE? GONE AWAY?

3. DO YOU THINK THAT DIABETES IS A SERIOUS DISEASE ?

YES NO I DON'T KNOW

4. IS YOUR DIABETES SERIOUS ?

YES NO I DON'T KNOW

5. WHO IS THE MOST IMPORTANT PERSON TO HELP YOU WITH YOUR DIABETES ?

THE COMMUNITY NURSE

YOUR GP

THE HOSPITAL DOCTOR

THE DIABETES NURSE

MYSELF ONLY

MY FAMILY

6. DO YOU THINK THAT SEEING A DOCTOR OR NURSE REGULARLY FOR YOUR DIABETES IS IMPORTANT?

YES NO I DON'T KNOW

7. HOW MANY TIMES HAVE YOU SEEN THE DOCTOR OR NURSE FOR YOUR DIABETES IN THE LAST 18 MONTHS?

NONE ONCE 2 TIMES OR MORE I DON'T KNOW

8. HAVE YOU EVER CONSIDERED NOT ATTENDING THE DAY CENTRE / SURGERY BECAUSE ONE OF THE STAFF WAS RUDE TO YOU?

YES NO I DON'T KNOW

9. DOES THE DOCTOR / NURSE / RECEPTIONIST HAVE ENOUGH TIME FOR YOU?

YES NO I DON'T KNOW

10. HAVE YOU EVER CONSIDERED THAT YOUR VISITS TO THE DAY CENTRE / SURGERY ARE A WASTE OF TIME?

YES NO I DON'T KNOW

11. WHEN YOU GO TO THE DAY CENTRE / SURGERY WOULD YOU FIND IT HELPFUL IF THERE WERE MORE BLACK MEMBERS OF STAFF?

YES NO I DON'T KNOW

12. DO YOU EVER FEEL THAT WAITING TIME IN THE DAY CENTRE / SURGERY IS TOO LONG?

YES NO I DON'T KNOW

13. DOES THE WAITING TIME STOP YOU FROM SEEING THE DOCTOR ON A REGULAR BASIS?

YES NO I DON'T KNOW

14. DO YOU HAVE ANY PROBLEMS WITH LANGUAGE, READING OR WRITING WHICH PREVENT YOU FROM ATTENDING THE DAY CENTRE / SURGERY?

YES NO I DON'T KNOW

Please tick the ONE answer that you think is most correct.

Appendix VIII

Knowledge Questionnaire for Insulin Dependent Diabetics

1. How long does it take for insulin to start working?
 - A. It does not matter if your insulin does not start working straight away.
 - B. It is best to wait some time, if the insulin does not start working straight away.
 - C. The control of diabetes can be better if you wait until the insulin starts working later.
 - D. I don't know.

2. The normal range for blood glucose is:
 - A. 4-6 mmol/l
 - B. 7-15 mmol/l
 - C. 2-10 mmol/l
 - D. I don't know.

3. Sugar is mainly:
 - A. Protein
 - B. Carbohydrate
 - C. Fat
 - D. I don't know.

4. Sugar is mainly:
 - A. Protein
 - B. Carbohydrate
 - C. Fat
 - D. Mineral and vitamins
 - E. I don't know.

DIABETES QUESTIONNAIRE: INSULIN DEPENDENT

Please tick the **ONE** answer that you think is most correct.

- 1 In uncontrolled diabetes the blood sugar is:
 - A Normal
 - B Increased
 - C Decreased
 - D I don't know

- 2 Which one of the following is true?
 - A It does not matter if your diabetes is not fully controlled as long as you do not have a coma
 - B It is best to show some sugar in the urine in order to avoid hypo's
 - C Poor control of diabetes could result in a greater chance of complications later
 - D I don't know

- 3 The normal range for blood glucose is:
 - A 4-8 mmol/l
 - B 7-15 mmol/l
 - C 2-10 mmol/l
 - D I don't know

- 4 Butter is mainly:
 - A Protein
 - B Carbohydrate
 - C Fat
 - D I don't know

- 5 Rice is mainly:
 - A Protein
 - B Carbohydrate
 - C Fat
 - D Mineral and vitamin
 - E I don't know

