

**The development of the
Mid Kent and Brighton outcome
measurement tool for physiotherapy
outpatient services**

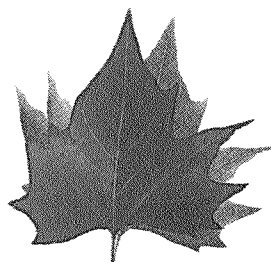
Full report

Dr Ann Moore

July 1996



University of Brighton





University of Brighton

Faculty of Health
Department of Occupational Therapy & Physiotherapy
Clinical Research Unit

FULL REPORT

Development of Mid Kent and Brighton Outcome Measurement Tool
for Physiotherapy Services

A collaborative venture between the University of Brighton
and the Mid Kent Healthcare Trust.

July 1996

Dr Ann Moore PhD Grad Dip Phys MCSP Dip TP Cert Ed

ISBN 1871966 54 X

Copyright University of Brighton and MidKent Health Care Trust

"The outcome of a service is the end result of its intervention on a client or a population in the short medium and long terms"..... "In defining professional quality standards each service should reach towards defining quality in terms of outcome and health gain as well as in terms of process, structure and input"

(Ovretveit 1992 Page 70).

CONTENTS

	<u>Page No.</u>
<u>Abstract</u>	i
<u>Acknowledgements</u>	ii
<u>List of Tables</u>	iii
<u>List of Figures</u>	v
1. <u>Introduction</u>	1
1.1 Quality and outcome measurement development in the health service - an overview.	1
1.2 Quality assurance technique development in physiotherapy.	2
1.3 Mid Kent Healthcare Trust physiotherapy services.	3
1.4 Existing outcome measure for physiotherapy services within Mid Kent Healthcare Trust.	5
1.5 Literature supporting the use of outcome measures in Health & Social Care.	6
1.6 The use of outcome measures in physiotherapy services nationally.	9
2. <u>Development of the Outcome Measurement Tool</u>	11
3. <u>Description of the Outcome Measurement Tool</u>	14
4. <u>Results of the Pilot Year Data Collection</u>	18
5. <u>Discussion and Future Developments</u>	62
6. <u>Conclusions</u>	65
<u>References</u>	66
<u>Bibliography</u>	69
<u>Appendices</u>	
Appendix 1 - Validated Outcome Measures in Health & Social Care	
Appendix 2 - The University of Brighton and Mid Kent Healthcare Trust Outcome Measurement Tool	
Appendix 3 - Interim Consultancy Report	

ABSTRACT

Objectives of study:

1. to establish an accurate, relevant and sensitive tool for the measurement of outcomes in physiotherapy outpatient services;
2. to provide tools which could have benefits for patients, clinicians and managers;
3. to enable standards of service delivery to be determined in an informed way.

Design:

Taking into account Mayo's (1994) definition of outcome measures, a tool was developed in order to fulfil the stated objectives. Stages in the design were as follows:

1. a national survey of 300 outpatient physiotherapy departments to gather information about existing outcome measurement tools.
2. a concurrent literature review.
3. a series of structured interviews with local managers and clinicians to establish the needs of the service.
4. construction of a pilot instrument.
5. pre-piloting of the instrument and subsequent modification.
6. a one-month pilot of the modified instrument using 3 full-time physiotherapists.
7. construction of the completed instrument, together with a 38-stage summary sheet for the recording and correlation of data.
8. the development of a data recording spreadsheet and its incorporation into the physiotherapy departmental database system.
9. a feedback and training session in order to familiarise all physiotherapy departmental staff with the fully-developed instrument and to give feedback on the results of the previous pilot studies, to ensure that the instrument had face validity with the user group.
10. incorporation of the instrument into use by all outpatient physiotherapy departments within the Trust, i.e. in 6 out-patient physiotherapy settings.
11. the collection of data using the outcome measurement instrument over a 1-year period, divided conveniently into data down-loading periods following junior physiotherapists' rotation periods.

Results:

3,700 data sets were collected and analysed. The instrument has been fully incorporated into departmental recording systems. Uses of the instrument have been identified as:

- measuring effectiveness of physiotherapy outcomes.
- offering quantifiable data which can be used in patient profiling.
- as an educational tool for junior and less experienced staff in terms of realistic goal setting, documentation and choice of therapeutic programmes.
- as a base-line measurement tool for future clinical research.

Conclusions:

The tool has been shown to have face validity amongst its users and to be user-friendly. It provides useful information for clinicians, patients and managers about progress and effectiveness of treatment and possible confounding variables and their effect on outcomes of therapy.

ACKNOWLEDGEMENTS

Insight, motivation and assistance in setting up the project and contribution in aiding its completion: -

Mrs Carol Groom, Physiotherapy Manager, Mid Kent Healthcare Trust.

Funding :-

The Audit Committee, Mid Kent Healthcare Trust.

Assistance and informed comment is gratefully acknowledged from:-

Mrs Carol Baxter, Senior I Physiotherapist, Maidstone Hospital.
Ms Diane Collyer, Supt. Physiotherapist, Mid Kent Healthcare Trust.
Mrs Sally York, Senior I Physiotherapist, Maidstone Hospital.
Mrs Barbara Maxwell, Supt. Physiotherapist, Maidstone Hospital.
Members of the Mid Kent Healthcare Trust Physiotherapy Quality Group
All Members of the Mid Kent Healthcare Trust Physiotherapy Outpatient Services Team.

Information Technology and Computing Advice:-

Mr Simon Sorsbie, Clinical Information Systems Manager,
Mid Kent Healthcare Trust.

Dr Robert Stanier, Computer Services Manager, University of Brighton
(Eastbourne Site).

Statistical Advice:-

Mrs E Cheek, Department of Mathematical Sciences, University of Brighton.

Research Assistance:-

Mr Mike Troke, Department of Occupational Therapy and Physiotherapy,
University of Brighton.

Administrative Support:-

Mrs Nicola Stacey, Administrative Assistant, Department of Physiotherapy,
Maidstone Hospital.

Miss Ann Heywood, Administrative Assistant, Department of Physiotherapy,
Maidstone Hospital.

Ms Madeleine Pennock, Office Administrator, Department of Occupational
Therapy & Physiotherapy, University of Brighton.

Technical Support:-

Mr Roger Malley, Senior Technician, Department of Occupational Therapy &
Physiotherapy, University of Brighton.

LIST OF TABLES

1. Frequency of patients referred by period of rotation.
2. Frequency of referrals to individual physiotherapy units by period of rotation.
3. Age of patients referred to physiotherapy by period of rotation.
4. Frequency of gender referral by period of rotation.
5. Frequency of occupations of patients referred to physiotherapy by period of rotation.
6. Frequency of secondary diagnosis by period of rotation.
- 7a. Frequency of primary body site by period of rotation.
- 7b. Most common body sites treated during periods 1 - 3.
8. Frequency of the five most common body sites by period of rotation.
9. Length of wait in weeks from consultation with GP to referral to physiotherapy by period of rotation.
10. Length of wait in weeks from referral to commencement of physiotherapy treatment by period of rotation.
11. Frequency of reasons for referral by period of rotation.
12. Weighting of psycho-social factors by period of rotation.
13. Initial assessment of functional, physical and subjective levels by period of rotation.
14. Assessment of expected functional, physical and subjective outcome level by period of rotation.
15. Assessment of actual functional, physical and subjective outcome level by period of rotation.
- 16a. Frequency of outcome of referral by period of rotation.
- 16b. Percentage frequency of patients lost to the service by inappropriate referral, non attendance or ceased to attend.
17. Frequency of treatment modality use by period of rotation.
18. Total effort scores by period of rotation.
- 19a. Goal achievement at discharge by period of rotation.
- 19b. Goal achievement at discharge by period of rotation (summary)
20. Key for goal achievement at discharge by period of rotation.
21. Frequency of other factors influencing outcome by period of rotation.
22. Median number of treatments per patient by period of rotation.
23. Patient perceived pain levels on first assessment by period of rotation.

List of Tables - continued

24. Patient perceived pain levels at discharge by period of rotation.
25. Patient perceived functional ability at first assessment by period of rotation.
26. Patient perceived functional ability at discharge by period of rotation.
27. Patient perceived ability to work on first assessment by period of rotation.
28. Patient perceived ability to work at discharge by period of rotation.
29. Number of treatments by body site. Periods 1 - 3.
30. Body site by outcome of referral. Periods 1 - 3.
31. Goal achievement at discharge by most common body site. Periods 1 - 3.
(Cervical spine and referral)
32. Goal achievement at discharge by most common body site. Periods 1 - 3.
(Lumbar spine and referral)
33. Goal achievement at discharge by most common body site. Periods 1 - 3.
(Shoulder)
34. Goal achievement at discharge by most common body site. Periods 1 - 3.
(Knee)
35. Goal achievement at discharge by most common body site. Periods 1 - 3.
(Ankle)
36. Goal achievement at discharge by body site (summary). Periods 1 - 3.
37. Waiting time in weeks from referral to commencement of physiotherapy
by most common body site. Periods 1 - 3.
38. Most common secondary diagnosis by length of wait in weeks from referral
to commencement of physiotherapy treatment. Periods 1 - 3.
39. Length of wait in weeks from consultation to referral for physiotherapy
by outcome of referral. Periods 1 to 3.
40. Length of wait in weeks from consultation to referral for physiotherapy by goal
achievement. Periods 1 to 3.
41. Psycho-social factor index by goal achievement. Periods 1 to 3.
42. Total effort scores by body site. Periods 1 to 3.
43. Most common secondary diagnoses and number of treatments given
by period of rotation.
44. Secondary diagnosis by outcome of referral. Periods 1 - 3.
45. Secondary diagnosis by outcome of referral. Period 1.
46. Goal achievement by most common secondary diagnosis. Periods 1 - 3.
47. Total effort scores by secondary diagnosis. Period 1.

LIST OF FIGURES

- Figure 1 - Frequency of the occupations of patients treated in the total period.
- Figure 2 - Frequency of secondary diagnosis for the total period.
- Figure 3 - Frequency of primary body sites treated for the total period.
- Figure 4 - Frequency of reasons for referral for the whole period.
- Figure 5 - Frequency of grouped outcomes of referral.
- Figure 6 - Frequency of outcome of referral.
- Figure 7 - Frequency of treatment modality use for the total period.
- Figure 8 - Goal achievement at discharge for the total period.
- Figure 9 - Other factors influencing outcome for the total period.
- Figure 10 - Comparison between perceived levels of pain on first assessment and at discharge for the 3 periods of rotation.
- Figure 11 - Median perceived functional ability on first assessment and at discharge for the 3 periods of rotation.
- Figure 12 - Comparison between the median perceived ability to work levels on first assessment and at discharge for the 3 periods of rotation.

Introduction

INTRODUCTION

Section 1

1.1 Quality & Outcome Measurement Development in the Health Service - an overview

Interest in quality of health care and quality assurance has risen dramatically over the last 15 years. There are probably many reasons for this increased topicality. The World Health Organisation Working Group on Quality Assurance in 1985 suggested that reasons could be categorised into 4 groups -

- Economic
- Social
- Political
- Professional (WHO 1985)

Quality initiatives have been launched by many healthcare professions at various times in the last two decades, for example the Royal College of General Practitioners launched a quality initiative in 1983 (RCGP 1983, 1985 a,b)

The Royal College of Nursing set up a Standards of Care project in 1965 which led to a major programme of research development and education (Kitson 1986, RCN 1990). In recent years the Chartered Society of Physiotherapy, The College of Occupational Therapists and The College of Speech and Language Therapists have all published guidelines and standards for good practice (COT 1989, CSP 1990, CSLT 1991)

The Government White Paper: Working for Patients (HMSO 1989) and the subsequent Health Service reform bill directly confronted the issue of quality assurance. A central proposal was that all doctors and other health professionals in hospitals, primary care and community settings should be involved in some form of "medical audit".

The report of the Standing Medical Advisory Committee (HMSO 1990) and a series of other working papers clarified and detailed the role of local health authorities and medical audit committees in developing and monitoring local quality initiatives.

Quality assurance has, therefore, become a mandatory part of service provision within the National Health Service and there has been considerable and increasing amounts of activity in all areas and at all levels of the service in setting up quality systems.

This highly intense period of activity has led to the proliferation of many diverse systems of quality assurance, both within the NHS, within individual trusts and within professional groups.

The setting up of individual fund holding trusts and the competition that this implies has led to, in some instances, a general reluctance of professional groups to share information about quality systems and the results of audit. This factor in itself has meant that much "reinvention of the wheel" has had to occur in order for quality systems to be developed at a pace commensurate with trusts' management requirements.

According to Ellis and Whittington (1993) a local quality initiative should include the utilisation of the following techniques -

1. Professional Standards Systems
2. Comprehensive Review Systems
3. Case Selection Techniques
4. Local Problem Identification Techniques
5. Process Appraisal Techniques

6. Outcome Appraisal Techniques
7. Consumer Involvement Techniques
8. Record Techniques

Professional Standard Systems contain the guidelines and standards which healthcare professions have published as a basis for quality assurance in professional practice.

Comprehensive review systems are complete systems for quality assurance in a given area of care and these include specified standards procedures for quality appraisal and improvement and systems which are designed to facilitate local standard setting quality appraisal and improvement.

Case selection techniques include techniques for selecting cases for particular focus in the appraisal of quality of care.

Local problem identification techniques are techniques in which local groups are encouraged to identify problem areas which then become the subject of quality, appraisal and improvement.

Process appraisal techniques focus on the appraisal of the quality of the process of care.

Outcome appraisal techniques focus on the appraisal of the quality of the outcome or outcomes of care.

Consumer involvement techniques are ways of involving patient/clients/consumers in quality assurance initiatives and subsequently in the improvement of care.

Record techniques include numerous approaches to the development, monitoring and refinement of record keeping policies for quality assurance purposes.

(Ellis & Whittington 1993)

The extent to which local initiatives have developed is subject to gross variation. Some localities having well developed systems in all the above areas, some having only one or two of the systems in place. There may be many factors contributing to this diversity in development, they include funding in terms of time availability for systems development, the availability of expertise/staff development programmes which can support such development, management's attitude to quality initiatives i.e. should initiatives occur as a top down or bottom up approach and also initiatives can be facilitated or compromised by the institutional/departmental culture and ethos which can be either receptive or resistant to quality initiatives.

1.2 Quality Assurance Technique Development in Physiotherapy Services

Physiotherapy Services nationally operate within the framework of The Chartered Society of Physiotherapists' standards for education and practice, published in 1990 (CSP 1990).

This document was intended as a framework for local standards setting. There are other documents outlining standards for good practice in all specific areas of physiotherapy practice, e.g. manipulative physiotherapy, acupuncture, paediatrics etc.

Quality is defined within the CSP's 1990 standards document "as a systematic method of evaluating the quality and appropriateness of physiotherapy services, which offers a means of correcting identified weaknesses".

Physiotherapy services around the country have developed local standards based on the Chartered Society of Physiotherapy's (1990) framework, taking into account local quality initiatives and local constraints. Publication of locally set standards is rare since they are so specific to local needs.

One set of standards which were published in 1990 was the East Berkshire Health Authority's Heatherwood Hospital Physiotherapy Department Quality Assurance System (EBHA 1990). It is, however, understood that this package is not available at this time.

Whilst there are many definitions of quality and quality assurance and several frameworks on which quality systems can be based, authors seem to agree that the outcome of an intervention as well as the process by which outcomes are achieved and the environment in which the process takes place are of key importance to the quality of care. Hence Donabedian's framework which includes the elements:- structure, process and outcome (Donabedian 1966, 1980, 1985) and Maxwell's (1984) model which includes the elements:- access, relevance, effectiveness, equity, social acceptability, efficiency and economy, have much to offer health care professionals not least physiotherapists.

The Joint Commission for the Accreditation of Health Care Organisations have produced the following list of quality elements which is accompanied by explanatory questions (Wilkinson 1990).

1. Efficacy; is the care/procedure useful?
2. Appropriateness; is it right for this patient?
3. Accessibility; if right can this patient get it?
4. Acceptability; if right and available, does this patient want it?
5. Effectiveness; is it carried out well?
6. Efficiency; is it carried out in a cost effective way?
7. Continuity; did it progress without interruption, with appropriate follow-up, exchange of information and referral?

All these factors highlight elements which strongly relate to the overall outcome of care and each of the models described above have important messages for practitioners who subscribe to the concept of quality care.

Ovretveit (1992) has defined an outcome of a service as:-

"the outcome of a service is the end result of its intervention on a client or a population in the short, medium and long terms". He goes on to say:-

"in defining professional quality standards each service should reach towards defining quality in terms of outcome and health gain as well as in terms of process, structure and input"

More specifically Mayo (1994) a physiotherapist has defined outcome as follows:-

"An outcome defined in physiotherapy terms could be a test or scale administered and interpreted by physical therapists that has been shown to measure accurately a particular attribute of interest to patients and therapists and that is expected to be influenced by intervention" (Mayo 1994 p 145-146)

The first statement by Ovretveit (1992) clearly defines outcomes as a quality issue and implies a relationship between outcome, health, gain, process, structure and input. The second statement by Mayo (1994) implies that therapists should measure outcome and interpret findings but that the attributes measured should be of mutual interest to the therapist and to the patient. These two definitions are important to any subsequent outcome measure design as they express what should be measured, who should measure it and whose interests the outcome should inform.

Unlike standards there are no general outcome measures published by the Chartered Society of Physiotherapy. Outcomes therefore in physiotherapy services must be tailored to individual service needs and requirements. There are few published outcome measurement instruments designed specifically for use in general orthopaedic, outpatient physiotherapy services. However, the Wirral formula developed by Dean in 1985 and later refined by Ball et al (1993) which was designed as an effort and outcome measuring system for physiotherapists, went some way to providing a useful tool which records effort involved in the physiotherapy intervention, a weighted measurement of the patient's problem and other associated problems and an assessment outcome scale based on a scoring system of 1:10 related to the functional ability of the patient. More details of this tool are given in Section 1.5.

There are many outcome measurement tools often developed initially as assessment tools, which are applicable to physiotherapy service needs in general and which can be adapted for use as outcome measures by tailoring them to individual needs and setting goals prior to interventions. A number of these tools are shown in Appendix 1, together with a commentary about their general usage. It should be noted, however, that many of the tools shown in Appendix 1 have been designed for research purposes and are often specific to certain conditions or to specific client groups. They include general health indicators, quality of life measures, disability measures, patient satisfaction measures, measures of mental health, measures of life satisfaction and morale, measures of social support, multi dimensional measures, disease specific measures and pain measures.

While some of the outcome measures have specific relevance to particular patient groups seen within out patient physiotherapy services, e.g. the arthritis impact measurement scale (Meenan et al 1980) and the Oswestry Low Back pain questionnaire (Fairbank et al 1980), they are not general enough to be applied to all patients entering an outpatient physiotherapy setting.

Similarly, pain measures e.g. the McGill pain questionnaire (Melzack 1975, 1987), measures only one dimension of a patient's problem, i.e. pain and therefore would not necessary reflect the effect of interventions designed to improve function, joint range and improve morale as well as reduce pain. It should also be noted that the number of these measures are very extensive and would require considerable amount of time to complete, which is probably impractical in a busy out patient physiotherapy setting.

1.3 Mid Kent Healthcare Trust Physiotherapy Services

Mid Kent Healthcare Trust is one of the few Trusts that cover both acute and community aspects of care. Physiotherapy services therefore are required in a large variety of specialities, not least in orthopaedic outpatient physiotherapy care.

The Trust is situated in Maidstone, the county town of Kent, and has responsibility for the healthcare of the 210,000 population of the area.

The Trust's main site is the District General Hospital, built on a large site in 1983. Since that time additional development has occurred, not least a regional oncology unit built in 1993.

The hospital has an in patient bed capacity of 450 and has 2,200 staff based at the District Hospital and community sites.

The Trust is divided into directorate, physiotherapy being part of the primary care directorate, along with other therapies.

The Trust provides out patient physiotherapy services mainly in three out patient departments, housed at the District General Hospital, at Heathside and at Preston Hall, Churchill Centre. All out patient physiotherapy departments have been built in the last 10 years and the facility of a hydrotherapy pool exists on one of the out patient physiotherapy sites.

The overall physiotherapy staffing level of the Trust is 33 full time equivalents, approximately 12,000 in and out patients were treated in the year 1994 - 1995.

The majority of outpatient treatments take place at the Maidstone District General Hospital, the Churchill Centre and Heathside outpatient departments, however, in addition to the 3 main outpatient physiotherapy service centres, a small number of interventions for neuro-musculoskeletal problems occur in the community setting and also in a small outreach unit based at the local prison. The Mid Kent Healthcare Trust Physiotherapy Services operate junior and senior staff rotations, senior II physiotherapists rotate on a 9 monthly basis and junior physiotherapy posts rotate on a 4 month basis.

A quality circle exists within Mid Kent's physiotherapy services which includes representatives from all grades of staff within the department. This group has been responsible for the production of a quality standards manual and has been important in the present study for the dissemination of information to staff re the outcome measurement tool and for constructive feedback concerning the use of the tool.