- 6 The presence of ketones in the urine is:
- A A good sign
 - B A bad sign
 - C A usual finding in diabetes
 - D I don't know
- 7 Which of the following possible complications is usually not associated with diabetes?
- A Changes in vision
 - B Changes in the kidney
 - C Changes in the lung
 - D I don't know
- 8 When a diabetic on insulin becomes ill and unable to eat the prescribed diet:
- A He should immediately stop taking his insulin
 - B He must continue to take this insulin
 - C He should use diabetic tablets instead of insulin
 - D I don't know
- 9 If you feel the beginnings of a hypo-reaction you should:
- A Immediately take some insulin
 - B Immediately lie down and rest
 - C Immediately eat or drink something sweet
 - D I don't know
- 10 A hypo is caused by:
- A Too much insulin
 - B Too little insulin
 - C Too little exercise
 - D I don't know

Please tick the ONE answer that you believe is most correct.

Appendix IX

Knowledge Questionnaire for Non-Insulin Dependent Diabetics

1. The diabetes gene comes
- A The diabetes gene comes
 - B There is no effect upon the diabetes
 - C The diabetes gene works
 - D I don't know

2. The normal range for blood glucose is

- A 4-8 mmol/l
- B 7-15 mmol/l
- C 2-10 mmol/l
- D I don't know

3. Butter is mainly

- A Protein
- B Carbohydrate
- C Fat
- D I don't know

4. Rice is mainly

- A Protein
- B Carbohydrate
- C Fat
- D Mineral and vitamin
- E I don't know

5. Lemonade is

- A Generally good for people with diabetes
- B Only good when taken in moderation
- C Dangerous for people with diabetes
- D I don't know

DIABETES QUESTIONNAIRE: DIET OR DIET AND TABLET TREATMENT

Please tick the **ONE** answer that you think is most correct.

1 In uncontrolled diabetes the blood sugar is:

- A Normal
- B Increased
- C Decreased
- D I don't know

2 When a diabetic person gets an infection:

- A The diabetes gets better
- B There is no effect upon the diabetes
- C The diabetes gets worse
- D I don't know

3 The normal range for blood glucose is:

- A 4-8 mmol/l
- B 7-15 mmol/l
- C 2-10 mmol/l
- D I don't know

4 Butter is mainly:

- A Protein
- B Carbohydrate
- C Fat
- D I don't know

5 Rice is mainly:

- A Protein
- B Carbohydrate
- C Fat
- D Mineral and vitamin
- E I don't know

6 Lucozade is:

- A Generally good for people with diabetes
- B Only good when taking exercise
- C Dangerous for people with diabetes
- D I don't know

- 7 Which of the following possible complications is usually not associated with diabetes?
- A Changes in vision
 - B Changes in the kidney
 - C Changes in the lung
 - D I don't know
- 8 When the blood sugar is too high you feel:
- A More energetic
 - B Unable to sleep
 - C Tired and thirsty
 - D I don't know
- 9 When the feet go numb due to diabetes, you need to:
- A Walk barefoot to harden the skin
 - B Check the feet daily for blisters and infections
 - C Keep the feet as warm as possible
 - D I don't know
- 10 Insulin:
- A Does not occur naturally in the human body
 - B Is produced by the pancreas gland
 - C Keeps the blood sugar from going too low
 - D Stops the kidney making urine
 - E I don't know

Appendix X

Knowledge Questionnaire for the General Population

1. Diabetes can blind people if untreated. TRUE / FALSE
2. It is possible to catch diabetes from a friend. TRUE / FALSE
3. Diabetes is the commonest cause of blindness in people under 65 in UK. TRUE / FALSE
4. Diabetes is less common in Black than White. TRUE / FALSE
5. Diabetes is caused by eating too much sugar. TRUE / FALSE
6. Diabetes can be caused by stress. TRUE / FALSE
7. Diabetes can damage the kidneys. TRUE / FALSE
8. All people with diabetes need daily injections of insulin. TRUE / FALSE
9. Diabetes can be prevented. TRUE / FALSE
10. Women with diabetes should not have children. TRUE / FALSE
11. Diabetes can cause strokes. TRUE / FALSE

DIABETES QUESTIONNAIRE: General Population (non diabetics)

Please circle True OR False after each statement.