The quality circle was established in 1993, it includes 4 Senior physiotherapists representing each physiotherapy speciality, 1 junior physiotherapist, 1 helper and the physiotherapy manager. A senior physiotherapist facilitates the group. The philosophy of care held by the Mid Kent Healthcare Trust Physiotherapy Services is as follows:-

"To enable a patient to reach their optimum of physical ability, health and well being by non invasive physical therapy intervention. This will be achieved within the constraints of their disease or disability (Groom 1994)

1.4 Outcome Measurement in Out patient Physiotherapy Services within Mid Kent Healthcare Trust

Until 1994 when the present work commenced the outpatient physiotherapy services utilised a 1:7 point scale to measure the outcome of care. The assessment of outcome was simply recorded on patients' record notes as part of normal record keeping. The original outcome measurement scale is shown below:-

- 1 = worse
- 2 = no change
- 3 = 25% better
- 4 = 50% better
- 5 = 75% better
- 6 = 90% better
- 7 = problems resolved, goals achieved

This scale, in common with others similar to it in use in other healthcare trusts, was highly subjective in that " better "was never defined and failed to be sensitive to the issue that in many cases goals may be achieved but the problem may not, necessarily, have completely resolved.

In addition, the outcome of treatment programmes were recorded for each individual patient using standard, problem orientated recording procedures (Weed 1968) i.e. patients' problems were documented at the commencement of treatment and were assessed and recorded as active or inactive at each subsequent visit. However, at that time there was no database to enable central monitoring of individual therapists or of departmental success in patient problem solving or, indeed, of goal achievement.

Although fairly primitive outcome measurements existed within the outpatient physiotherapy service, the service was to be commended for having at least some kind of measurement in place, unlike many physiotherapy departments nationally at that time.

1.5 Literature supporting the use of Outcome Measures in Health & Social Care

In deciding upon appropriate outcome measures for this study, the literature was consulted to seek out measures which had been found to be sensitive by researchers in the field of neuromusculoskeletal dysfunction. During the review the consultant was mindful that in addition to the need for outcome measures, of the difficulties that exist for clinical staff, wishing to undertake clinical research. These include not least the time to carry out literature reviews, develop appropriate methodologies, design or seek out sensitive outcome measurement tools set up new databases and analyse data. The planned outcome measurement tool for this study needed therefore to be designed with two aims in mind. Firstly that it should indicate appropriateness and effectiveness of therapy for individuals and, secondly, that it could be subsequently incorporated following reliability studies into research projects undertaken in outpatient settings by the clinicians themselves. The review of literature was therefore carried out bearing in mind these aims.

Koes et al (1992) conducted a randomised clinical trial of manipulative therapy and physiotherapy for persistent back and neck complaints, with patients followed up a year later. The research team concentrated on three outcome measures which proved sensitive in measuring changes in the short term, i.e. at 3, 6 and 12 weeks. These were: severity of the main complaint, global perceived effect and physical functioning.

Severity in this study was assessed on a 10 point scale, 1 = minimal severity, 10 = maximum severity, based on history taking and physical examination. Global perceived effect was assessed on a 6 point scale by patients ranging from no benefit to maximal benefit and physical functioning was measured by the ability of patients to perform active movements which were standardised for each region. The primary outcome measure of severity was calculated to show the power of the study to detect a difference in improvement scores of 1 point over a 12 month period and this was shown to be 60%.

Seedhouse (1986) defined health in the fullest sense as:

“a persons optimum state of health is equivalent to the state of the set of conditions which fulfil or enable a person to work to fulfil his or her realistic chosen and biological potentials. Some of these conditions are of the highest importance for all people, others are variable dependent upon individual abilities and circumstances” (Seedhouse, 1986, P61).

Seedhouse considered that health work consists of the removal of obstacles to the achievement of human potential and is, therefore, an enabling activity. This is an important concept for healthcare providers as it provides a theoretical basis for the mutual goal setting which occurs as part of any healthcare episode and hence the need to include individual goal achievement as an outcome measurement in healthcare settings.

Discussing quality assurance as an integral part of private physiotherapy practice in Australia Grimmer (1989) indicated how physiotherapy practise can be maintained by “establishing the goals and objectives of the practice and reviewing them regularly”. She further indicated that outcome studies were a growing area in Australia for private physiotherapy services quality assurance initiatives, since guaranteed outcomes are essential for patient satisfaction. Further, she added that there had been little work carried out in Australia in terms of outcomes in private practice and only a few studies at that time which had been hospital based.

Various methods have been used to measure outcomes in Physiotherapy. Normally these methods are related to specific specialities. In neurology for example there are well documented, reliable

and valid measures of functional and activities of daily living (ADL) status, e.g. Barthel index (Mahoney & Barthel 1965), the Rivermead Assessment (Lincoln & Leadbetter 1979) and the Frenchay Assessment (Holbrook & Skilbeck 1987), the Mobility Index (MI) Demeurisse et al (1980), the Nottingham Health Profile (Hunt et al 1980) the Abbreviated Mental Test (Qureshi & Hodkinson 1974), Patient Satisfaction Scale (Daly & Flynn 1985), the Activities Index (AI) (Hamrin & Wohlin 1982), and TELER (Le Roux 1993).

The measures above include functional and activity measures but also measures of anxiety, mental, psychological and occupational status. They have all been used in the measurement of outcome for patients following acute cerebral infarction as Fries (1982) considers "rehabilitation is multi dimensional by nature and it is therefore important to use tools which can detail changes in all the above dimensions. In spinal cord injury physical well being has been measured using the RAND SF 36 which was produced by Jenkinson et al in 1993. Cohen (1983) produced the perceived stress scale which measures the degree individuals find their lives to be unpredictable, uncontrollable and overloaded.

In the management of the elderly, the Elderly Mobility Scale (EMS) has been validated and its reliability tested by Smith (1994). It is designed to test functional mobility in the elderly and is, therefore, applicable to some elderly patients treated in the outpatient physiotherapy setting.

Ball (1993) presenting at a major physiotherapy conference described the Wirral formula as "a tool designed to record five elements in respect of physiotherapy outpatient department treatment". These elements were; effort, patients problem weighting, initial assessment outcome, expected outcome and actual outcome. Effort was measured on the basis of a graded 1:10 scale and recorded at the end of each contact. Elements contributing to effort expended were knowledge, skill, vigour, time, self motivation, physical and mental exertion, strength, concentration, conviction and motivation of others. Time allocated to treatment intervention was felt by the authors to be insufficient and meaningless unless it is defined by effort.

Weighting of the patient's problem using the Wirral formula included scoring for the problem initiating contact with the physiotherapist and also of any other complications to physiotherapy care, e.g. communication, sensory and mobility problems, any other conditions together with adverse social circumstances.

Initial assessment and expected achievement was based on a 1:10 scale and related to functional ability. The instrument also included factors which might influence physiotherapy intervention, e.g. transfer to another hospital, patient's lifestyle etc. Measurement of actual achievement was based on a functional assessment score and also on factors influencing outcome.

The Wirral formula development team felt that the tool they had produced was capable of supplying answers to some of the questions the team had sought answers for:

- a) It showed effort involved in treating each patient. Which could be used in costing each episode of patient care.
- b) It showed the outcome of each intervention and the part that physiotherapy had to play in relation to outside factors.
- c) It showed the severity of patients' problems and the possible impact of other unrelated difficulties on the original/consulting problem and, therefore, highlighted possible difficulties for physiotherapy intervention.

The authors of the formula indicated that there was a need to incorporate and take account of grading of staff, the level of expertise and what effect this might have on the outcomes produced. The author found the Wirral formula had much to offer physiotherapy services in general and was used extensively to inform the development of the present tool.

Shaw (1994) reviewing the literature highlighted Maxwell's elements of healthcare and defined effectiveness as; services which provide the intended benefit and outcome for the individual and for the population. Colvin et al (1980) noted that the majority of patients indicated that they desired total and permanent relief of pain. However, 90% of the patients in their study N=287 indicated that they would accept 50% improvement in pain relief, confirming that at least some level of pain relief was an important factor for these patients.

These findings were confirmed by Fitzpatrick et al (1987) who noted there was an inverse correlation between reduction in pain severity and satisfaction with treatment received.

Zinoker (1995) asserted that if the use of outcome measures in healthcare is to be constructive attention needs to be focused on the appropriateness of the measure in relation to both the clinical setting and the patient population.

It is acknowledged that in outpatient physiotherapy services low back pain is by far the most common problem treated. There are various condition specific measures for low back pain, e.g. the Aberdeen Low Back Pain Scale, (Ruta et al 1994) the Oswestry Disability Score, (Fairbank et al 1980), the Waddell Disability Score (Waddell 1984) and the Low Back Pain Outcome Score (Greenough & Fraser 1992). All the above measures ask questions about pain and related physical impairment. They are all highly specific to low back pain and all have shown good reliability and validity.

The low back pain outcome scale (Greenough & Fraser 1992) includes a visual analogue scale for measuring pain and asks questions about employment, sport, resting, treatment/consultation, analgesia, sex life, sleeping, walking, sitting, travelling and dressing. The Oswestry Low Back Pain Questionnaire (Fairbank et al 1980) also asks questions about pain intensity, but also includes items on personal care, lifting, walking, sitting, standing, sleeping, sex life, social life and travelling. The Oswestry Low Back Questionnaire has, however, been criticised for its low sensitivity in some of the items.

In developing outcome measurement tools the problem of subjectivity always arises. Jette (1989) illuminated the use of subjective outcomes by offering some precise definitions, which have been valuable to this study. Jette defined a subjective outcome as:

"where the observed entity is the subjective status of a person, where the entity results from the feelings of the subject or person or where an entity is perceptible only to the person being assessed, e.g. pain, fatigue, ease/difficulty of performing activities of daily living."

Objective phenomena on the other hand, he defined as:

"having an existence independent of the perception of the individual"

In measuring subjective clinical outcomes, (Jette 1989) suggested that what we strive for are measurement processes that reflect the perceptions or feelings of the person being assessed and not the feelings or judgments of the person carrying out the measurement procedure. Normally the unstandardised self report of pain yields data that is inconsistent and unreliable. What we should strive for, Jette felt, are objective measures of both subjective and objective clinical outcomes (Jette 1989).

From a review of the relevant literature Koes et al (1991) assessed the value of 35 randomised clinical trials of spinal manipulation and mobilisation for low back and neck problems. Studies were assessed and allocated marks using set criteria. Outcome measures used in the studies were assessed on the basis of the inclusion of measures of the following: pain, global measurement of improvement, functional status, spinal mobility and the use of drugs/medical services. Those studies that included all the above rated the most highly in Koes et al's review, indicating that the most common problems identified in physiotherapy out patient service practice should be considered with outcomes that are multi dimensional.

Hopton et al (1991) examined and described the use of the Nottingham Health Profile as a measure of perceived health in general practice. The authors suggested that patients seen in general practice present a wide range of problems and receive many varieties of care since it is, therefore, difficult to select specific patient groups, e.g. by age and sex, and therefore a wide ranging outcome measurement tool is required. The Nottingham Health Profile reflects lay concepts of health and produces scores on six dimensions of health, energy, emotional reactions, social isolation, sleep, pain and physical mobility. It consists of 38 items and is relatively easy to complete. Hopton et al's (1991) study, however, found that the tool in the context of general practice had little value. Since it lacked sensitivity for use in this multi dimensional setting

1.6 The use of outcome measures in physiotherapy outpatient services nationally.

Prior to the commencement of this study and the development of the outcome measurement tool, the consultant undertook a national survey of outpatient physiotherapy departments to establish the presence or absence of an existing outcome measurement tool which could possibly be adapted for use at Mid Kent Healthcare Trust. A total of 300 departments were surveyed, 155 departments responded to a postal questionnaire and request for outcome measures documentation.

The measures available were not extensive and consisted of: patient satisfaction surveys, problem orientated medical recording and audit of notes, outcome measurement scores based on 0 - 5 scales which rated percentage improvement and related to patient and therapist agreement re long term goal achievement. Numbers of treatments given were also included in the measures used. Some departments looked at efficiency and effectiveness. In one instance effectiveness was measured on a 5 point scale, ranging from worst to cured in terms of percentage change and efficiency scored in numbers of treatments. Jones (1992) produced a grid system which relates efficiency to effectiveness and produces an index of outcome in terms of success or failure where:-

- 0 = failed to complete the course of treatment
- 1 = optimum low number of treatments with good effect
- 2 = acceptable but not desirable
- 3 = unacceptable outcome
- 4 = worst outcome

Effectiveness is measured on a 7 - 2 point scale, where:-

- 7 = symptom free
- 6 = much improved
- 5 = some improvement
- 4 = status quo
- 3 = a little worse
- 2 = much worse

This scoring is agreed by both the patient and the physiotherapist.

Some departments use outcome of referral to interpret outcome giving codings to each possible outcome, for example: inappropriate referral, did not attend, failed to attend

Some measures looked at the result of physiotherapy intervention related to goal achievement but the nature of goals in many cases were not prescribed.

Many services were found to levy patient satisfaction questionnaires, some using condition specific questionnaires, e.g. the Oswestry Low Back Pain Questionnaire, or some adaption of these measures.

Some physiotherapy services estimated outcomes on a scale which included outcome of referral and change in condition. Indicators such as pain, range of movement, function, subjective improvement and ability to work were used in some instances and rated using 0 - 5 point scales. Other measures related the number of treatments to patient subjective assessment of the problem and perceived goal achievement whilst others included an analogue scale to register sleep disturbance. These last measures, however, were mainly used for patients suffering from low back pain or cervical pain.

A minority of the measures used included more information about the patient i.e. transportation needs and their source of referral, diagnosis, outcome of referral, body site implicated, treatment details, location of pain, number of treatments necessary and discharge outcome rated on a 5 point scale. In one case the 5 point scale ranged from deteriorated, no change, improved, part recovered and recovered and the discharge outcome was considered in the light of pain relief, range of movement, function and power.

Many respondents indicated the need for a tool which was user friendly and was economic in terms of the time needed to complete it. Also many indicated the need for statistical and clerical support in order to make full use of some of the more complex and comprehensive tools.

The general consensus from the correspondence received by the researcher indicated the need for a comprehensive tool which could combine many of the elements currently being utilised in individual settings which would be user friendly and give results which could be analysed easily. This last requirement lead to the refinement of the coded tool, the data from which could then be fed into a suitable computer database.

Development of the Outcome Measurement Tool

DEVELOPMENT OF THE OUTCOME MEASUREMENT TOOL

Section 2

The consultancy work began in February 1994 with a national survey of the 300 physiotherapy outpatient departments in order to establish the existence or otherwise of an outcome measurement tool which could be appropriate for the Trust's needs. In all the 155 replies which were received revealed a general paucity of existing relevant and sensitive outcome measures suitable for the needs of Mid Kent Physiotherapy Outpatient Services. However, a number of individual measures and some basic instruments provided the consultant with confirmation of some early theories with regard to the features which should be included in the instrument and contributed to confirmation of construct validity of the subsequent tool.

Some of the more extensive tools, for example the Wirral Formula (Ball et al 1993) previously described, and the Glasgow Royal Infirmary outcome measurement tool provided some new ideas which were incorporated into the pilot tool.

A literature review of outcome measures relevant to physiotherapy outpatient services was carried out highlighting the paucity of comprehensive tools relevant for general use in outpatient physiotherapy services. The many condition/client group specific assessment/outcome measures served as a useful backdrop for the development of a tool specific to outpatient physiotherapy service needs.

A series of structured interviews took place between the consultant and members of Mid Kent Healthcare Trust's physiotherapy outpatient staff and in addition between the consultant and a group of experienced physiotherapists in an academic setting. The aim of the interviews was to establish items of importance to physiotherapists in terms of measurement of outcomes of therapy. A series of structured interviews were also carried out with members of the public to establish their criteria in assessing outcomes of care. A single prompt question was asked of each of the interviewees, this was followed by a series of questions where necessary to clarify the statements made. The question asked of the 6 physiotherapists was:-

"What factors do you consider it is important to record in order to ascertain the effect your treatment has had on the patient, their condition and their lifestyle?"

The patients were asked:-

"What would you hope to gain from physiotherapy treatment if you were complaining of a problem effecting the joints, muscles or bones of a specific part of your body, for example, your arm, your leg or your spine?"

As a result of the national survey, the review of the literature and the structured interviews, a pilot version of the final tool was drawn up together with a discharge summary sheet for patient record keeping.

The pilot tool consisted of a series of items and a series of coded responses. The discharge summary sheet was the document used to record coded data. See Appendix .2

The instrument was piloted by 1 experienced manipulative physiotherapist at Maidstone District General Hospital for 2 weeks. Discussions were held following this period to discuss the format and user friendliness of the documentation. As a result of feedback, the instrument was adjusted and some minor changes were made to two of the response codings.

The instrument was then piloted again at Maidstone District General Hospital, this time by three full time physiotherapists working in the outpatient department. At the end of a 1 month period one further minor adaption was made to the instrument. This was the inclusion of 0.5 to the physical functional and subjective outcome scoring chart as the interger numerical categories were found to be restrictive by some physiotherapists for some patient conditions.

At the end of the 1 month trial period an analysis of the completed data discharge summary sheets was made by hand which revealed some deficiencies in record keeping but generally showed the instrument to be sensitive and relatively easy to use. Results from 32 patient summary discharge sheets were presented to a group of physiotherapists representing the 3 outpatient physiotherapy department sites and a training session was run in order to familiarise staff with the format of the documentation to give the opportunity for full discussion. At that meeting the key uses of the instrument were defined by the group as:-

1. Measuring effectiveness and efficacy of physiotherapy outpatient treatments.
2. Offering quantifiable data which could be used in patient profiling.
3. An educational tool for junior and less experienced staff in terms of realistic goal setting, documentation and choice of treatment regimes.

Generally there was a very positive response to the introduction of the package throughout the service. though some staff commented unfavourably in terms of the time taken to complete the new documentation. However, familiarity with the tool appeared to reduce the problem significantly. It was decided, however, following consultation that the period of time allowed for first contact i.e. initial examination should be increased by 10 minutes per patient.

Simultaneously to the month's piloting period, negotiations and discussions took place with the clinical information systems manager at Mid Kent Health Care Trust in order to set in place a database for the storage of discharge summary sheet data. Following the 1 months pilot period, administrative staff training was instigated to ensure accurate entry of encoded data into the Epi-info package which was programmed with a new database in order to store encoded data. Storage of the data from all sites took place at Maidstone Hospital and all data was entered by the administrative staff. Following a physiotherapy staff training session the outcome measurement tool was incorporated into all outpatient physiotherapy service areas within the Mid Kent Healthcare Trust. Initially it was planned to collect data over a 4 month period to coincide with junior rotations periods but a decision was made to extend the period of data collection to 1 year to cover 3 junior rotations in order to gauge the possible effects of seasonal variation in patient case load and in the possible fluctuations in efficiency and effectiveness of rotating junior staff.

The full scale pilot study commenced on 5th September 1994 and ran until the 4th September 1995. During the pilot period the consultant carried out regular site visits to ensure that the system was running smoothly. In October 1994 a sample of the data collected was taken in order to pilot methods of analysis using the Minitab Statistical Software Package utilised by the University of Brighton. An interim report was submitted to Mid Kent Healthcare Trust Audit Committee in October 1994. See Appendix 3 The results of the first 4 month data collection period were presented to members of the Trust, GP Fund holders, the Community Healthcare Council and representatives from the Chartered Society of Physiotherapy. Two further data collection periods then took place.

Data protection issues were addressed by the therapy manager in consultation with the relevant Trust personnel. For analysis purposes all reference to patient name, address and other identifiable features were removed from the data, patients were only identifiable to the consultant by number throughout the study.