1. Diabetes can affect people of any age. TRUE / FALSE
2. Diabetes can be cured. TRUE / FALSE
3. People with diabetes can lead normal lives. TRUE / FALSE
4. It is possible to catch diabetes from a friend. TRUE / FALSE
5. Diabetes is the commonest cause of blindness in people under 65 in UK. TRUE / FALSE
6. Diabetes is less common in Blacks than Whites. TRUE / FALSE
7. Diabetes is caused by eating too much sugar. TRUE / FALSE
8. Diabetes can be caused by shock. TRUE / FALSE
9. Diabetes can damage the kidneys. TRUE / FALSE
10. All people with diabetes need daily injections of insulin. TRUE / FALSE
11. Diabetes can be prevented. TRUE / FALSE
12. Women with diabetes should not have children. TRUE / FALSE
13. Diabetes can cause impotence. TRUE / FALSE

Description of Beatrice Ward

Beatrice is a 28 bed gynaecological ward at St Thomas' Hospital, London. Twenty two beds have been allocated to gynaecological patients and the other six beds allocated to medical patients. The bulk of the patients treated on the ward are for major or minor surgery relating to gynaecological disorders. Types of surgery and treatment routinely performed include:

- laparoscopy
- incision of Bartholins Abscess
- hysterectomy / laproscopic hysterectomy
- abortion
- cone biopsy
- chemotherapy treatment
- vulvectomy
- hysteoscopy
- D&C
- ERPC - miscarriage
- ectopic pregnancy
- cathetron treatment
- tubal surgery
- radiotherapy
- hormone implants

There are also a number of outlier patients on the ward. These patients are placed here from casualty when an overspill occurs in the appropriate ward. Problems with treating outlier patients include the need to write individual care plans, unfamiliarity with treatment regimen and contact with the consultant.

Staff Skill Mix

Full time staff on the ward consists of 16 nurses (1 sister, 1 senior staff nurse, 7 staff nurses, 4 grade D nurses, 1 enrolled nurse, 2 auxiliary nurses), student nurses, clerical support, cleaning staff and voluntary workers. The ward's consultants, registrars and junior doctors (6 doctors in total) split their time between in-patient, out-patient, day case and surgery (clinic, theatre and ward duties). The ward also deals with a large

number of diagnostic, treatment, administration and support service departments across the hospital.

The ward organises its nursing staff in two 12.5 hour shifts (8am - 8.30 pm and 8pm - 8.30am). At 8am and 8pm daily, nursing duties are officially handed over to the new shift. Routine day to day running of the ward consists of several core activities. These include:

- Pre & post operative patient management
- Patient observations: blood pressure, pulse, temperature
- checks for bowel movement, catheterisation, pv bleeding, IV drips
- wound inspection and treatments
- Drugs round: 4 times daily
- Patient meals: 3 times daily
- Washing patients
- Changing linen and making beds
- Handling phone calls
- Writing patient care plan (on admission) and updating patient notes (cardex)
- Ensuring pharmacy, CSSD, linen and general supply levels are adequate

Core administrative duties are carried out by both the nursing staff and ward clerk and include:

- organising portering/transport
- booking diagnostic tests (ultrasound, X ray, ECG etc)
- filing diagnostic results
- retrieving patient notes
- preparing patient theatre lists (medical staff only, normally SHO)
- preparing patient admission/discharge lists
- preparing discharge notes (for GP, contracting and activity purposes)
- preparing discharge letters (Micromed computer system)

Although a large amount of data collection occurs, the use of IT is extremely limited. However both the 'Crescendo', Nursing audit system and 'Micromed' used by doctors

and ward clerk were being installed. Currently the 'Micromed' System stores fairly limited data:

- patient details
- GP
- date of out-patient consultation
- date of booked/A&E admission
- treatment received
- discharge date
- GP letter

The system is also being used in gynaecological out-patients, however there is no link between the computers at present therefore duplication of data entry is unavoidable. The nursing audit system also stores similar out-patient information entered by nursing staff. As well as this, the old paper system is running alongside both computer systems.

Routinely Stored Data

Therefore a considerable amount of routinely stored data is available which is easily accessible for audit/quality improvement activity. These data includes:

- waiting time for admission
- A&E/routine admissions
- bed allocation: gynae/outliers
- admissions / cancelled admissions
- casenote availability
- cross-infection rates
- GP correspondence
- haematology, chemistry, microbiology, X Ray, ultrasound, ECG and histology results

At the time of this study no formal audit or quality improvement programmes were in place.

Patient Flow Chart

A flowchart of how a patient is admitted on to the ward and until discharge is illustrated in figure A11.1. It highlights the reliance on a core of specialised medical and para-medical care external to Beatrice Ward.