The three data collection periods for the year's pilot run were as follows:-

Period 1 - 4/9/94 - 3/1/95

Period 2 - 4/1/95 - 4/5/95

Period 3 - 5/5/95 - 4/9/95

Of relevance to the results of the pilot period are the staffing levels in each of the 3 main physiotherapy outpatient service centres, these are recorded below:-

Period 1 - 4/9/94 - 3/1/95

	<u>Maidstone District General Hospital</u>	<u>Churchill Centre</u>	<u>Heathside</u>
Physiotherapy Manager	1.00	-	-
Superintendent III	-	1.00	-
Senior I	1.11	2.16	1.33
Senior II	1.53	2.24	0.83
Junior	1.00	1.00	-

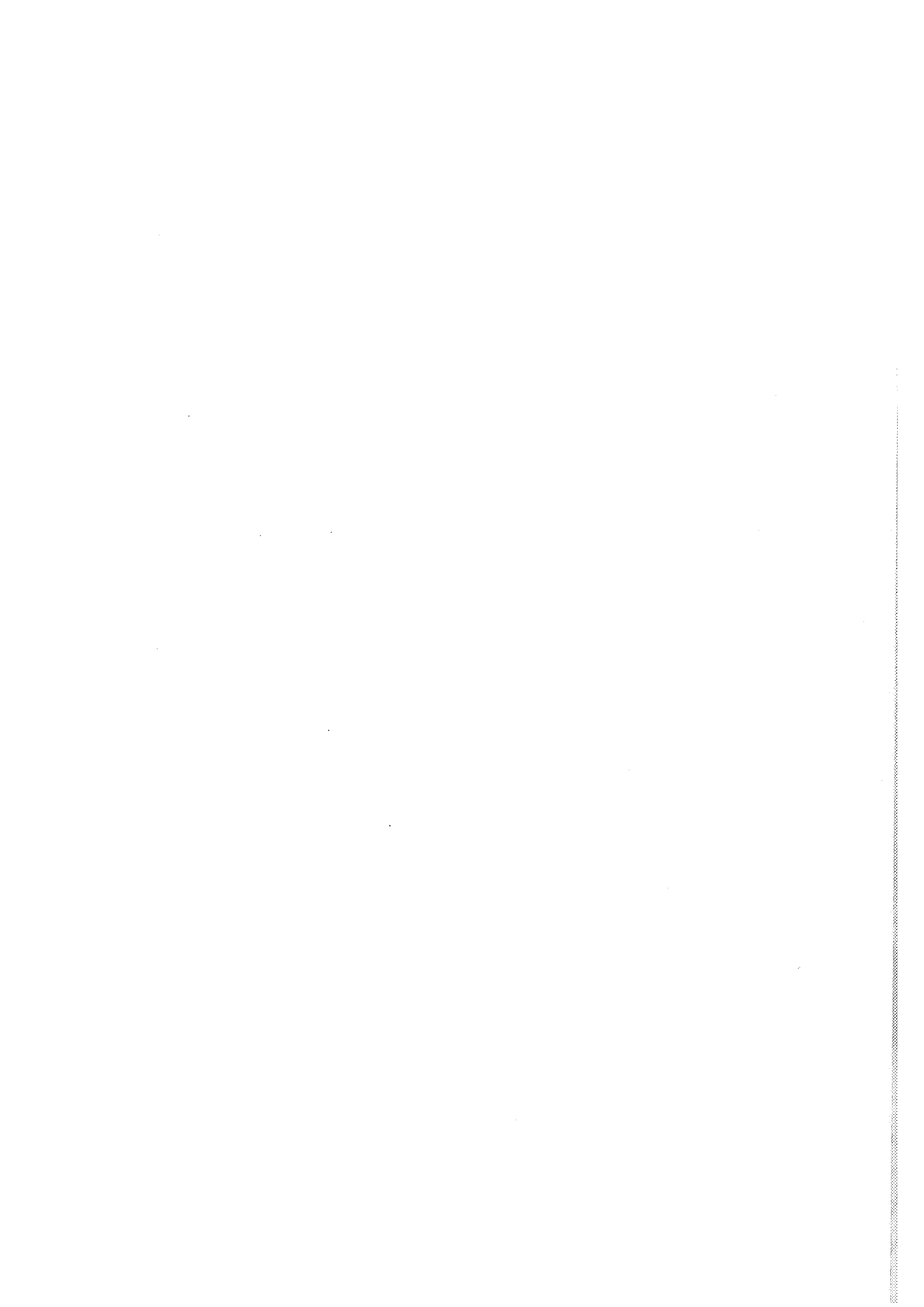
Period 2 - 4/1/95 - 4/5/95

	<u>Maidstone District General Hospital</u>	<u>Churchill Centre</u>	<u>Heathside</u>
Physiotherapy Manager	1.00	-	-
Superintendent III	-	1.00	-
Senior I	1.11	2.16	1.33
Senior II	1.53	2.24	0.83
Junior	1.00	1.00	0.00

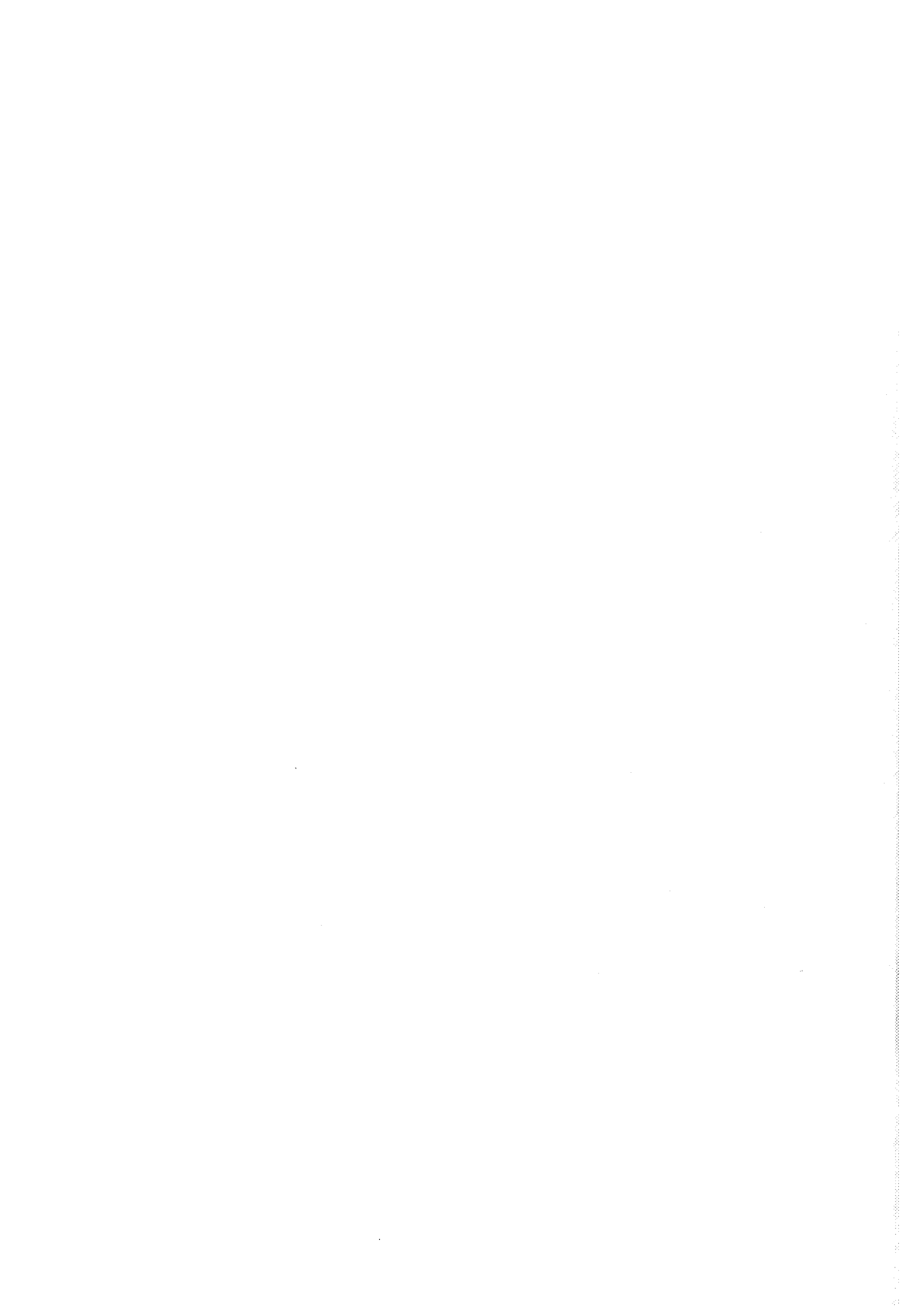
Period 3 - 5/5/95 - 4/9/95

	<u>Maidstone District General Hospital</u>	<u>Churchill Centre</u>	<u>Heathside</u>
Physiotherapy Manager	1.00	-	-
Superintendent III	-	1.00	-
Senior I	1.83	2.64	1.33
Senior II	1.53	1.80	1.44
Junior	1.00	vacancy	0.00

At the end of each pilot period data was downloaded for analysis. Data was analysed using the Minitab statistical software package, version 8.1.



Description of the Outcome Measurement Tool



DESCRIPTION OF THE OUTCOME MEASUREMENT TOOL

Section 3

The developed tool consisted of 30 items to be completed by the physiotherapist in charge of patient care in conjunction with the patient. It consisted of a summary sheet which detailed items for response and allowed the addition of coded responses. See Appendix 2.

The remainder of the tool consisted of the criteria for coding used for the completion of each item as appropriate.

From the outset it was felt important to include factors which might contribute to outcome of intervention, therefore the location where physiotherapy intervention took place was recorded as were items specific to the individual patient's profile, i.e. age, gender and occupation. Occupation was described using a modified version of the Registrar General's classification (OPCS 1992).

Primary Diagnosis

Primary diagnosis was recorded using the International Classification of Disease codings version 9 (ICD9).

Secondary Diagnosis

Secondary Diagnosis was made on the basis of a systems diagnosis e.g. neuro-musculoskeletal, dermatological, with the possibility of specifically identifying the nature of the condition i.e. inflammatory, degenerative.

Tertiary Diagnosis

This was recorded by the physiotherapist in handwritten form but not entered as coded data. This element of the tool had not previously been encoded and the pilot period was seen as one where the tertiary diagnosis the physiotherapy diagnosis would be collected and analysed separately in order to develop a coding mechanism. Whilst the tool was being developed, the consultant and the therapy manager were mindful of the parallel developments in Read codings and the possible incorporation of Read codings into the hospital information system. It was felt that the tertiary diagnosis codings could be added to the tool at a later date. If Read codings did not become available on the hospital information system.

Body Site

Body site was recorded so that the outcome of the intervention could be correlated with sites. Up to 4 body sites could be recorded for each patient.

Spinal regions were further classified in terms of central problems or those referring to distal areas.

Laterality of symptoms were recorded as either bilateral or unilateral.

Waiting Times

Referral dates and dates of commencement of treatment were recorded for administration purposes but also in order to calculate the length of patient wait from the first contact for the present problem with their GP/consultant to the time of referral in weeks. Additionally the length of wait was recorded for the time patients were required to wait in weeks from referral date by their GP/consultant to commencement of treatment within the physiotherapy service.

Reason for Referral

Reasons for referral were recorded using local criteria generated from staff and previous referrals. Examples of such reasons included pain relief, relaxation, orthopaedic rehabilitation, etc.

Weighting of Psychosocial and Physical Factors Affecting the Physiotherapy Process

This item was based on the Wirral Formula (Ball et al 1993.). Categorisation took place of the problem necessitating consultation, communication/sensory difficulties, mobility problems, other conditions and social circumstances. These problems were rated on a scale of 1 - 5.

A score of :-	1	= acknowledged the problem existed
	2	= a mild problem
	3	= a moderate problem
	4	= quite a severe problem
	5	= a severe problem

Scores of 2 or more in any category would normally have some direct impact on the ease or difficulty of physiotherapy treatment. The minimum possible score was 0 which might occur in patients whose condition had resolved spontaneously prior to treatment commencing. A maximum score of 25 was possible for a patient with multiple pathologies and severe social circumstances.

Functional Outcome

Initial assessment of functional ability (IAFA), (AEFO) and assessment of actual functional outcome (AAFO) were all recorded. Initial assessment of functional ability and assessment of expected functional outcome were recorded at first attendance, actual functional outcome was recorded at completion of treatment or at discharge. All were rated using the same scale, this scale was designed to assess functional, physical and subjective outcome of treatment and was completed by the therapist and the patient in consultation. The scale initially ran from 1 - 10, in practice physiotherapists and patients found the 1 - 10 scorings restrictive and therefore 0.5 was added between integer numbers which satisfied all parties. The categories and descriptors were designed to reflect patient progress in independence, pain, joint range, ability to work and sporting activities.

Date Patient Terminated Treatment

This item allowed a calculation of the total treatment period if required.

Outcome of Referral

A series of categories related to local needs was developed. It included as well as regular discharge categories which differentiate amongst such things as "did not attend", "failed to attend" and "unable to attend" and whether the department was informed of the non attendance in advance.

Treatment Details

These were recorded either as individual modalities e.g. mobilisations or as combinations of modalities, e.g. mobilisations, advice and ultrasound. The predominating treatments were always recorded. A total of 4 treatment categories could be recorded for each patient for each treatment period. This flexibility was allowed to address the issues of modalities being modified in relation to progression/regression of the prevailing problem or set of problems, and in recognition of the dynamic nature of the clinical interaction process.

Total Effort Score

Effort scores were based on those introduced by Ball et al (1993.) originally incorporated into the Wirral Formula. An activity/treatment modality or administrative activity e.g. letter writing was scored in terms of time taken to carry out the task and the degree of effort required in achieving the task successfully. Class taking was scored according to the formula shown in Appendix 2 effort was graded on a scale of 1 - 10 taking into consideration the application of knowledge, skill application, vigour expended, self motivation needed to undertake the task, physical and mental exertion required, strength required, concentration, conviction and the motivation of others necessary to complete the task. Effort was recorded at the end of each contact period and the total effort score for the whole treatment period recorded on the discharge sheet.

Goal Achievement at Discharge

Goal achievement was assessed jointly by the therapist and patient based on goals set at commencement of treatment, 6 categories allowed the choice ranging between worse - no goals achieved to goals exceeded. Each category was given a series of descriptors in respect of range of movement, function, pain relief and ability to work and scored in terms of the number of treatments necessary to achieve that particular rating. Numbers of treatments were categorised as either 1 - 5 treatments, 6 - 10 treatments, 11 - 15 treatments or 16+ treatments.

Other Factors Influencing Outcomes

Factors included in this item included anything which might have influenced the outcome of physiotherapy intervention which were beyond the therapists control for example other medical interventions, lifestyle influences, ceased to attend, etc.

Number of Treatments

Number of treatments were recorded in terms of the number of contacts made.

Physiotherapy Inputs

Physiotherapy inputs could be incorporated into the database but for reasons of sensitivity to staff this was not in fact carried out during the pilot period. However the grade of physiotherapist involved in treating the patient was recorded ranging from superintendent III to a junior physiotherapist.

Pain, Function and Ability to Work Levels

Each of the above were recorded on a 0 - 10 scale. Patients were asked to indicate their pain level, functional ability and ability to work before commencement of treatment and when treatment was completed. Using Jette's Principles (1989) of making subjective responses as objective as possible therapists were instructed to ask patients in respect of each of the above items, i.e. pain function and ability to work., the question:

"In order to monitor the effects of your treatment, it is important that we find out your levels of pain, your functional ability and your ability to work at the present time. Please choose a number on the scale of 0 - 10 which indicates:-

1. Your present level of pain when it is at its worst. Where 0 = the least of pain you could envisage and 10 = the worst pain you could imagine.
2. Ability to work where 0 = complete absence of the ability to work and 10 = working normally.

3. Functional ability. Where 0 = total absence of ability to carry out functional tasks at home and in the social setting and 10 = maximum or normal ability to carry out all functional tasks."

In this way it was hoped that the items would be as objective as possible whilst producing a subjective response in an objective way (Jette 1989).

On completion of an individual treatment period the physiotherapist completed the discharge summary sheet which was then given to the departmental administrator for entry on the departments data base. The completed summary sheet was then returned for filing with the patients case notes.

The data collected during the three pilot periods was analysed by the consultant using Minitab statistical package version 8.1. for the Apple Macintosh having first been downloaded, depersonalised and converted into Foxpro.

Results



RESULTS

The results of the year's pilot study are recorded in this section. The results are shown for each four month rotation period. The results are presented descriptively to demonstrate the nature of the data that can be collected using the newly developed tool. Some examples of how variables can be described by other variables are also given in the text.

Patient Numbers

The number of patients treated during each four month rotation period are shown in Table 1.

Table 1
Frequency of patients referred
by period of rotation (all patients)

Period 1	Period 2	Period 3
7 9 1	1 2 0 6	1 3 1 6

Of interest is the increase in numbers of patients both referred and treated from Period 1 to Period 3 despite the increase in contact time of ten minutes for first consultation following the introduction of the new tool.

The number of patients referred to each individual physiotherapy outpatient unit for each of the rotation periods is shown in Table 2.

Table 2
Frequency of referrals to individual physiotherapy units
by period of rotation (all patients)

Unit	Period 1		Period 2		Period 3		TOTAL
	No	%	No	%	No	%	
Maidstone	276	34.98	438	36.32	642	48.78	1356
Heathside	252	31.94	338	28.03	336	25.53	926
Churchill	255	32.32	416	34.49	324	24.62	995
Community - Centre	3	0.38	-	-	3	0.23	6
Community - Home	2	0.25	2	0.17	1	0.08	5
Prison	1	0.13	12	1.00	10	0.76	23
TOTAL	789	100	1206	100	1316	100	3311
MISSING DATA	2		0		0		

Age and Gender of Patients Referred for Physiotherapy Outpatient Treatment

As shown in Table 3 the mean age of patients treated in Mid Kent's outpatient physiotherapy services was 45 years with an age range of 1 year to 92 years.

Table 3
Age of patients referred to physiotherapy
by period of rotation (all patients)

Rotation period	Mean age	SD	Minimum	Maximum	No
1	45	17.7	2	92	787
2	45	17.4	7	90	1206
3	45	17.4	1	92	1312

Table 4 shows the referrals for each period of rotation by gender indicating that more female patients are treated in the Trust than male patients. This is consistent with national figures.

Table 4
Frequency of gender referral by period of rotation.
 (all patients)

Gender	Period 1		Period 2		Period 3		TOTAL
	No	%	No	%	No	%	
Male	384	48.85	521	43.24	576	43.87	1481
Female	402	51.15	684	56.76	737	56.13	1823
TOTAL	786	100	1205	100	1313	100	3304
MISSING DATA	5		1		3		9

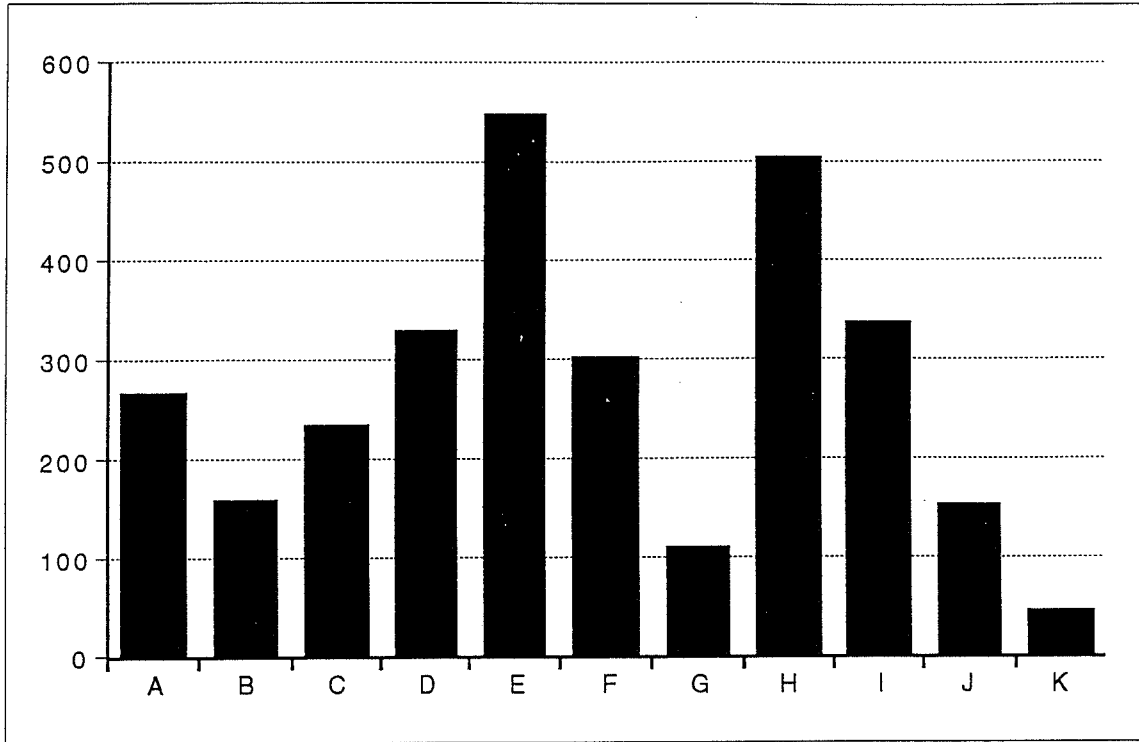
Patient Occupation

Most common occupations represented in the patients treated by the Trust in outpatient physiotherapy services are semi-skilled, manual and personal service workers and patients who are retired. The smallest group treated are students. See Table 5.

Table 5
Frequency of occupations of patients referred to
physiotherapy by period of referral (all patients)

Occupation	Period 1		Period 2		Period 3		TOTAL
	No	%	No	%	No	%	
Professional	71	10.19	87	7.73	110	9.35	268
Employer/Manager	47	6.74	61	5.42	51	4.34	159
Intermediate & junior non manual	58	8.32	90	7.99	86	7.31	234
Skilled Manual & own account non professional	81	11.62	123	10.92	125	10.63	329
Semi skilled manual and personal service	117	16.79	209	18.56	223	18.96	549
Unskilled manual	76	10.90	106	9.41	120	10.20	302
Unemployed (more than 2 years)	17	2.44	47	4.17	48	4.08	112
Retired (if more than 2 years)	114	16.36	188	16.70	203	17.26	505
Housewife/husband if more than 2 years)	66	9.47	142	12.61	131	11.14	339
School person	39	5.60	55	4.88	61	5.19	155
Student	11	1.58	18	1.60	18	1.53	47
TOTAL	697	100	1126	100	1176	100	2999
MISSING DATA	94		80		140		314

The frequency of the occupations of patients treated in the total period is shown in *Figure 1* below.



Frequency of occupations of patients
(for total period)

A	Professional
B	Employer/Manager
C	Intermediate & junior non manual
D	Skilled Manual & own account non professional
E	Semi skilled manual and personal service
F	Unskilled manual
G	Unemployed (more than 2 years)
H	Retired (if more than 2 years)
I	Housewife /husband if more than 2 years)
J	School person
K	Student

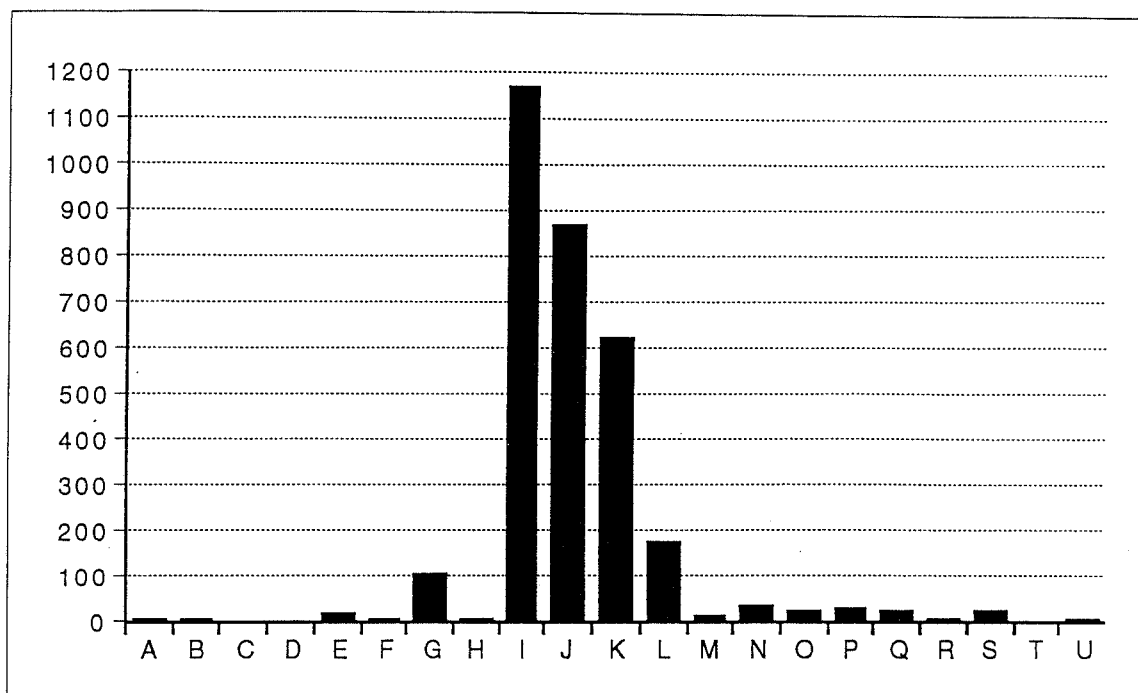
Secondary Diagnosis

The frequency of secondary diagnosis by period of rotation for all patients treated within outpatient physiotherapy services in the Trust is shown in Table 6. The most common diagnoses managed by the physiotherapy services are neuro-musculoskeletal dysfunction (37.6%), traumatic conditions (27.86%) and degenerative conditions (19.88%).

Table 6
Frequency of secondary diagnosis by period of rotation. (all patients)

Secondary diagnosis	Period 1		Period 2		Period 3		TOTAL	TOTAL %
	No	%	No	%	No	%		
Respiratory	2	0.28	1	0.08	-	-	3	0.10
Neurological	-	-	1	0.08	3	0.24	4	0.13
Upper motor neurone	-	-	-	-	-	-	-	-
Lower motor neurone	-	-	-	-	1	0.08	1	0.03
Surgical	1	0.14	6	0.51	8	0.65	15	0.48
Pre Op	2	0.28	-	-	1	0.08	3	0.10
Post Op	19	2.64	33	2.80	53	4.25	105	3.35
Medical	1	0.14	-	-	2	0.16	3	0.10
Neuro Musculo Skeletal	238	33.06	456	38.71	477	38.59	1171	37.36
Traumatic	212	29.44	303	25.72	358	28.96	873	27.86
Degenerative	154	21.39	230	19.52	239	19.34	623	19.88
Inflammatory	52	7.22	80	6.79	46	3.72	178	5.68
Pathological	2	0.28	7	0.59	4	0.32	13	0.41
Postural	12	1.67	18	1.53	6	0.49	36	1.15
R.S.I.	9	1.25	9	0.76	8	0.65	26	0.83
Obstetrics & Gynaecology	4	0.56	18	1.53	7	0.57	29	0.93
Stress Incontinence	5	0.69	11	0.93	6	0.49	22	0.70
Unstable Bladder	1	0.14	1	0.08	2	0.16	4	0.13
Dermatological	3	0.42	4	0.34	15	1.21	22	0.70
Oedema	-	-	-	-	-	-	-	-
Stress	3	0.42	-	-	-	-	3	0.10
TOTAL	720	100	1178	100	1236	100	3134	
MISSING DATA	71		28		80		179	

The frequency of secondary diagnosis for the total period is shown in *Figure 2.* below.



Frequency of Secondary Diagnosis
(For total period)

A	Respiratory
B	Neurological
C	Upper motor neurone
D	Lower motor neurone
E	Surgical
F	Pre Op
G	Post Op
H	Medical
I	Neuro Musculo Skeletal
J	Traumatic
K	Degenerative
L	Inflammatory
M	Pathological
N	Postural
O	R.S.I.
P	Obstetrics & Gynaecology
Q	Stress Incontinence
R	Unstable Bladder
S	Dermatological
T	Oedema
U	Stress

Body Sites Treated

The frequency of primary body sites treated by period of rotation for all patients treated is shown in Table 7a. The most common body sites treated for all three periods are shown in Table 7b.

Table 7b shows combined figures in some instances, for example lumbar and lumbar plus referral from Table 7a are combined together to give a percentage total of patients suffering with lumbar spine problems. Similarly neck and neck plus referral figures are given together as are shoulder and shoulder girdle figures, as are the foot and ankle figures. Altogether the five most common sites total 74% of the total body sites treated throughout the year.

Table 7a
Frequency of primary body site by period of rotation. (all patients)

Body site	Period 1		Period 2		Period 3		TOTAL
	No	%	No	%	No	%	
Head	5	0.67	6	0.51	16	1.28	27
Neck	29	3.87	37	3.13	38	3.03	104
Neck + Referral	91	12.15	152	12.85	156	12.44	399
Thoracic	15	2.00	10	0.85	17	1.36	42
Thoracic + Referral	19	2.54	27	2.28	30	2.39	76
Lumbar	59	7.88	84	7.10	74	5.90	217
Lumbar + Referral	116	15.49	225	19.02	227	18.10	568
Sacroiliac	8	1.07	9	0.76	10	0.80	27
Shoulder	68	9.08	107	9.04	104	8.29	279
Shoulder Girdle	9	1.20	22	1.86	10	0.80	41
Upper Arm	4	0.53	10	0.85	6	0.48	20
Elbow	27	3.60	35	2.96	50	3.99	112
Forearm	6	0.80	8	0.68	3	0.24	17
Wrist	49	6.54	48	4.06	67	5.34	164
Hand	6	0.80	21	1.78	21	1.67	48
Finger	6	0.80	11	0.93	16	1.28	33
Thumb	12	1.60	9	0.76	11	0.88	32
Hip	18	2.40	36	3.04	33	2.63	87
Thigh	5	0.67	5	0.42	10	0.80	20
Knee	106	14.15	160	13.52	181	14.43	447
Lower Leg	10	1.34	17	1.44	18	1.44	45
Ankle	41	5.47	63	5.33	69	5.50	173
Foot	18	2.40	34	2.87	44	3.51	96
Chest	2	0.27	3	0.25	2	0.16	7
Abdomen	-	-	4	0.34	2	0.16	6
Upper Limb	1	0.13	1	0.08	-	-	2
Lower Limb	2	0.27	-	-	1	0.08	3
Whole Body	1	0.13	4	0.34	11	0.88	16
Multiple Regions	-	-	1	0.08	5	0.40	6
Skin	1	0.13	-	-	1	0.08	2
Nerve	-	-	2	0.17	-	-	2
TMJ	-	-	-	-	1	0.08	1
Face	1	0.13	-	-	2	0.16	3
Pelvic Floor	7	0.93	20	1.69	12	0.96	39
Bladder	2	0.27	4	0.34	1	0.08	7
Ribs	-	-	2	0.17	1	0.08	3
Coccyx	3	0.40	3	0.25	3	0.24	9
Other	2	0.27	3	0.25	1	0.08	6
TOTAL	749	100.00	1183	100.00	1254	100.00	3186
MISSING DATA	42		23		62		127

Table 7b
Most common body sites treated during periods 1-3

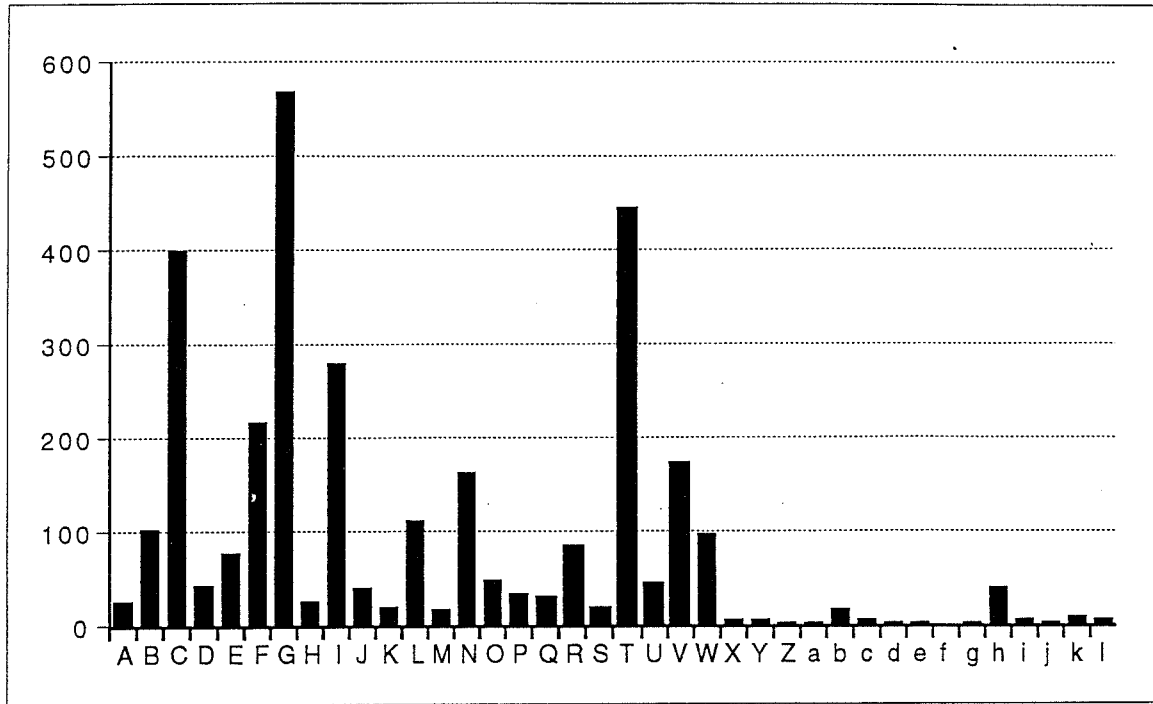
Body sites	% of total	Total no. for all 3 periods
Lumbar spine & referral	25	785
Knee	14	447
Neck & referral	17	530
Shoulder & shoulder girdle	10	320
Ankle & foot	8	269
Total of 5 most common sites	74	2351
Total of other sites	26	835
Total of all sites	100	3186

Table 8 shows the frequency of the five most common body sites by period of rotation.

Table 8
Frequency of the five most common body sites by period of rotation

	Period 1	Period 2	Period 3
Cervical spine, neck & referral	16.02	15.98	15.47
Lumbar spine & referral including SI joint	24.44	26.88	24.80
Knee	14.15	13.52	14.43
Shoulder & shoulder girdle	10.28	10.90	9.09
Foot & Ankle	7.87	8.20	9.01
Total %	72.76	75.48	72.80

Figure 3 shows the frequency of primary body sites treated for the total period.



Frequency of primary body site
(for total period)

A	Head	T	Knee
B	Neck	U	Lower Leg
C	Neck + Referral	V	Ankle
D	Thoracic	W	Foot
E	Thoracic + Referral	X	Chest
F	Lumbar	Y	Abdomen
G	Lumbar + Referral	Z	Upper Limb
H	Sacroiliac	a	Lower Limb
I	Shoulder	b	Whole Body
J	Shoulder Girdle	c	Multiple Regions
K	Upper Arm	d	Skin
L	Elbow	e	Nerve
M	Forearm	f	TMJ
N	Wrist	g	Face
O	Hand	h	Pelvic Floor
P	Finger	i	Bladder
Q	Thumb	j	Ribs
R	Hip	k	Coccyx
S	Thigh	l	Other

Waiting Times

Table 9 shows the median length of wait experienced by patients from their first consultation with their general practitioner to referral for physiotherapy. Waiting time is shown by period of rotation. The data is skewed by a minority of patients who consider that they have waited years to receive a consultation. The semi inter-quartile range however, indicates that the majority of patients are referred within six to seven weeks.

Table 9
Length of wait in weeks from consultation with GP to referral to physiotherapy by period of rotation. (all patients)

Rotation period	Median	SIQR	Minimum	Maximum	No
1	2.00	5	0	574	516
2	2.00	4	0	999	773
3	2.00	4	0	999	695

SIQR = Semi Inter-Quartile Range

Table 10 shows the median length of wait in weeks which patients experienced from being referred by their general practitioner or consultant to physiotherapy services to their commencement of physiotherapy treatment. Again figures are shown by period of rotation for all patients. The data indicates that the majority of patients were seen within 9.5 weeks in the first rotation period but this had significantly reduced to 7.5 weeks by rotation period 3.

Table 10
Length of wait in weeks from referral to commencement of physiotherapy treatment by period of rotation (all patients)

Rotation period	Median	SIQR	Minimum	Maximum	No.
1	4.00	5.5	0	23	748
2	4.00	4.5	0	42	1145
3	3.00	4.5	0	28	1178

SIQR = Semi Inter-Quartile Range

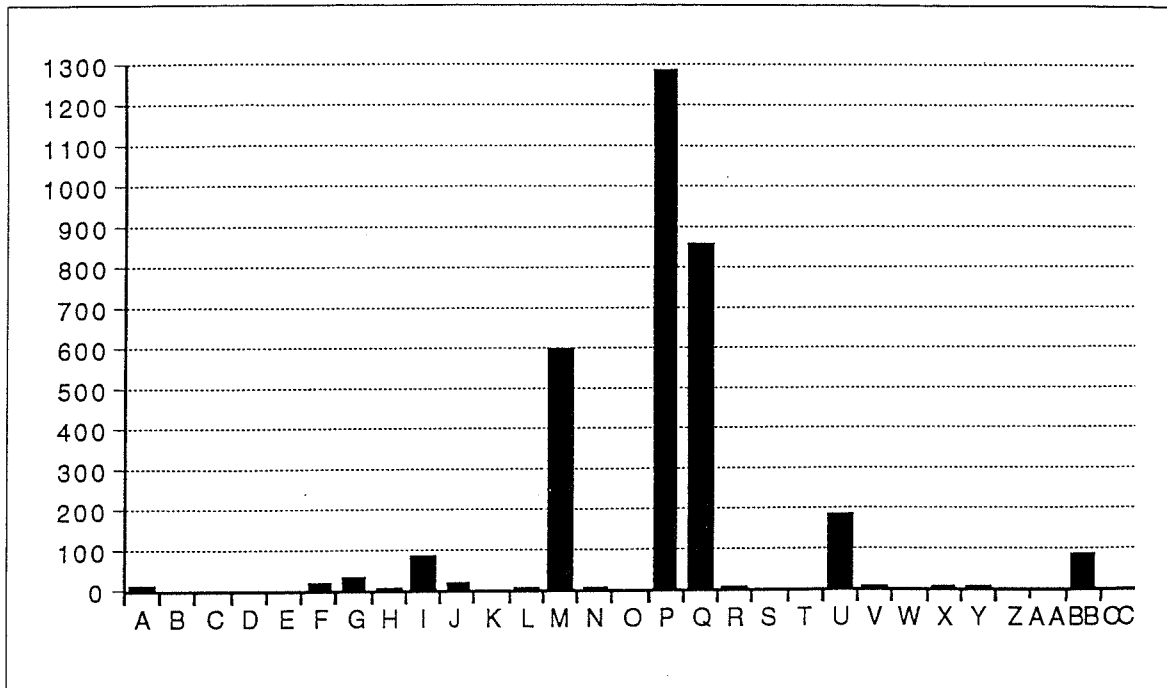
Reasons for Referral

The reasons for referral shown are those indicated on the physiotherapy referral letter or physiotherapy referral card as requested by general practitioners or consultants. As can be seen the most common reasons for referral are pain relief, followed by neuro-musculoskeletal dysfunction management and orthopaedic rehabilitation. See Table 11 over page.

Table 11
Frequency of reasons for referral by period of rotation.
(all patients)

Reason for referral	Period 1		Period 2		Period 3		TOTAL
	No	%	No	%	No	%	
Advice or assessment only	3	0.39	3	0.25	7	0.55	13
Cardiac rehabilitation	-	-	-	-	-	-	-
Boot clinic	-	-	-	-	-	-	-
Medical chest care	-	-	1	0.08	-	-	1
Developmental delay	-	-	-	-	-	-	-
Skin care	4	0.52	4	0.33	14	1.09	22
Urino genital	4	0.52	17	1.42	15	1.17	36
Surgical cases	-	-	2	0.17	2	0.16	4
Hydrotherapy	16	2.07	33	2.76	39	3.04	88
Surgical rehabilitation	4	0.52	10	0.84	6	0.47	20
Medical rehabilitation	1	0.13	1	0.08	1	0.08	3
Neuro rehabilitation	1	0.13	2	0.17	3	0.23	6
Orthopaedic rehabilitation	139	18.01	210	17.54	252	19.67	601
Co-ord/ Percep Problems	-	-	3	0.25	2	0.16	5
Palliative Care	2	0.26	1	0.08	-	-	3
Pain relief	327	42.36	495	41.35	463	36.14	1285
Neuro musculo skeletal	183	23.70	314	26.23	366	28.57	863
Maintenance	-	-	6	0.50	2	0.16	8
Lymphoedema	-	-	-	-	-	-	-
Provision of A.D.L.	-	-	-	-	-	-	-
Examine and Treat	58	7.51	58	4.85	71	5.54	187
Appliances only	4	0.52	1	0.08	1	0.08	6
Education patient/carers	-	-	-	-	-	-	-
Gait re-education	-	-	3	0.25	1	0.08	4
Posture assessment and re-education	-	-	2	0.17	3	0.23	5
Relaxation	1	0.13	-	-	-	-	1
Prophylaxis	-	-	2	0.17	1	0.08	3
Advice and Exercises	24	3.11	29	2.42	32	2.50	85
Other	1	0.13	-	-	-	-	1
TOTAL	772	100	1197	100	1281	100	3250
MISSING DATA	19		9		35		

Frequency of reasons for referral for the whole period is shown in *Figure 4*.



Frequency of reasons for referral
(for total period)

- A Advice or assessment only
- B Cardiac rehabilitation
- C Boot clinic
- D Medical chest care
- E Developmental delay
- F Skin care
- G Urino genital
- H Surgical cases
- I Hydrotherapy
- J Surgical rehabilitation
- K Medical rehabilitation
- L Neuro rehabilitation
- M Orthopaedic rehabilitation
- N Co-ord/ Percep Problems
- O Palliative Care
- P Pain relief
- Q Neuro musculo skeletal
- R Maintenance
- S Lymphoedema
- T Provision of A.D.L.
- U Examine and Treat
- V Appliances only
- W Education patient/carers
- X Gait re-education
- Y Posture assessment and re-education
- Z Relaxation
- AA Prophylaxis
- BB Advice and Exercises
- CC Other

Psychosocial Factors

The median weighting of psychosocial factors, together with the semi inter-quartile range is shown in Table 12. This table also indicates the maximum weighting of psychosocial factors was 22 but there were a few patients who experienced more than a weighting of 9. However, with median weightings ranging from 7 to 8 the majority of patients would have had psychosocial and/or physical factors which would have directly impacted on the physiotherapeutic process.