External Adaptation Model

The external adaptation model produced is illustrated in figure A11.2. It depicts the large number of external customers and suppliers for Beatrice Ward.

Figure A11.1: Patient Flow Chart

FLOWCHART OF THE MANAGEMENT OF GYNAECOLOGICAL IN-PATIENTS

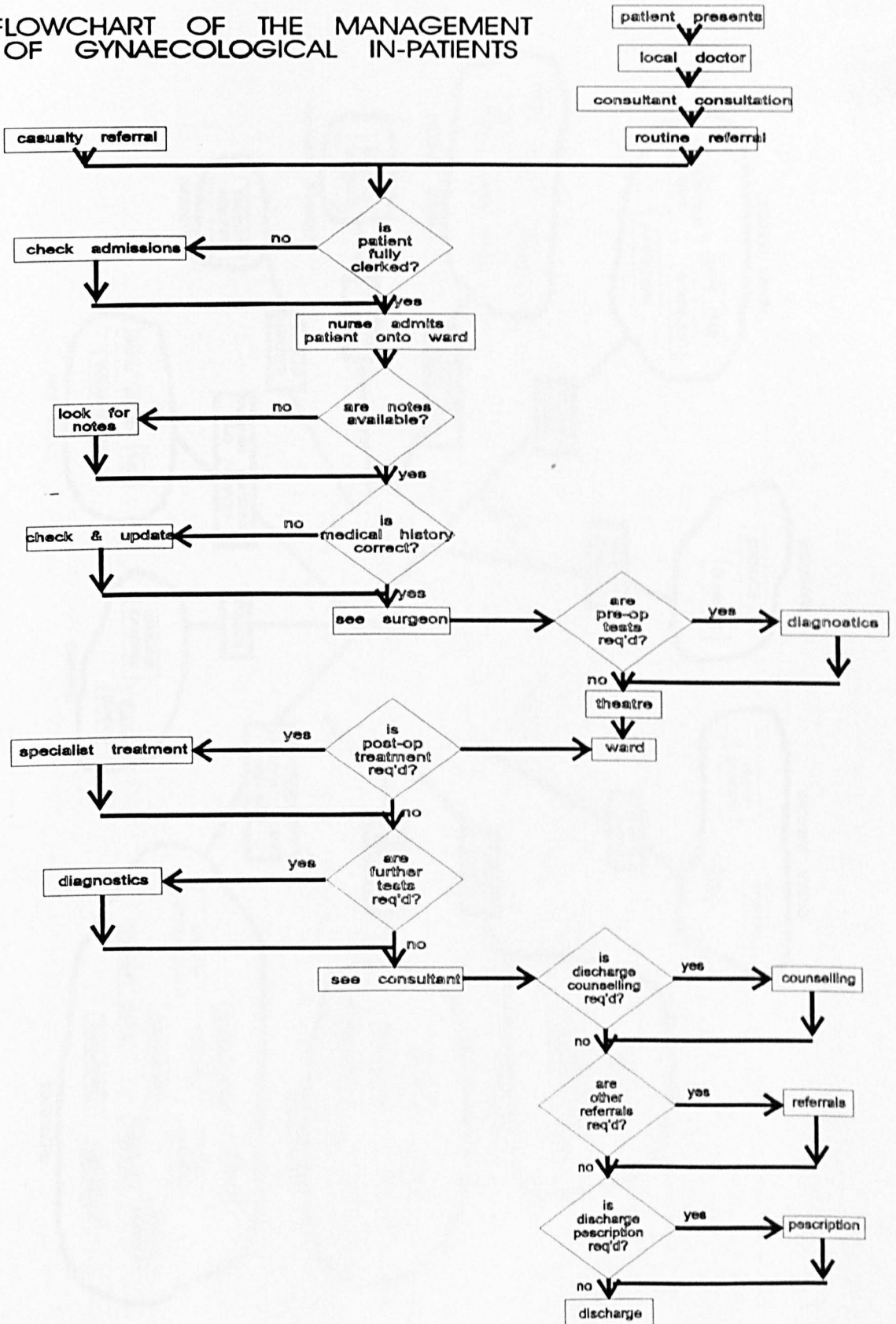


Figure A11.2: External Adaptation Model of Beatrice Ward