Table 12
Weighting of psycho-social factors by period of rotation (all patients)

Rotation period	Median	SIQR	Minimum	Maximum	No
1	7.00	1.5	0	20	706
2	8.00	1.0	2	21	1155
3	8.00	1.0	0	22	1216

SIQR = Semi Inter-Quartile Range

Assessment of Functional, Physical and Subjective Levels

Initial assessment of functional, physical and subjective levels by period of rotation is shown in Table 13. The assessment of expected functional, physical and subjective outcome levels is shown in Table 14 and the assessment of actual functional, physical and subjective outcomes is shown in Table 15.

Table 13
Initial Assessment of functional, physical and subjective outcome levels by period of rotation. (all patients)

Rotation period	Median	SIQR	Minimum	Maximum	No
1	8.00	1.00	1	10	699
2	8.00	1.25	2	10	1157
3	7.50	1.00	3	10	1213

SIQR = Semi Inter-Quartile Range

Table 14
Assessment of expected functional, physical and subjective outcome levels by period of rotation. (all patients)

Rotation period	Median	SIQR	Minimum	Maximum	No
1	9.00	0.25	2	10	698
2	9.00	0.50	5	10	1156
3	9.00	0.50	3	10	1212

SIQR = Semi Inter-Quartile Range

Table 15
Assessment of actual functional, physical and subjective outcome levels by period of rotation. (all patients)

Rotation period	Median	SIQR	Minimum	Maximum	No
1	9.00	0.75	3.0	10	646
2	9.00	0.75	3.0	10	1051
3	9.00	0.75	2.5	10	1091

SIQR = Semi Inter-Quartile Range

The assessment of expected functional outcome and the assessment of actual functional outcome are very closely associated. The majority of patients on completion of treatment were independent, able to work with some slight discomfort or dysfunction and had 80% - 90% of normal active physiological movement range available.

Outcome of Referral

The outcome of referral by period of rotation is shown in Table 16a. The most common outcome was: treatment completed and regular discharge for over 60% of subjects in each period. Approximately 11% of patients were referred back to their general practitioner or consultant.

Table 16a
Frequency of outcome of referral by period of rotation.
(all patients)

Outcome status	Period 1		Period 2		Period 3		TOTAL
	No	%	No	%	No	%	
Inappropriate referral	1	0.13	2	0.17	-	-	3
Treatment not commenced (department informed)	3	0.38	9	0.75	16	1.22	28
Treatment not commenced (DNA)	81	10.36	41	3.40	83	6.33	205
Treatment interrupted, dept. not informed (F.T.A)	44	5.63	109	9.05	109	8.31	262
Treatment interrupted, dept informed (U.T.A.+ self discharges)	21	2.69	64	5.31	64	4.88	149
Transferred within district	9	1.15	9	0.75	18	1.37	36
Transferred outside district	8	1.02	4	0.33	4	0.30	16
Assessment completed no Physiotherapy required	11	1.41	8	0.66	14	1.07	33
Assessment completed. Advice given + review	18	2.30	26	2.16	24	1.83	68
Treatment completed. Regular discharge	482	61.64	769	63.82	804	61.28	2055
Died	0	0.00	1	0.08	1	0.08	2
Referred back to GP/Consultant	84	10.74	137	11.37	154	11.74	375
Patient non compliant	2	0.26	2	0.17	2	0.15	6
Physiotherapy not effective	14	1.79	20	1.66	17	1.30	51
Other	4	0.51	4	0.33	2	0.15	10
TOTAL	782	100	1205	100	1312	100	3299
MISSING DATA	9		1		4		14

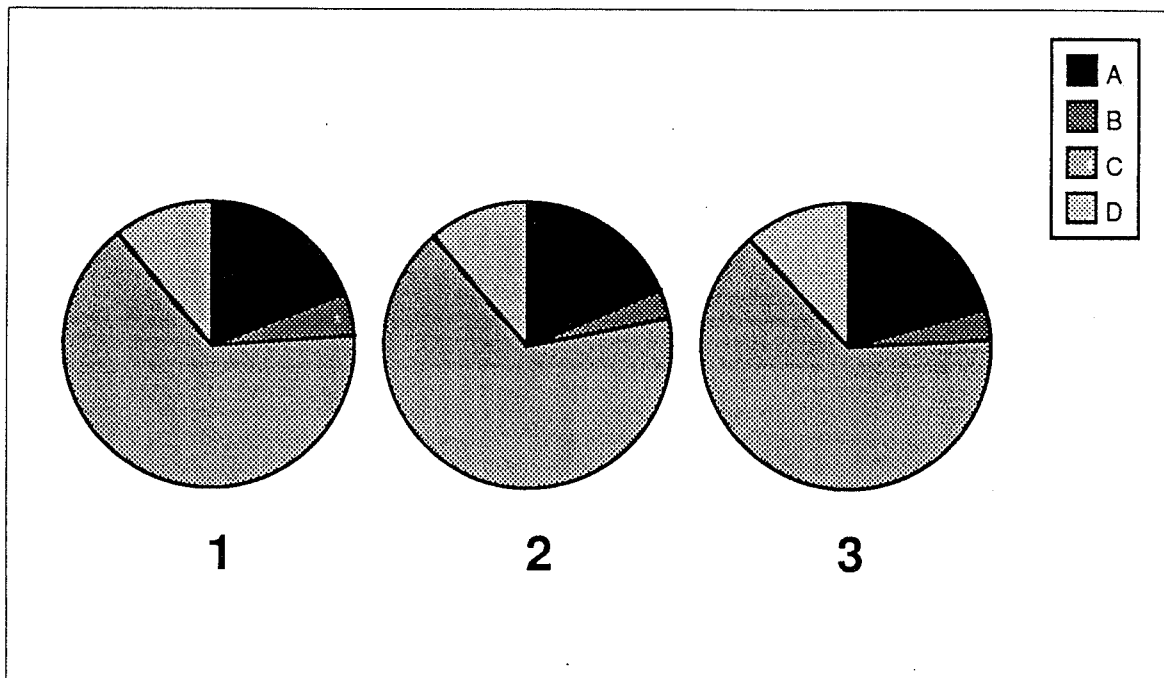
Table 16b however shows the percentage frequency of patients lost to the service because of inappropriate referral, non attendance or because patients ceased to attend.

Table 16b
Percentage frequency of patients lost to the service
by inappropriate referral, non attendance or ceased to attend.

Period 1	Period 2	Period 3
19.19	18.68	20.74

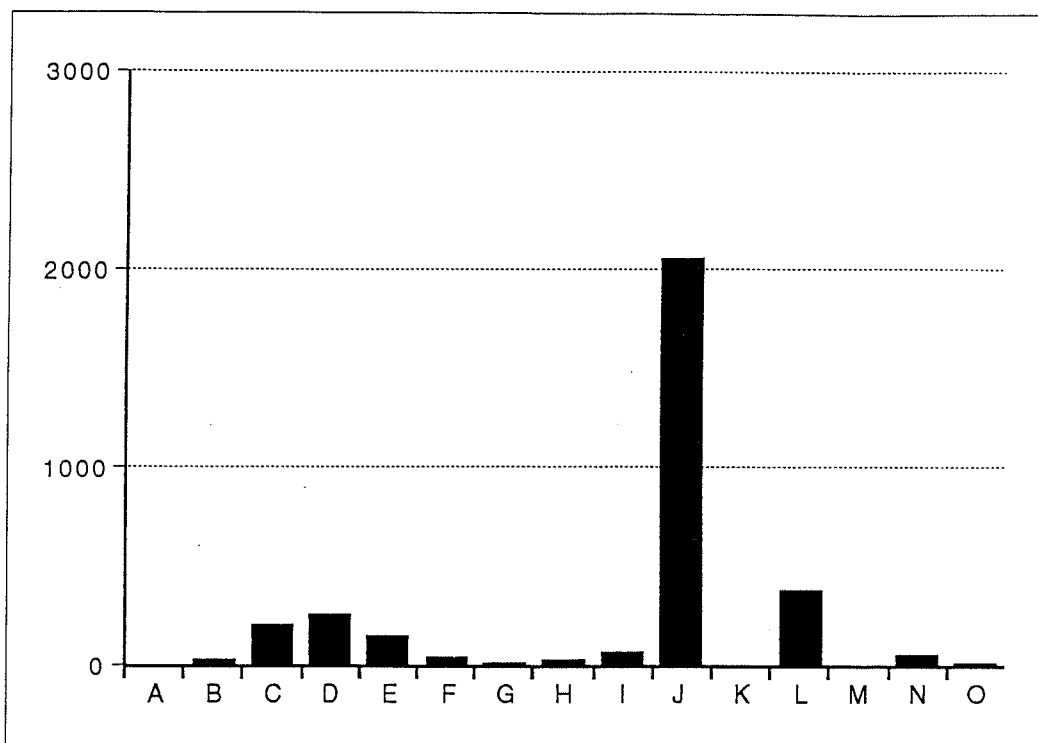
The frequency of grouped outcomes of referral is shown in *Figure 5* indicating the relatively large quantity of patients who were lost to the service for a variety of reasons.

Frequency of grouped outcomes of referral Periods 1 - 3



- A Inappropriate referral
Treatment not commenced (department informed)
Treatment not commenced (DNA)
Treatment interrupted, dept. not informed (F.T.A)
Treatment interrupted, dept informed (U.T.A.+ self discharges)
- B Transferred within district
Transferred outside district
Died
Patient non compliant
Physiotherapy not effective
Other
- C Assessment completed no Physiotherapy required
Assessment completed. Advice given + review
Treatment completed. Regular discharge
- D Referred back to GP/Consultant

And in addition the frequency of outcome of referral is shown in *Figure 6*.



Frequency of outcome of referral
(for total period)

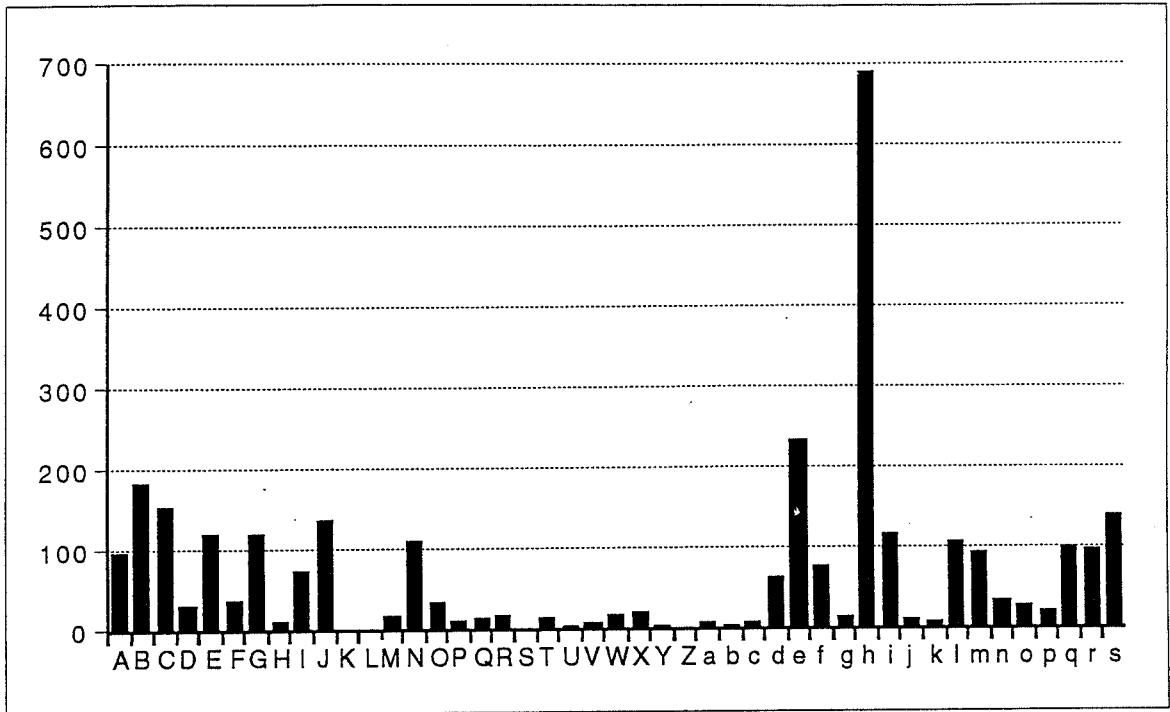
- | | |
|---|--|
| A | Inappropriate referral |
| B | Treatment not commenced (department informed) |
| C | Treatment not commenced (DNA) |
| D | Treatment interrupted, dept. not informed (F.T.A) |
| E | Treatment interrupted, dept informed (U.T.A.+ self discharges) |
| F | Transferred within district |
| G | Transferred outside district |
| H | Assessment completed no Physiotherapy required |
| I | Assessment completed. Advice given + review |
| J | Treatment completed. Regular discharge |
| K | Died |
| L | Referred back to GP/Consultant |
| M | Patient non compliant |
| N | Physiotherapy not effective |
| O | Other |

Use of Treatment Modalities

The modalities used by physiotherapy outpatient services are shown in Table 17, together with the frequency of use by each period of rotation for all patients. The most common modalities used during the pilot period were mobilisations, electrotherapy and passive/active exercises. However, it must be stressed that in most cases modalities are used in combination. The most common combination of treatment modalities used are mobilisations, active exercises and advice.

Modality	Period 1		Period 2		Period 3		TOTAL
	No	%	No	%	No	%	
Advice re self management or to carer	33	4.69	34	2.95	29	2.40	96
Interferential	33	4.69	75	6.50	74	6.13	182
S.W.D.	51	7.24	63	5.46	39	3.23	153
TENS	2	0.28	11	0.95	16	1.33	29
Ultrasound	35	4.97	59	5.11	26	2.15	120
Local heat (I.R. packs pad)	8	1.14	19	1.65	10	0.83	37
Active exercises	27	3.84	39	3.38	54	4.47	120
Passive exercise	3	0.43	4	0.35	2	0.17	9
Traction	27	3.84	17	1.47	31	2.57	75
Mobilisation/manipulation	27	3.84	53	4.59	56	4.64	136
Reflexology	1	0.14	-	-	-	-	1
Aromatherapy	-	-	-	-	-	-	-
Ice	3	0.43	10	0.87	4	0.33	17
Hydrotherapy	13	1.85	46	3.99	50	4.14	109
Wax	8	1.14	11	0.95	16	1.33	35
Faradism	3	0.43	3	0.26	3	0.25	9
Massage	5	0.71	3	0.26	7	0.58	15
Frictions	3	0.43	7	0.61	7	0.58	17
C.T. Massage	-	-	1	0.09	-	-	1
Strapping	1	0.14	4	0.35	7	0.58	12
Education	4	0.57	-	-	-	-	4
Appliance fitting	3	0.43	2	0.17	2	0.17	7
Ultra violet	-	-	4	0.35	13	1.08	17
Laser	1	0.14	10	0.87	10	0.83	21
P.N.F.	-	-	-	-	2	0.17	2
Electro diagnosis	-	-	1	0.09	-	-	1
Facilitatory/re-education techniques	1	0.14	2	0.17	5	0.41	8
Gait re-education	1	0.14	-	-	3	0.25	4
Re-education of Muscle imbalance	-	-	2	0.17	6	0.50	8
Neuro dynamic facilitation	10	1.42	20	1.73	33	2.73	63
Active exercises and advice	30	4.26	93	8.06	109	9.03	232
Mobilisations and active exercises	6	0.85	36	3.12	34	2.82	76
Frictions and Ultrasound and S.W.D.	5	0.71	1	0.09	7	0.58	13
Mobilisations, active exercises and advice	149	21.16	246	21.32	294	24.36	689
Mobilisations, traction and active exercises	31	4.40	51	4.42	36	2.98	118
Mobilisations and advice	-	-	5	0.43	4	0.33	9
Mobilisations, passive exercises and S.W.D.	1	0.14	2	0.17	3	0.25	6
Mobilisations, Ultrasound, S.W.D. and advice	28	3.98	42	3.64	36	2.98	106
S.W.D., active exercises, passive exercises and mobilisations	25	3.55	42	3.64	25	2.07	92
Active and passive exercises and advice	9	1.28	9	0.78	14	1.16	32
Mobilisations, S.W.D. and education	12	1.70	6	0.52	10	0.83	28
Re-education of muscle, active exercises, mobilisations and advice	8	1.14	3	0.26	8	0.66	19
Active exercises, education and advice	22	3.12	31	2.69	46	3.81	99
Mobilisations, advice and Ultrasound	34	4.83	30	2.60	34	2.89	98
S.W.D., active exercises and advice	41	5.82	57	4.94	42	3.48	140
TOTAL	704	100	1154	100	1207	100	3065
MISSING DATA	87		52		109		248

Frequency of treatment modality use for the total period is shown in *Figure 7*



Frequency of treatment modality
(for total period)

A	Advice re self management or to carer	Y	P.N.F.
B	Interferential	Z	Electro diagnosis
C	S.W.D.	a	Facilitatory/re-education techniques
D	TENS	b	Gait re-education
E	Ultrasound	c	Re-education of Muscle imbalance
F	Local heat (I.R. packs pad)	d	Neuro dynamic facilitation
G	Active exercises	e	Active exercises and advice
H	Passive exercise	f	Mobilisations and active exercises
I	Traction	g	Frictions and Ultrasound and S.W.D.
J	Mobilisation/manipulation	h	Mobilisations, active exercises and advice
K	Reflexology	i	Mobilisations, traction and active exercises
L	Aromatherapy	j	Mobilisations and advice
M	Ice	k	Mobilisations, passive exercises and S.W.D.
N	Hydrotherapy	l	Mobilisations, Ultrasound, S.W.D. and advice
O	Wax	m	S.W.D., active exercises, passive exercises and mobilisations
P	Faradism	n	Active and passive exercises and advice
Q	Massage	o	Mobilisations, S.W.D. and education
R	Frictions	p	Re-education of muscle, active exercises, mobilisations and advice
S	C.T. Massage	q	Active exercises, education and advice
T	Strapping	r	Mobilisations, advice and Ultrasound
U	Education	s	S.W.D., active exercises and advice
V	Appliance fitting		
W	Ultra violet		
X	Laser		

Effort Scores

Total effort scores are shown in Table 18 for each period of rotation. The median effort scores range from 22 to 24 for the 3 periods. The semi inter-quartile range is between 9.5 and 10.25 with an average number of approximately 5 treatments per patients seen, an approximate effort score of 4 per treatment session was the likely effort input per patient .

Table 18
Total effort scores by period of rotation. (all patients)

Rotation period	Median	SIQR	Minimum	Maximum
1	22.00	9.50	0	136
2	24.00	10.25	0	157
3	22.00	9.50	0	259

SIQR = Semi Inter-Quartile Range

Goal Achievement at Discharge

Goal achievements for all patients by period of rotation is shown in Table 19a a key is shown below (see Table 20). Table 19a shows the goal achievement. Column a. = the number of treatments taken and column b = goal achievement score which is shown on the key. Altogether the percentage of patients exceeding goals or fully achieving goals in 1 - 16 treatments was 59.58% for Period 1, 52.85% for Period 2 and 58.18% for Period 3. Altogether 34.61% of patients in Period 1 exceeded fully achieved or significantly achieved goals in 1 - 5 treatments, as did 27.41% in Period 2 and 34.01% in Period 3. The median goal achievement at discharge by period of rotation is shown in Table 19b

Table 19a

Goal achievement at discharge by period of rotation. (all patients)

Goal achievement	A	B	Period 1		Period 2		Period 3		TOTAL
			No	%	No	%	No	%	
Goals exceeded	1-5	1	50	7.66	54	5.12	84	7.72	188
	6-10	2	48	7.35	36	3.42	35	3.22	119
	11-15	3	10	1.53	6	0.57	10	0.92	26
	16+	4	5	0.77	8	0.76	10	0.92	23
Goals fully achieved	1-5	5	144	22.05	189	17.93	239	21.97	572
	6-10	6	102	15.62	192	18.22	169	15.53	463
	11-15	7	22	3.37	55	5.22	59	5.42	136
	16+	8	8	1.23	17	1.61	27	2.48	52
Goals significantly achieved	1-5	9	32	4.90	46	4.36	47	4.32	125
	6-10	10	60	9.19	101	9.58	89	8.18	250
	11-15	11	15	2.30	46	4.36	40	3.68	101
	16+	12	3	0.46	27	2.56	30	2.76	60
Goals partially achieved	1-5	13	26	3.98	37	3.51	44	4.04	107
	6-10	14	42	6.43	57	5.41	49	4.50	148
	11-15	15	13	1.99	33	3.13	25	2.30	71
	16+	16	3	0.46	21	1.99	24	2.21	48
Goals not achieved	1-5	17	31	4.75	57	5.41	40	3.68	128
	6-10	18	23	3.52	49	4.65	41	3.77	113
	11-15	19	6	0.92	11	1.04	7	0.64	24
	16+	20	2	0.31	3	0.28	9	0.83	14
other/worse	1-5	21	4	0.61	3	0.28	5	0.46	12
	6-10	22	2	0.31	4	0.38	1	0.09	7
	11-15	23	1	0.15	2	0.19	2	0.18	5
	16+	24	1	0.15	0	0	2	0.18	3
TOTAL			653	100	1054	100	1088	100	2795
MISSING DATA			138		152		228		518

Column A = Number of treatments taken

Column B = Goal achievement score

See key attached

Table 19b

Goal achievement at discharge by period of rotation.

Summary (all patients)

Rotation period	Median	SIQR	Minimum	Maximum	No
1	6.00	3.0	1	24	653
2	7.00	4.0	1	23	1054
3	6.00	3.5	0	24	1088

SIQR = Semi Inter-Quartile Range

Goal Achievement at Discharge (in terms of patient and therapist goal achievement)

Table 20

Note: goals should include pain, range of movement, function, patient's interpretation of subjective perceived improvement and the ability to work.

			Score
a.-	Goals exceeded	1 - 5	Treatments 1
		6 - 10	Treatments 2
		11 - 15	Treatments 3
		16+	Treatments 4

When the goal/outcomes expected at the initial assessment have been surpassed by the actual achievements attained by the patient, ie. symptom free, increased range of movement compared to other limb before incident, function better than before. Able to work fully.

b.-	Goals fully achieved	1 - 5	Treatments 5
		6 - 10	Treatments 6
		11 - 15	Treatments 7
		16+	Treatments 8

All goals/outcomes achieved to 100% i.e. symptom free, full range movement, no pain, function as before incident. 100% perceived improvement. If during assessment it is clear that advice only is needed or that the aim of intervention was to assess mobility and this is achieved then the goal is fully achieved. A non physiotherapy goal may be set e.g. to involve other agencies, if this is done then the goals are fully achieved. Also, if goal was to achieve 80% recovery at discharge, for the patient to achieve 100% recovery with appropriate home management strategy, then goals have been fully achieved.

c.-	Goals significantly achieved	1 - 5	Treatments 9
		6 - 10	Treatments 10
		11 - 15	Treatments 11
		16+	Treatments 12

When 50% or more of the agreed goals are achieved or the patient is half way to the expected outcome, i.e. there may be a 50% improvement in subjective and objective findings, one or more problems still present but are resolving slowly but majority of problems have already been resolved. Patient able to work in a restricted or modified way.

d.-	Goals partially achieved	1 - 5	Treatments 13
		6 - 10	Treatments 14
		11 - 15	Treatments 15
		16+	Treatments 16

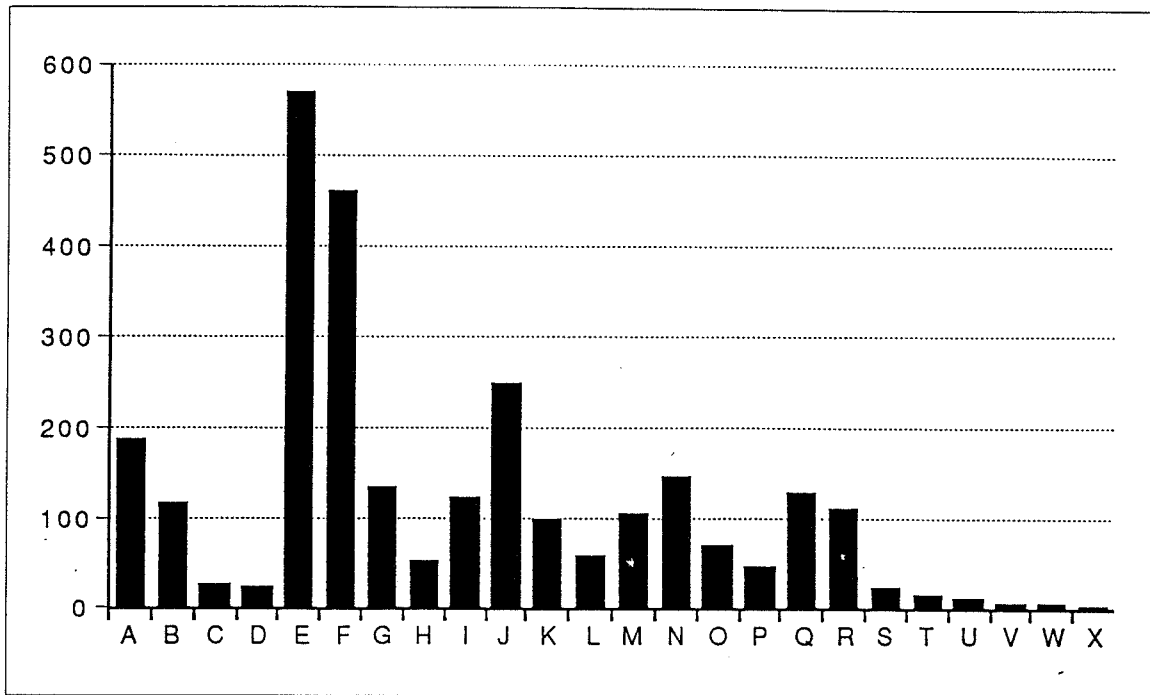
Less than 50% of the goals set achieved, there is minimal improvement of subject and/or objective findings based on the initial assessment, some problems still outstanding, some initial improvement which has failed to continue. Patient unable to work but will manage some domestic tasks and contemplate return to work in a highly modified way.

e.-	Goals not achieved	1 - 5	Treatments 17
		6 - 10	Treatments 18
		11 - 15	Treatments 19
		16+	Treatments 20

No change in the objective or subjective finding, inappropriate goals set and were not a measure of true potential, or when goals were not met due to influences outside the therapists control the reasons for this should be linked with the other factors and stated in the patient's notes. In all circumstances the signs and symptoms for this group of patients functions will have remained static. Patient unable to contemplate work.

f.-	Other ie. worse poor referral additional problems etc	1 - 5	Treatments 21
		6 - 10	Treatments 22
		11 - 15	Treatments 23
		16+	Treatments 24

Goal achievement at discharge for the total period is shown in *Figure 8*.



Goal achievement at discharge
(for total period)

A	Goals	1-5
B	exceeded	6-10
C		11-15
D		16+
E	Goals	1-5
F	fully	6-10
G	achieved	11-15
H		16+
I	Goals	1-5
J	significantly	6-10
K	achieved	11-15
L		16+
M	Goals	1-5
N	partially	6-10
O	achieved	11-15
P		16+
Q	Goals	1-5
R	not	6-10
S	achieved	11-15
T		16+
U	other/	1-5
V	worse	6-10
W		11-15
X		16+

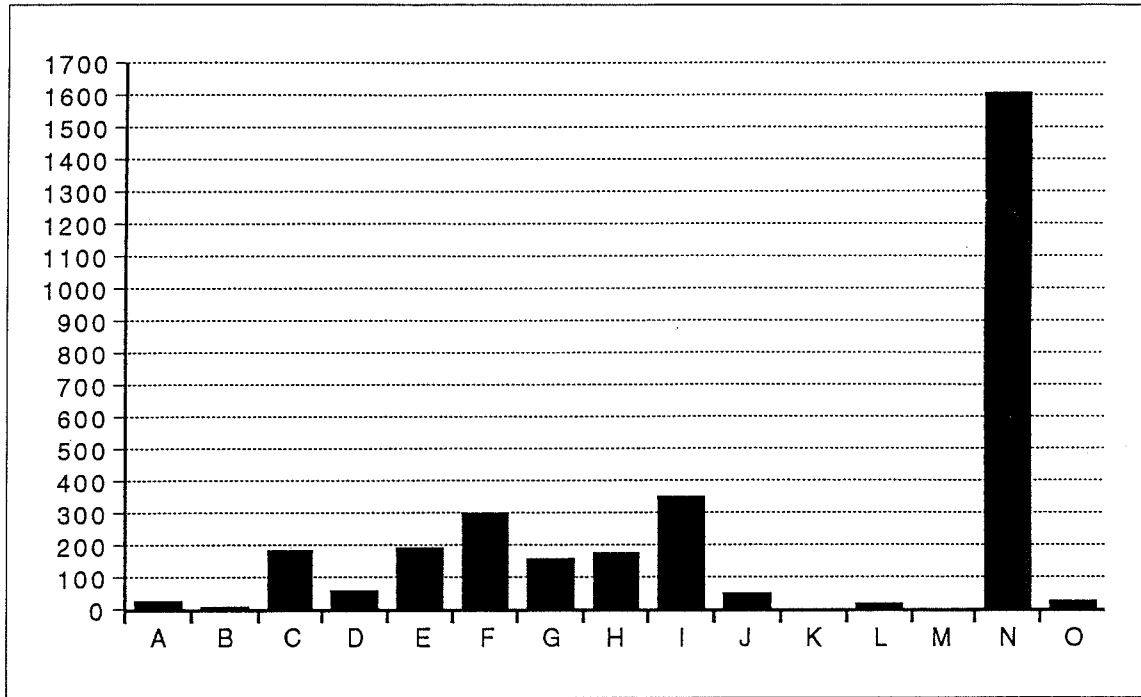
Other Factors Influencing Outcome

There were no other factors influencing outcome of treatment in approximately 50% of all patients but interestingly approximately 10% of all patients ceased to attend. Figures are shown in **Table 21**.

Table 21
Frequency of other factors influencing outcome
by period of rotation. (all patients)

Other factors	Period 1		Period 2		Period 3		TOTAL
	No	%	No	%	No	%	
Pain free at first visit	7	0.99	8	0.68	8	0.63	23
Inappropriate referral	3	0.42	3	0.25	2	0.16	8
Re-referred to consultant or GP	43	6.07	72	6.11	65	5.15	180
Other medical intervention	12	1.69	21	1.78	24	1.90	57
General state	32	4.52	80	6.79	81	6.42	193
Lifestyle influences	63	8.90	127	10.78	106	8.40	296
Other medical conditions	28	3.95	49	4.16	81	6.42	158
Time, natural progression	45	6.36	70	5.94	56	4.44	171
Ceased to attend	54	7.63	135	11.46	161	12.76	350
Requires educational advice only	20	2.82	20	1.70	12	0.95	52
Teamwork	-	-	1	0.08	2	0.16	3
Transfer	6	0.85	6	0.51	5	0.40	17
RIP	-	-	1	0.08	1	0.08	2
No other factors	390	55.08	574	48.73	647	51.27	1611
Exacerbation	5	0.71	11	0.93	11	0.87	27
TOTAL	708	100	1178	100	1262	100	3148
MISSING DATA	83		28		54		165

Other factors influencing outcome for the total period is shown in *Figure 9*.



Other factors influencing outcome
(for total period)

- | | |
|---|----------------------------------|
| A | Pain free at first visit |
| B | Inappropriate referral |
| C | Re-referred to consultant or GP |
| D | Other medical intervention |
| E | General state |
| F | Lifestyle influences |
| G | Other medical conditions |
| H | Time, natural progression |
| I | Ceased to attend |
| J | Requires educational advice only |
| K | Teamwork |
| L | Transfer |
| M | RIP |
| N | No other factors |
| O | Exacerbation |

Numbers of Treatments

Table 22 shows the median number of treatments per patient by period of rotation. The maximum number of treatments were very large for only a minority of patients. The majority of patients were treated within 8 or 9 treatments depending on the period of rotation. The median number of treatments ranged from 5 - 6 across the 3 periods.

Table 22
Median number of treatments per patient
by period of rotation. (all patients)

Rotation period	Median	SIQR	Minimum	Maximum	No
1	5.00	3.00	0	32	786
2	6.00	3.00	0	51	1205
3	5.50	3.00	0	64	1306

SIQR = Semi Inter-Quartile Range

Patient Perceived Pain, Function and Ability to Work

Patients perceived pain levels on first assessment and at discharge are shown in Tables 23 and Table 24. The figures indicate a median reduction in pain levels for each period.

Table 23
Patient perceived pain levels on first assessment
by period of rotation (all patients)

Rotation period	Median	SIQR	Minimum	Maximum	No
1	5.50	1.75	0	10	699
2	6.00	2.00	0	10	1146
3	6.00	2.00	0	10	1176

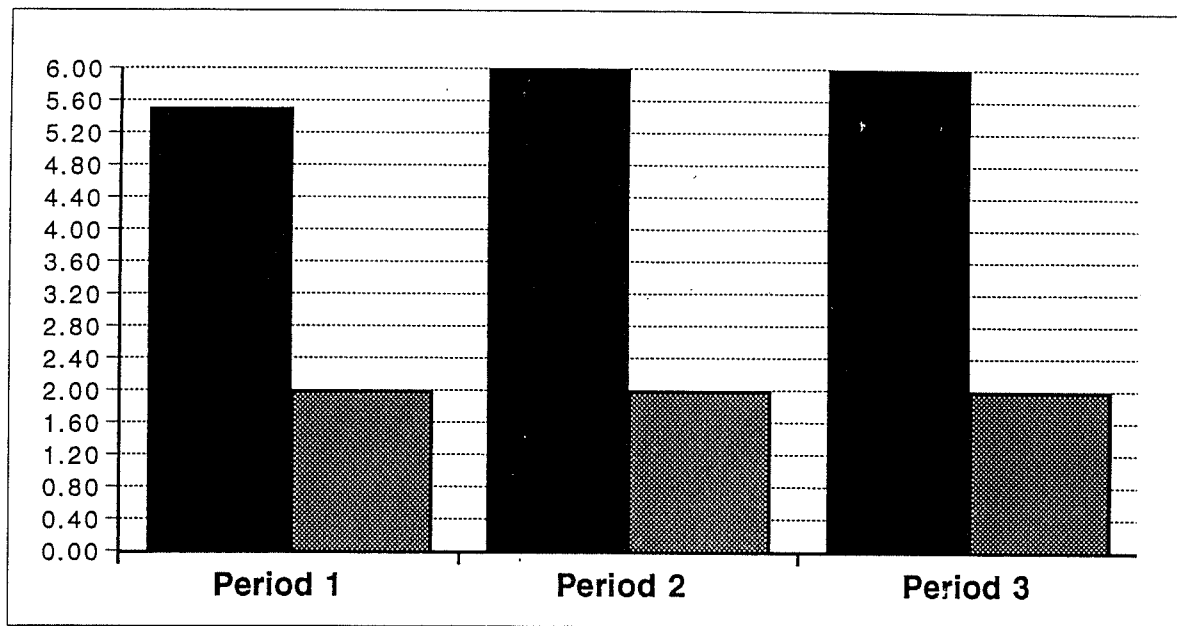
SIQR = Semi Inter-Quartile Range

Table 24
Patient perceived pain levels at discharge by period of rotation
(all patients)

Rotation period	Median	SIQR	Minimum	Maximum	No
1	2.00	1.75	0	10	602
2	2.00	1.50	0	10	697
3	2.00	1.50	0	10	962

SIQR = Semi Inter-Quartile Range

Figure 10 shows the comparison between perceived levels of pain on first assessment and at discharge for the 3 periods of rotation.



Median perceived pain levels



on first assessment



at discharge

Patient Perceived Functional Ability at first assessment and at discharge are shown in Table 25 and Table 26 showing a median increase in patients ability to function for each period.

Table 25
Patient perceived functional ability at first assessment by period (all patients)

Rotation period	Median	SIQR	Minimum	Maximum	No
1	7.00	2.00	0	10	693
2	7.00	2.00	0	10	1143
3	7.00	2.00	0	10	1175

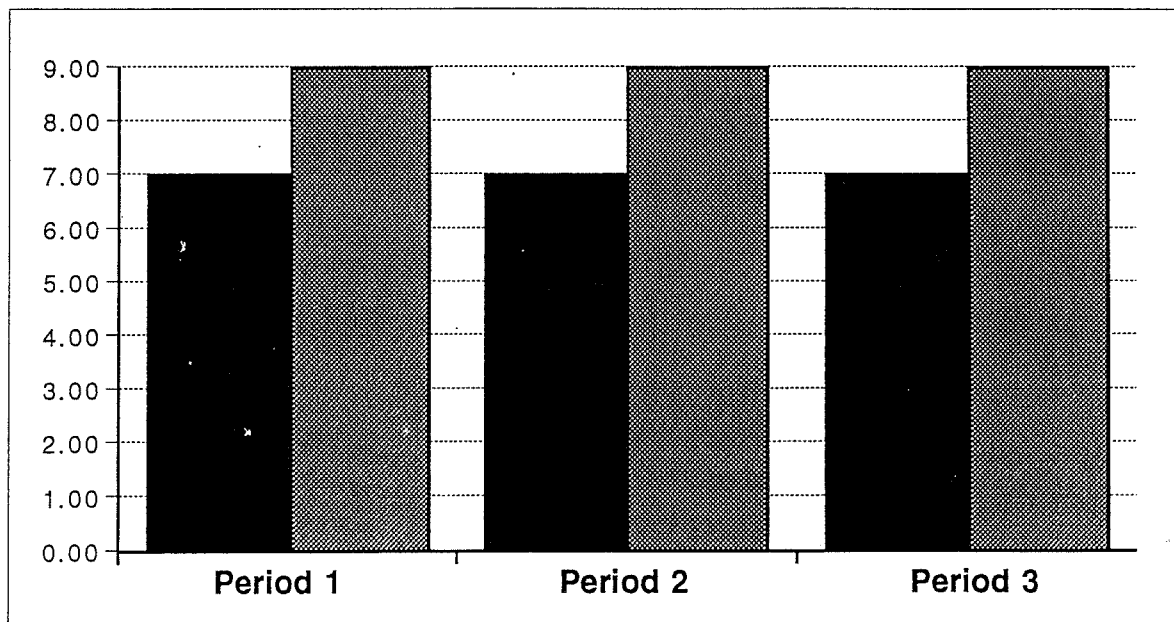
SIQR = Semi Inter-Quartile Range

Table 26
Patient perceived functional ability at discharge by period of rotation (all patients)

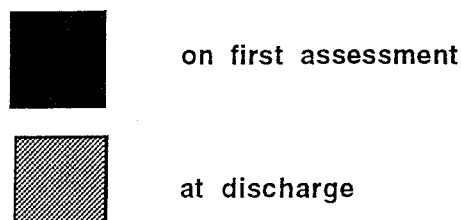
Rotation period	Median	SIQR	Minimum	Maximum	No
1	9.00	1.00	0	10	610
2	9.00	1.00	0	10	962
3	9.00	1.00	0	10	679

SIQR = Semi Inter-Quartile Range

Figure 11 shows the median perceived functional ability on first assessment and at discharge for the 3 periods of rotation.



Median perceived functional ability



Patients perceived ability to work on first assessment and at discharge are shown in Table 27 and Table 28 showing a median improvement in ability to work across the 3 periods.

Table 27
Patient perceived ability to work on first assessment
by period of rotation (all patients)

Rotation period	Median	SIQR	Minimum	Maximum	No
1	7.00	4.50	0	10	530
2	7.00	5.00	0	10	824
3	7.00	5.00	0	10	818

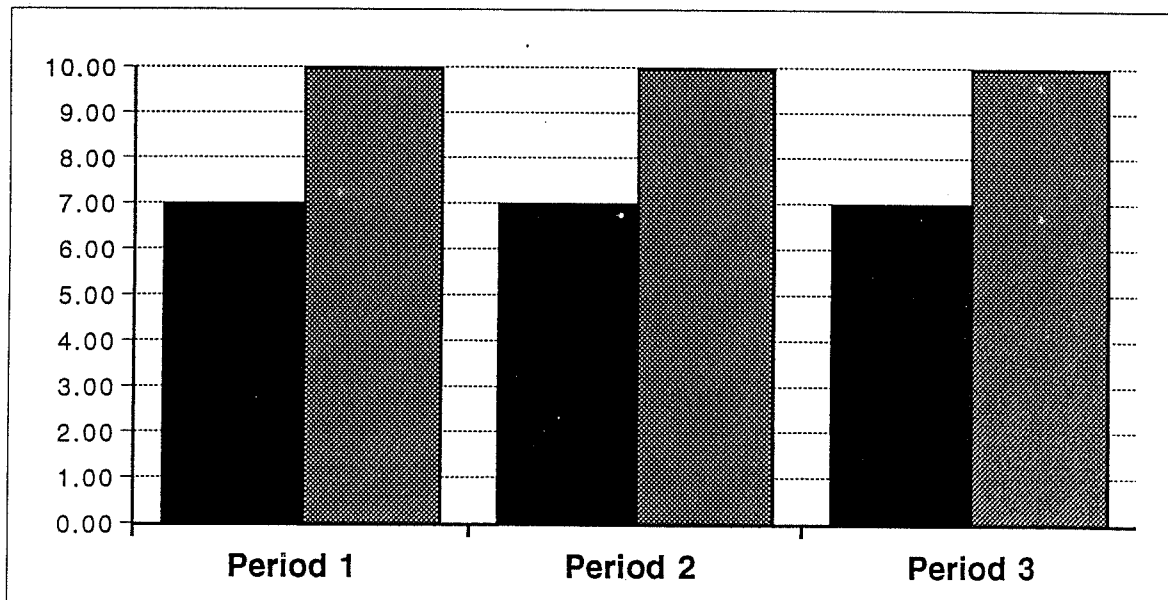
SIQR = Semi Inter-Quartile Range

Table 28
Patient perceived ability to work at discharge
by period of rotation (all patients)

Rotation period	Median	SIQR	Minimum	Maximum	No
1	10.00	1.00	0	10	462
2	10.00	1.50	0	10	680
3	10.00	1.00	0	10	680

SIQR = Semi Inter-Quartile Range

Figure 12 shows the comparison between the median perceived ability to work levels on first assessment and at discharge for the 3 periods of rotation.



Median perceived ability to work



on first assessment



at discharge

Outcome by Body Site

This section of the results describes in more detail outcomes related to the 5 most common body sites.

Number of Treatments

The numbers of treatments by most common body site for each period is shown in **Table 29**. Interestingly there was almost 100% rise in the number of patients seen with lumbar spine dysfunction from Period 1 to Period 2. Also the number of patients with cervical spine problems increased significantly, as did shoulder and knee problems. Also during the second period there was a slight increase in the median number of treatments from Period 1, apart from those given for the ankle region.

Table 29
Number of treatments by body site for periods 1-3

Period 1	No. of patients	Median	SIQR	Minimum	Maximum
Lumbar spine & referral	115	6.00	2.5	0	32
Cervical spine & referral	90	6.00	2.0	0	21
Knee	105	5.00	2.5	0	23
Shoulder	68	6.00	2.5	0	15
Ankle	41	5.00	2.0	2	19

Period 2	No. of patients	Median	SIQR	Minimum	Maximum
Lumbar spine & referral	225	8.00	3.5	0	25
Cervical spine & referral	152	7.00	2.5	0	25
Knee	159	6.00	3.0	0	29
Shoulder	107	7.00	2.5	0	38
Ankle	63	5.00	2.0	0	40

Period 3	No. of patients	Median	SIQR	Minimum	Maximum
Lumbar spine & referral	226	6.00	3.1	0	45
Cervical spine & referral	156	7.00	2.9	0	53
Knee	103	6.00	3.0	0	32
Shoulder	178	5.00	2.5	0	64
Ankle	69	6.00	3.0	0	26

Body Site by Outcome of Referral

Table 30 shows the body site by outcome of referral of the 5 main body sites treated. Treatment completed and regular discharge was the most common outcome. Patients most frequently referred back to general practitioners and consultants were those with lumbar spine problems with referral of pain. Figures were similar for knee joint problems with the percentage not quite so great with cervical spine dysfunction sufferers.

Interestingly also there were a high proportion of patients who interrupted their treatment, particularly those with lumbar spine, knee and ankle problems.

Table 30
Body site by outcome of referral. Periods 1-3

	C. spine & referral						L. spine & referral						Shoulder						Knee						Ankle					
	Period 1		Period 2		Period 3		Period 1		Period 2		Period 3		Period 1		Period 2		Period 3		Period 1		Period 2		Period 3		Period 1		Period 2		Period 3	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	0	0.0	0	0.0	0	0.0	2	0.9	0	0.0	1	1.5	0	0.0	2	1.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.6	1	1.4
3	5	5.6	1	0.7	4	2.6	8	6.9	3	1.3	3	1.3	4	5.9	2	1.9	6	5.8	9	8.6	3	1.9	7	3.9	1	2.5	0	0.0	0	0.0
4	5	5.6	12	7.9	9	5.8	13	11.2	16	7.1	26	11.5	1	1.5	11	10.3	5	4.8	12	11.4	17	10.6	17	9.4	3	7.5	6	9.5	11	15.9
5	2	2.2	9	5.9	6	3.8	8	6.9	13	5.8	13	5.8	1	1.5	7	6.5	8	7.7	2	1.9	9	5.6	17	9.4	0	0.0	2	3.2	1	1.4
6	0	0.0	0	0.0	1	0.6	0	0.0	2	0.9	5	2.2	0	0.0	0	0.0	0	0.0	1	1.0	3	1.9	5	2.8	1	2.5	1	1.6	0	0.0
7	1	1.3	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0	1	1.5	0	0.0	1	1.0	1	1.0	0	0.0	1	0.6	1	2.5	0	0.0	1	1.4
8	0	0.0	1	0.7	2	1.3	2	1.7	1	0.4	1	0.4	0	0.0	0	0.0	2	1.9	2	1.9	3	1.9	2	1.1	0	0.0	0	0.0	0	0.0
9	1	1.3	6	3.9	0	0.0	2	1.7	5	2.2	6	2.7	2	2.9	1	0.9	2	1.9	3	2.9	2	1.2	6	3.3	0	0.0	1	1.6	1	1.4
10	62	70.4	105	69.1	112	71.8	57	49.1	137	61.2	138	61.1	48	70.6	75	70.1	66	63.5	62	59.0	91	56.9	90	49.7	29	72.5	47	74.6	47	68.1
11	0	0.0	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	10	11.4	15	9.9	19	12.2	21	18.1	36	16.1	30	13.3	8	11.8	11	10.3	10	9.6	11	10.5	28	17.5	34	18.8	5	12.5	2	3.2	7	10.1
13	0	0.0	1	0.7	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0	0	0.0	1	1.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	2	2.2	1	0.7	3	1.9	4	3.4	6	2.7	4	1.8	1	1.5	0	0.0	2	1.9	0	0.0	3	1.9	1	0.6	0	0.0	3	4.8	0	0.0
15	0	0.0	1	0.7	0	0.0	1	0.9	0	0.0	0	0.0	1	1.5	0	0.0	0	0.0	1	1.0	1	0.6	1	0.6	0	0.0	0	0.0	0	0.0
	88	100	152	100	156	100	116	100	224	100	226	100	68	100	107	100	104	100	105	100	160	100	181	100	40	100	63	100	69	100

- 1 Inappropriate referral
- 2 Treatment not commenced (department informed)
- 3 Treatment not commenced (department not informed)
- 4 Treatment interrupted
- 5 Treatment interrupted (department informed)
- 6 Transferred in district
- 7 Transferred outside district
- 8 Assessment only no PT required
- 9 Assessment, advice & review
- 10 Treatment completed, regular discharge
- 11 Died
- 12 Refer to GP/consultant
- 13 Patient not compliant
- 14 PT not effective
- 15 Other

Goal Achievement at Discharge by Most Common Body Site

Table 31 and Table 32, Table 33, Table 34 and Table 35 show the goal achievement at discharge for each of the most common body sites in turn. See Table 20 on Page 36 for Key

Table 31 indicates the largest percentage of patients fully achieved their goals in 6 - 10 treatments. The majority of patients had significantly achieved, full achieved or exceeded their goals at the time of discharge. In Period 1 35.8% had significantly achieved, fully achieved or exceeded their goals in 1 - 5 treatments. In Period 2 24.84% had significant goal achievement or above in 1 - 5 treatments and in Period 3 the figure was 24.47%.

Table 31
A - Goal achievement at discharge by most common body sites. Periods 1-3 (Cervical spine and referral)

Goal achievement score	Period 1		Period 2		Period 3	
	No.	%	No.	%	No.	%
1	9	11.11	6	4.26	7	5.04
2	7	8.64	6	4.26	8	5.76
3	2	2.47	2	1.42	3	2.16
4	0	0.00	2	1.42	1	0.72
5	14	17.28	21	14.89	23	16.55
6	18	22.22	31	21.99	24	17.27
7	2	2.47	8	5.67	9	6.47
8	1	1.23	0	0.00	5	3.60
9	6	7.41	8	5.67	4	2.88
10	7	8.64	17	12.06	17	12.23
11	1	1.23	6	4.26	3	2.16
12	0	0.00	0	0.00	4	2.88
13	1	1.23	2	1.42	2	1.44
14	3	3.70	8	5.67	8	5.76
15	2	2.47	4	2.84	4	2.88
16	0	0.00	4	2.84	2	1.44
17	4	4.94	7	4.96	5	3.60
18	3	3.70	5	3.55	6	4.32
19	1	1.23	3	2.13	1	0.72
20	0	0.00	0	0.00	1	0.72
21	0	0.00	0	0.00	1	0.72
22	0	0.00	1	0.71	0	0.00
23	0	0.00	0	0.00	1	0.72
24	0	0.00	0	0.00	0	0.00
TOTAL	81	100	141	100	139	100

See key on page 36

For the lumbar spine see Table 32. 29.16% achieved significant goal achievement or above in Period 1, whilst 21% achieved similarly in Period 2 and 32.5% achieved their goals significantly or above in Period 3.

Table 32
B - Goal achievement at discharge by most common body sites. Periods 1-3 (Lumbar spine and referral)

Goal achievement score	Period 1		Period 2		Period 3	
	No.	%	No.	%	No.	%
1	7	7.29	12	6.00	22	11.00
2	5	5.21	7	3.50	11	5.50
3	1	1.04	1	0.50	1	0.50
4	2	2.08	0	0.00	0	0.00
5	18	18.75	24	12.00	36	18.00
6	9	9.37	36	18.00	29	14.50
7	4	4.17	13	6.50	13	6.50
8	2	2.08	5	2.50	5	2.50
9	3	3.12	6	3.00	7	3.50
10	6	6.25	16	8.00	12	6.00
11	3	3.12	12	6.00	8	4.00
12	1	1.04	8	4.00	6	3.00
13	4	4.17	7	3.50	2	1.00
14	7	7.29	11	5.50	12	6.00
15	2	2.08	7	3.50	10	5.00
16	0	0.00	4	2.00	3	1.50
17	10	10.42	8	4.00	11	5.50
18	5	5.21	16	8.00	5	2.50
19	3	3.12	1	0.50	2	1.00
20	0	0.00	2	1.00	2	1.00
21	1	1.04	1	0.50	2	1.00
22	1	1.04	1	0.50	0	0.00
23	1	1.04	2	1.00	1	0.50
24	1	1.04	0	0.00	0	0.00
TOTAL	96	100	200	100	200	100

See key on page 36

For the shoulder, shown in Table 33 percentages of patients achieving significant goal achievement, fully achieving goals and exceeding goals were 23.33% for Period 1, 23.96% for Period 2 and 34.12% for Period 3.

Table 33
C - Goal achievement at discharge by most common body sites. Periods 1-3 (Shoulder)

Goal achievement score	Period 1		Period 2		Period 3	
	No.	%	No.	%	No.	%
1	5	8.33	4	4.17	8	9.41
2	4	6.67	3	3.12	2	2.35
3	3	5.00	0	0.00	0	0.00
4	0	0.00	1	1.04	1	1.18
5	7	11.67	13	13.54	18	21.18
6	13	21.67	19	19.79	20	23.53
7	2	3.33	3	3.12	8	9.41
8	0	0.00	2	2.08	0	0.00
9	2	3.33	6	6.25	3	3.53
10	6	10.00	12	12.50	3	3.53
11	0	0.00	6	6.25	2	2.35
12	0	0.00	1	1.04	4	4.71
13	5	8.33	2	2.08	0	0.00
14	6	10.00	7	7.29	4	4.71
15	2	3.33	5	5.21	1	1.18
16	0	0.00	1	1.04	1	1.18
17	2	3.33	5	5.21	2	2.35
18	2	3.33	5	5.21	8	9.41
19	0	0.00	1	1.04	0	0.00
20	0	0.00	0	0.00	0	0.00
21	1	1.67	0	0.00	0	0.00
22	0	0.00	0	0.00	0	0.00
23	0	0.00	0	0.00	0	0.00
24	0	0.00	0	0.00	0	0.00
TOTAL	60	100	96	100	85	100

See key on page 36

Figures for goal achievement by patients with knee problems are shown in Table 34 . Again the scores for significantly achieving goals, fully achieving goals and exceeding goals can be summarised as follows: 34.09% for Period 1, 29.32% for Period 2 and 37.74% for period 3.

Table 34
D - Goal achievement at discharge by most
common body sites. Periods 1-3
(Knee)

Goal achieve- ment score	Period 1		Period 2		Period 3	
	No.	%	No.	%	No.	%
1	5	5.68	7	5.19	12	7.94
2	8	9.09	6	4.44	4	2.65
3	1	1.14	1	0.74	0	0.00
4	1	1.14	0	0.00	3	1.99
5	21	23.86	32	23.70	41	27.15
6	15	17.05	25	18.52	16	10.60
7	2	2.27	7	5.19	9	5.96
8	1	1.14	3	2.22	2	1.32
9	4	4.55	2	1.48	4	2.65
10	8	9.09	6	4.44	13	8.61
11	4	4.55	7	5.19	6	3.97
12	0	0.00	3	2.22	2	1.32
13	3	3.41	3	2.22	11	7.28
14	8	9.09	8	5.93	4	2.65
15	1	1.14	2	1.48	1	0.66
16	0	0.00	3	2.22	7	4.64
17	4	4.55	12	8.89	6	3.97
18	1	1.14	4	2.96	5	3.31
19	0	0.00	3	2.22	1	0.66
20	0	0.00	0	0.00	0	0.00
21	0	0.00	0	0.00	2	1.32
22	1	1.14	1	0.74	1	0.66
23	0	0.00	0	0.00	0	0.00
24	0	0.00	0	0.00	1	0.66
TOTAL	88	100	135	100	151	100

See key on page 36

For patients with ankle problems figures given in Table 35 indicate that significant goal achievement and above was achieved by 37.84% in Period 1, 34.48% in Period 2 and 34.48% in Period 3.

Table 35
E - Goal achievement at discharge by most
common body sites. Periods 1-3
(Ankle)

Goal acheive- ment score	Period 1		Period 2		Period 3	
	No.	%	No.	%	No.	%
1	3	8.11	5	6.90	4	6.90
2	1	2.70	2	3.45	3	5.17
3	0	0.00	1	1.72	1	1.72
4	0	0.00	0	0.00	2	3.45
5	9	24.32	15	25.86	13	22.41
6	4	10.81	11	18.97	17	29.31
7	4	10.81	3	5.17	3	5.17
8	0	0.00	0	0.00	0	0.00
9	2	5.41	1	1.72	3	5.17
10	3	8.11	7	12.07	2	3.45
11	0	0.00	1	1.72	2	3.45
12	1	2.70	0	0.00	0	0.00
13	3	8.11	4	6.90	2	3.45
14	2	5.41	3	5.17	0	0.00
15	0	0.00	1	1.72	1	1.72
16	0	0.00	1	1.72	0	0.00
17	1	2.70	2	3.45	3	5.17
18	3	8.11	1	1.72	1	1.72
19	1	2.70	0	0.00	0	0.00
20	0	0.00	0	0.00	1	1.72
21	0	0.00	0	0.00	0	0.00
22	0	0.00	1	1.72	0	0.00
23	0	0.00	0	0.00	0	0.00
24	0	0.00	0	0.00	0	0.00
TOTAL	37	100	58	100	58	100

See key on page 36

Summary for goal achievement at discharge by body site is shown in Table 36.

Table 36
Goal achievement at discharge by body sites.
Summary. Periods 1-3

Cervical spine and referral

Rotation period	Median	SIQR	Minimum	Maximum	No
1	6.00	2.50	1	19	81
2	7.00	4.00	1	22	141
3	7.00	3.50	1	23	139

Lumbar spine and referral

Rotation period	Median	SIQR	Minimum	Maximum	No
1	8.50	4.90	1	24	96
2	9.00	4.00	1	23	200
3	7.00	3.90	0	23	200

Shoulder

Rotation period	Median	SIQR	Minimum	Maximum	No
1	6.00	4.00	1	21	60
2	9.00	3.90	1	19	96
3	6.00	3.00	1	18	85

Knee

Rotation period	Median	SIQR	Minimum	Maximum	No
1	6.00	2.90	1	22	88
2	6.00	4.00	1	22	135
3	6.00	4.00	0	24	151

Ankle

Rotation period	Median	SIQR	Minimum	Maximum	No
1	7.00	4.00	1	19	37
2	6.00	2.60	1	22	58
3	6.00	2.00	1	20	58

Waiting Time in Weeks from Referral to Commencement of Physiotherapy by Most Common Body Sites

Figures are given in Table 37. Noticeably, patients with ankle dysfunction seem to wait a shorter time to commence physiotherapy than do patients with other conditions.

Table 37
Waiting time in weeks from referral to commencement of physiotherapy
by most common body site. Periods 1-3

	Cervical spine and referral			Lumbar spine and referral			Shoulder			Knee			Ankle		
	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3
No.	89	147	150	112	215	220	62	104	98	99	150	163	40	55	56
Median	4.00	4.00	5.00	3.00	4.00	5.00	4.00	4.00	4.00	4.00	3.00	2.00	2.00	3.00	1.00
SIQR	3.75	5.00	4.00	7.25	4.00	5.25	8.25	4.50	4.00	6.00	5.30	1.25	7.33	2.50	0.75
Minimum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum	20	27	24	22	42	26	26	21	23	23	34	6	15.5	20	24

Secondary Diagnosis by Waiting Time from Referral to Commencement of Physiotherapy Treatment

The three most common secondary diagnoses are shown in Table 38, together with the median length of waiting time in weeks. The table indicates that patients with traumatic conditions have a median waiting time of one week, the majority being seen within 2 weeks.

Table 38
Most common secondary diagnosis by length of wait in weeks
from referral to commencement of physiotherapy treatment. Periods 1-3

	Neuro musculo skeletal			Traumatic			Degenerative		
	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3
No.	232	430	445	192	287	309	149	223	226
Median	6.00	5.00	4.00	1.00	1.00	1.00	4.50	6.00	8.00
SIQR	6.00	5.00	5.00	1.00	1.00	1.00	5.00	4.50	5.00
Minimum	0	0	0	0	0	0	0	0	0
Maximum	21	27	26	20	42	23	23	24	25

Length of Wait in Weeks from Consultation to Referral for Physiotherapy by Outcome of Referral

Noticeably the few patients who had a median waiting time of 16 weeks appeared to be non compliant with therapy and it was worrying to note that 2 patients who had a median waiting time of 53 weeks were actually inappropriate referrals as shown in Table 39.

Table 39
Length of wait in weeks from consultation to referral
for physiotherapy by outcome of referral. Periods 1-3

Outcome	Period 1			Period 2			Period 3		
	No.	Median	SIQR	No.	Median	SIQR	No.	Median	SIQR
Inappropriate referral	1	1.0	*	2	53	*	0	0.0	*
Treatment not commenced (department informed)	0	0.0	0.00	0	*	*	1	2.0	*
Treatment not commenced (department not informed)	12	3.0	6.25	5	6	12.50	1	6.0	*
Treatment interrupted (department informed)	32	6.0	29.50	66	1	4.00	49	3.0	3.00
Treatment interrupted (department not informed)	14	3.5	11.00	48	2.5	2.50	41	2.0	9.00
Transferred in district	5	0.0	10.50	7	12	24.00	9	0.0	6.00
Transferred outside district	5	2.0	20.00	2	8	5.63	3	0.0	0.00
Assessment only no PT required	7	1.0	20.00	6	3	1.62	11	6.0	5.50
Assessment, advice & review	14	1.0	6.25	18	1.5	4.00	17	0.0	0.75
Treatment completed, regular discharge	340	2.0	4.00	500	2	4.12	454	2.0	3.50
Died	0	0.0	0.00	1	1	*	0	*	*
Refer to GP/consultant	67	2.0	6.50	102	2	21.50	93	4.0	4.00
Patient not compliant	2	2.0	*	1	16	*	2	16.0	*
PT not effective	10	1.5	9.00	12	4	*	13	8.0	12.50
Other	1	0.0	*	2	1.5	*	1	0.0	*

* Missing data

Length of Wait in Weeks from Consultation to Referral for Physiotherapy by Goal Achievement

Those who had been waiting 7 weeks or more for referral tended to need more treatments in order to achieve their goals. The few patients who had waited 28 weeks or more tended to fall into category F of the goal achievement scale (see Table 20) indicating they were either worse or had additional problems as shown in Table 40.

Table 40
Length of wait in weeks from consultation to referral for physiotherapy by goal achievement. Periods 1-3

Goal achievement score	Period 1			Period 2			Period 3		
	No.	Median	SIQR	No.	Median	SIQR	No.	Median	SIQR
1	40	3.0	8.75	42	2.0	3.90	54	0.0	3.00
2	32	2.5	4.75	25	4.0	13.00	23	3.0	6.00
3	9	0.0	2.75	4	26.0	61.25	6	0.0	1.75
4	5	7.0	76.50	7	0.0	0.50	4	4.0	4.35
5	95	1.0	4.00	120	2.0	4.00	135	2.0	3.00
6	71	1.0	3.00	130	2.0	3.12	101	4.0	4.00
7	13	4.0	5.00	38	6.5	8.90	33	1.0	2.00
8	6	0.0	2.40	13	1.0	4.25	18	0.0	1.60
9	25	1.0	8.25	26	2.0	3.60	26	0.0	3.00
10	42	3.5	5.00	74	3.2	3.60	47	2.0	4.00
11	15	1.0	10.00	29	2.0	5.80	26	4.0	3.25
12	2	13.0	*	16	3.5	8.10	14	6.5	4.40
13	17	1.0	5.50	15	1.0	3.00	19	3.0	3.00
14	28	2.0	3.00	38	2.5	3.60	32	3.5	5.50
15	7	12.0	12.30	17	4.0	4.00	11	4.0	2.50
16	1	0.0	*	10	2.0	1.90	14	0.5	2.25
17	22	4.0	12.20	41	4.0	10.50	27	4.0	4.50
18	19	3.0	8.00	35	3.0	6.00	16	3.5	4.00
19	6	2.0	3.75	8	1.2	1.90	5	6.0	5.25
20	2	0.5	*	1	2.0	*	7	3.0	4.00
21	3	0.0	1.50	1	6.0	*	3	0.0	0.00
22	2	2.0	*	4	28.0	22.50	0	*	*
23	1	3.0	*	1	78.0	*	2	2.0	*
24	1	2.0	*	-	-	-	1	9.0	*

* Missing date
 See key on page

Psychosocial Factor Index by Goal Achievement

The data is shown in Table 41. It is noticeable (although numbers are small) that those patients with a higher psychosocial factor index take longer to treat, i.e. 16+ treatments or have a poor outcome to therapy, i.e. worsen as a result of treatment or in spite of treatment.

Table 41
Psycho social factor index by goal achievement. Periods 1-3

Goal achieve- ment score	Period 1			Period 2			Period 3		
	No.	Median	SIQR	No.	Median	SIQR	No.	Median	SIQR
1	50	7.0	1.00	54	7.0	1.12	81	7.0	1.00
2	48	8.0	1.50	35	8.0	2.00	35	8.0	1.00
3	9	8.0	0.25	6	10.0	1.87	10	7.5	1.00
4	5	8.0	1.50	8	8.5	0.88	10	11.0	1.90
5	143	7.0	1.00	188	7.0	1.00	239	7.0	1.00
6	102	8.0	1.00	191	8.0	1.00	169	7.0	1.00
7	22	8.0	1.00	55	8.0	2.00	59	8.0	1.00
8	8	7.5	0.75	17	8.0	1.75	27	8.0	1.00
9	30	7.0	1.40	46	8.0	1.00	47	7.0	1.50
10	60	7.0	1.13	100	7.0	1.00	89	8.0	1.00
11	15	8.0	1.00	46	8.0	1.00	40	8.0	1.90
12	3	8.0	1.50	27	9.0	2.00	30	8.5	1.10
13	26	7.5	1.00	37	7.0	1.50	44	8.0	1.00
14	42	7.0	1.63	57	7.0	1.00	49	8.0	1.00
15	13	7.0	1.06	32	8.0	1.38	25	8.0	1.50
16	3	8.0	2.75	21	8.0	1.75	24	9.5	2.00
17	31	8.0	3.00	56	8.0	1.88	40	9.0	1.50
18	23	8.0	2.00	48	9.0	1.38	41	9.0	1.50
19	6	8.5	1.50	11	8.0	1.50	7	7.0	1.00
20	2	8.0	1.88	3	8.0	2.50	9	8.0	1.80
21	4	6.5	*	3	11.0	1.50	5	11.0	2.30
22	2	8.5	1.25	4	9.0	2.50	1	8.0	*
23	1	9.0	*	2	11.0	*	2	8.5	*
24	1	14.0	*	0	0.0	0.00	2	9.5	*

* Missing data
See key on page

Total Effort Scores by Body Site

Effort scores for each body site by the 3 periods of rotation are shown in Table 42. The highest effort score was recorded for a problem involving the whole body but high scores were also recorded for conditions effecting the ribs, coccyx, bladder, skin and head.

Table 42
Total effort scores by body site. Periods 1-3

Body site	Period 1			Period 2			Period 3		
	No.	Median	SIQR	No.	Median	SIQR	No.	Median	SIQR
Head	4	23.5	13.90	6	40.5	36.00	15	22.0	15.50
Neck	28	22.0	8.50	36	34.5	14.40	36	19.5	8.50
Neck + referral	89	25.0	9.50	151	28.0	11.50	155	28.0	9.50
Thoracic	15	18.0	10.50	10	26.0	9.60	16	17.0	8.60
Thoracic + referral	19	30.0	8.00	26	23.5	8.80	30	23.5	7.40
Lumbar	57	21.0	9.00	82	18.5	9.10	70	18.0	11.10
Lumbar + referral	116	24.0	10.40	223	31.0	11.00	224	24.5	9.00
Sacroiliac	8	30.0	8.90	8	39.5	11.60	9	25.0	17.00
Shoulder	67	25.0	10.00	107	25.0	9.50	101	20.0	9.30
Shoulder girdle	9	38.0	22.50	20	29.5	15.90	10	37.0	18.60
Upper arm	4	38.5	13.90	10	30.0	16.50	6	29.0	20.50
Elbow	27	22.0	7.50	34	14.0	9.25	49	19.0	8.30
Forearm	6	27.0	9.80	7	23.0	10.00	3	17.0	39.50
Wrist	49	19.0	10.00	48	20.0	9.90	66	19.0	3.90
Hand	6	18.0	21.90	21	19.0	7.80	19	25.0	17.00
Finger	5	20.0	7.50	11	13.0	11.50	16	16.5	10.90
Thumb	12	14.0	15.60	9	14.0	5.00	10	18.0	5.50
Hip	17	24.0	8.00	36	24.0	10.00	32	29.0	13.75
Thigh	5	20.0	11.75	5	23.0	20.50	10	22.0	14.30
Knee	104	19.5	8.50	160	20.0	9.00	172	18.0	8.50
Lower leg	10	15.5	11.00	17	20.0	13.30	18	21.5	7.25
Ankle	41	20.0	7.25	62	18.5	5.40	67	22.0	9.00
Foot	18	20.0	9.10	32	19.0	7.10	44	21.0	6.50
Chest	2	26.5	*	3	20.0	18.00	2	20.5	*
Abdomen	0	0.0	0.00	4	14.0	10.30	2	23.0	*
Upper limb	1	10.0	*	1	29.0	*	0	0.0	0.00
Lower limb	2	19.0	*	0	0.0	0.00	1	15.0	*
Whole body	1	1.0	*	4	64.5	47.50	10	45.0	10.40
Multiple regions	0	0.0	0.00	1	21.0	*	4	35.5	6.50
Skin	1	9.0	*	0	0.0	0.00	1	35.0	*
Nerve	0	0.0	0.00	2	7.5	*	0	0.0	0.00
TMJ	0	0.0	0.00	0	0.0	0.00	1	26.0	*
Face	1	19.0	*	0	0.0	0.00	2	32.0	*
Pelvic floor	6	13.0	10.80	20	19.0	12.10	10	24.0	12.50
Bladder	2	18.0	*	4	34.0	13.90	1	30.0	*
Ribs	0	0.0	0.00	2	31.5	*	1	52.0	*
Coccyx	3	57.0	13.00	3	21.0	2.00	3	25.0	9.00
Other	2	11.0	*	3	13.0	13.00	1	28.0	*

* Missing data

Secondary Diagnoses and Numbers of Treatments Given

For the 3 main secondary diagnoses the majority of patients are treated within 12 treatments. See Table 43

Table 43
Most common secondary diagnosis and number of treatments given by period of rotation

Period 1	No. of treatments						TOTAL
	0-6	7-12	13-18	19-24	25-32	33-64	
N.M. Skeletal	151	75	10	0	1	0	237
Traumatic	130	67	11	4	0	0	212
Degenerative	88	58	4	1	2	0	153

Period 2	No. of treatments						TOTAL
	0-6	7-12	13-18	19-24	25-32	33-64	
N.M. Skeletal	227	178	38	7	4	1	455
Traumatic	170	99	20	9	2	3	303
Degenerative	100	100	21	5	3	1	230

Period 3	No. of treatments						TOTAL
	0-6	7-12	13-18	19-24	25-32	33-64	
N.M. Skeletal	274	140	43	11	2	2	472
Traumatic	224	89	33	4	6	2	358
Degenerative	125	86	20	6	1	0	238

Secondary Diagnosis and Outcome of Referral

The 3 main secondary diagnoses are shown in Table 44. The most common outcome was regular discharge. More patients were referred back to their general practitioners or consultant with musculoskeletal problems and degenerative problems than those suffering from traumatic problems. It is of interest to note the large number of patients lost to the service because of not commencing treatment or interrupting treatment.

Table 44
Secondary diagnosis by outcome of referral. Periods 1-3

Outcome	Musculo skeletal						Traumatic						Degenerative					
	Period 1		Period 2		Period 3		Period 1		Period 2		Period 3		Period 1		Period 2		Period 3	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Inappropriate referral	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Treatment not commenced (department informed)	0	0.0	2	0.4	0	0.0	0	0.0	1	0.3	3	0.9	0	0.0	2	0.9	1	0.4
Treatment not commenced (department not informed)	12	5.1	9	2.0	11	2.3	8	3.8	5	1.7	7	2.0	2	1.3	3	1.3	2	0.8
Treatment interrupted (department informed)	15	6.4	57	12.5	45	9.5	13	6.1	27	8.9	36	10.1	8	5.3	9	3.9	17	7.1
Treatment interrupted (department not informed)	9	3.8	23	5.0	34	7.1	5	2.4	20	6.6	14	3.9	3	2.0	9	3.9	11	4.6
Transferred in district	4	1.7	5	1.1	8	1.7	2	0.9	2	0.7	3	0.8	1	0.7	0	0.0	3	1.7
Transferred outside district	3	1.3	0	0.0	0	0.0	4	1.9	1	0.3	4	1.1	0	0.0	0	0.0	0	0.0
Assessment only no PT required	5	2.0	4	0.9	7	1.5	4	1.9	2	0.7	2	0.6	1	0.7	1	0.4	3	1.3
Assessment, advice & review	4	1.7	9	2.0	8	1.7	3	1.4	2	0.7	6	1.7	5	3.3	7	3.0	7	2.9
Treatment completed, regular discharge	150	63.6	277	60.7	296	62.1	146	68.8	211	69.6	246	68.9	110	72.8	163	70.9	155	65.0
Died	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0
Refer to GP/consultant	28	11.9	61	13.4	60	12.6	22	10.4	28	9.2	34	9.5	18	11.9	26	11.4	34	14.1
Patient not compliant	0	0.0	0	0.0	1	0.2	1	0.5	0	0.0	1	0.3	0	0.0	1	0.4	0	0.0
PT not effective	4	1.7	8	1.8	6	1.3	4	1.9	4	1.3	1	0.3	2	1.3	6	2.6	5	2.1
Other	2	0.8	1	0.2	0	0.0	0	0.0	0	0.0	1	0.3	1	0.7	2	0.9	0	0.0
TOTAL	236	100	456	100	476	100	212	100	303	100	358	100	151	100	230	100	238	100

The outcome of referral for all other secondary diagnoses for Period 1 only is shown in Table 45.

Table 45
Secondary diagnosis by outcome of referral. Period 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	TOTAL
Respiratory	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
Surgical	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Pre Op.	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
Post Op.	0	0	2	2	1	0	0	1	1	10	1	0	1	0	19
Medical	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
N.M. Skeletal	0	0	12	15	9	4	3	5	4	150	28	0	4	2	236
Traumatic	0	0	8	13	5	2	4	4	3	146	22	1	4	0	212
Degenerative	0	0	2	8	3	1	0	1	5	110	18	0	2	1	151
Inflammatory	0	0	1	3	1	1	0	0	0	35	9	0	0	0	50
Pathological	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
Postural	0	0	0	0	1	1	0	0	0	9	0	0	1	0	12
R.S.I.	0	0	2	0	1	0	0	0	0	5	1	0	0	0	9
Obs. & Gynaecology	0	0	0	0	0	0	0	0	1	3	0	0	0	0	4
Stress incontinence	0	0	0	0	0	0	1	0	1	3	0	0	0	0	5
Unstable Bladder	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Dermatological	0	0	2	1	0	0	0	0	0	0	0	0	0	0	3
Stress management	0	0	0	0	0	0	0	0	0	1	1	0	1	0	3
TOTAL	0	0	29	42	21	9	8	11	17	476	83	1	13	3	713

- | | | |
|---|---|---------------------------|
| 1 Inappropriate referral | 7 Transferred outside district | 11 Died |
| 2 Treatment not commenced (department informed) | 8 Assessment only no PT required | 12 Refer to GP/consultant |
| 3 Treatment not commenced (department not informed) | 9 Assessment, advice & review | 13 Patient not compliant |
| 4 Treatment interrupted (department informed) | 10 Treatment completed, regular discharge | 14 PT not effective |
| 5 Treatment interrupted (department not informed) | 11 Died | 15 Other |
| 6 Transferred in district | 12 Refer to GP/consultant | |
| | 13 Patient not compliant | |
| | 14 PT not effective | |
| | 15 Other | |

Goal achievement by most common secondary diagnosis is shown in Table 46. The table indicates that the majority of patients for the 3 most common secondary diagnoses significantly achieved, fully achieved or exceed their goals in the treatment period.

Table 46
Goal achievement by most common secondary diagnosis. Periods 1-3

Period 1	Median	SIQR	Minimum	Maximum	No.
N. M. skeletal	6.00	4.00	1	23	205
Traumatic	6.00	2.50	1	22	188
Degenerative	6.00	2.50	1	22	143

Period 2	Median	SIQR	Minimum	Maximum	No.
N. M. skeletal	7.00	4.50	1	22	401
Traumatic	6.00	3.00	1	23	269
Degenerative	8.00	3.38	1	23	212

Period 3	Median	SIQR	Minimum	Maximum	No.
N. M. skeletal	6.00	4.00	0	24	419
Traumatic	6.00	2.50	1	24	305
Degenerative	9.00	4.00	0	21	213

Secondary Diagnosis by Effort Scores

The effort scores are shown in Table 47. High effort scores were recorded for respiratory conditions, postural conditions and medical conditions and repetitive strain injury but stress management with a scores of 74 was the most profound result.

Table 47
Total effort scores by secondary diagnosis for period 1

	No.	Mean	SD	Minimum	Maximum
Respiratory	2	38.0	5.6	34	42
Surgical	1	25.0	*	25	25
Pre Op.	2	12.5	0.7	12	13
Post Op.	19	23.9	18.5	0	72
Medical	1	30.0	*	30	30
N.M. Skeletal	233	23.9	13.7	0	72
Traumatic	207	25.1	16.4	1	93
Degenerative	153	28.1	17.2	2	112
Inflammatory	52	24.1	13.7	2	66
Pathological	2	46.5	33.2	23	70
Postural	12	33.0	22.2	4	77
R.S.I.	9	31.0	12.1	19	54
Obs. & Gynaecology	4	24.7	21.4	7	55
Stress incontinence	5	12.6	6.4	8	21
Unstable Bladder	1	12.0	*	12	12
Dermatological	3	4.0	4.4	1	9
Stress management	3	74.0	59.2	18	136

* Missing data

Discussion and Conclusion



DISCUSSION

Section 5

Availability of Existing Outcome Measurement Tools

Following literature review and the national survey the author was surprised by the lack of comprehensive outcome measurement tools appropriate to the orthopaedic physiotherapy outpatient treatment setting. The paucity of research in this area was contrasted sharply by work carried out in the fields of neurology, care of the elderly and mental health where a range of established tools exist which have been documented in Section 1 and also in Appendix 1.

However, with the relatively short period of development time for quality assurance systems in physiotherapy, perhaps the lack of instruments for outpatient physiotherapy services and the primitive nature of outcome measurement were to be expected.

The low use of existing disease/syndrome specific tools eg. the Oswestry Low Back Pain Questionnaire and others in outpatient physiotherapy setting was also not surprising, since in departments where low back pain is only one of the problems treated albeit the most common, there is a need for a more general tool applicable to the multidimensional nature of orthopaedic outpatient physiotherapy care.

The multiplicity of age groups treated, the diversity of problems encountered and conditions treated, and the socioeconomic groups who attend for treatment necessitate the use of the tool which is general enough to be applicable to all scenarios, but at the same time be sensitivity enough to determine changes in status, i.e. pain, function, ability to work, joint range or perceived improvement.

It was felt important that the tool included items that could inform the therapeutic process, i.e. give indications as to factors which could possibly influence recovery rates, goal achievement and the outcome of referral. The development of the Brighton/Mid Kent outcome measurement tool was informed by a number of published and unpublished tools, not least by the Wirral Formula (Ball 1993 and Dean 1985). It is believed however, that the Wirral Formula is no longer in use at Arrow Park Hospital, it is thought that this is due to lack of resourcing for data analysis purposes. The inclusion of effort scores was made in the recognition that the nature of physiotherapy inputs consist of more than mere contact time and that other factors such as motivation of the patient/helpers, the strength involved in the task and the degree of the intellectual challenge involved in the contact period should also be recorded in some way this agrees with Ball (1993) and Dean (1985). This concept recognises the diversity of activity taking place in the dynamic clinical setting, where some tasks are routine, not particularly intellectually challenging and require only minimal time and physical effort, whilst some may be non routine, intellectually highly challenging and may require much physical effort and endurance. The recognition of these factors is important in guiding the discussions and decisions about staffing levels and contractual agreements.

Of importance to the efficiency of a service are numbers of patients who are deemed lost to the service, ie. those who do not attend for appointments, who fail to attend, or who are unable to attend and those who cease to attend, together with those who are referred inappropriately. Altogether these losses contribute greatly to wastage in terms of lost treatment contact time. The enormity of this problem can only be determined by gaining a departmental overview of the situation, thus the outcome of patient referral encompassing the above factors was included in the outcome measurement tool.

Importantly the tool also included recognition of other factors which may influence the therapeutic process, ie. psycho-social and physical factors which makes it possible to determine the influence that these factors may have on goal achievement and functional outcome.

The functional, physical and subjective outcome scoring was designed to incorporate elements of independence, ability to work, pain, joint range and sporting activities into a numerical scale. The choice of category is made by the therapist in consultation with the patient. The therapists felt initially that a one to ten integer scale was a little restrictive and therefore, 0.5's were added to the scale at the pre pilot stage, this seemed to resolve any problems before the pilot study proper commenced.

Treatment categories allowed the recording of stand alone modalities or combinations of modalities used in the management of each patient, there appeared to be no difficulty for clinicians in terms of the combinations included in the instrument, although this was monitored very closely in the early stages of the pre pilot periods.

Goal achievement which was recorded in respect of pain, range of movement, function, ability to work and patient perceived improvement was also related to number of treatments taken to achieve the particular level of goal achievement. This was important since purchasers, when the study commenced, were contracting for treatment periods consisting of four plus one contact sessions. The treatment categories were therefore chosen to reflect the normal contractual periods.

Levels of pain, function and ability to work were recorded separately, using a numeric scale.

Use of the Tool

The outcome measurement tool which has been produced has been shown to be user friendly, easy to complete but requiring an extension of 10 minutes to the initial consultation period. This emphasises that there is always a cost involved in adopting quality systems. As with any quality initiative the tool could only have become part of normal practice if the staff using the tool felt they had ownership of it. For this reason staff were involved in all stages of its development and were encouraged to feedback to the consultant at regular intervals.

The physiotherapist themselves informed the construction of the tool by declaring their interests in terms of outcome measurement. Members of the general public were also given the opportunity to inform the construction of the tool by indicating what outcomes they would wish to achieve themselves if they were receiving treatment, ie decrease in pain, ability to work, able to carry out tasks they had carried out before the problem began, knowing more about their condition and knowing how to help themselves to deal with the problem.

At the time the tool was developed the department levied in association with treatment received, patient satisfaction surveys which sought information about advice patients were given. A further development of the new tool would be to add an item concerning patients knowledge of the condition and the patients perception of their participation in the treatment programme or subsequent management.

The consultant was aware from the commencement of the project that the quality initiative could be perceived as a threat by some physiotherapy staff. All staff were therefore involved and kept informed of developments throughout the study. Staff co-operation and goodwill was exemplary throughout in the face of the modification and in some cases changes necessary to incorporate the tool into every day practice.

Staff were not identified individually in the pilot period on the outcome measurement summary sheets as this may have appeared threatening, but staff have had open access to the patient database and individual staff members have been keen to access their own data sets in order to assess their own performance in terms of goal achievement. This is seen as a very positive result of the whole initiative. In addition there have been overt messages that senior staff find the tool useful in terms of assessing junior staff and students abilities in goal setting and to improve appropriate treatment choices and assessment of expected and actual goal achievement.

It is believed that the ease by which the tool was adopted into the full use within the physiotherapy outpatient services was due to the large amount of consultation that took place, involvement of the staff in the development of tool, the training sessions that were run in order to inform and instruct the staff users and the feeling of ownership that existed for the tool, because of staff involvement.

Results

The data collection that occurred in the three pilot periods gives an overview of the work carried out in Mid Kent Physiotherapy Outpatient Department Services in the period 1994 to 1995. It gives a useful base line from which standards may be developed and audits planned. As such it has been a useful tool for investigating and establishing existing practice. The results included in this report are the summary statistics for each of the items included in the discharge summary sheets. In addition some examples of how the data can be used to analyse the affect of one variable on another have been included. However, to have included detailed analysis of each variable would have enlarged the report significantly which would have made it an unwieldy document.

The results have been presented simply with the minimum of analysis as it is not within the remit of the consultant to draw conclusions or comment on the data collected during the pilot period. It is for the staff who have ownership of the instrument to reflect and comment on the data presented in the knowledge of all the factors and constraints which exist within the practice setting which may possibly influence the performance of the service. It is for the quality group to decide what are acceptable levels of performance within the scope of physiotherapy practice, and within the local constraints and to decide if anything what needs to be done to alter practice and to decide when and where these alterations should take place. The tool is now available to enable audit of practice to take place on a regular basis.

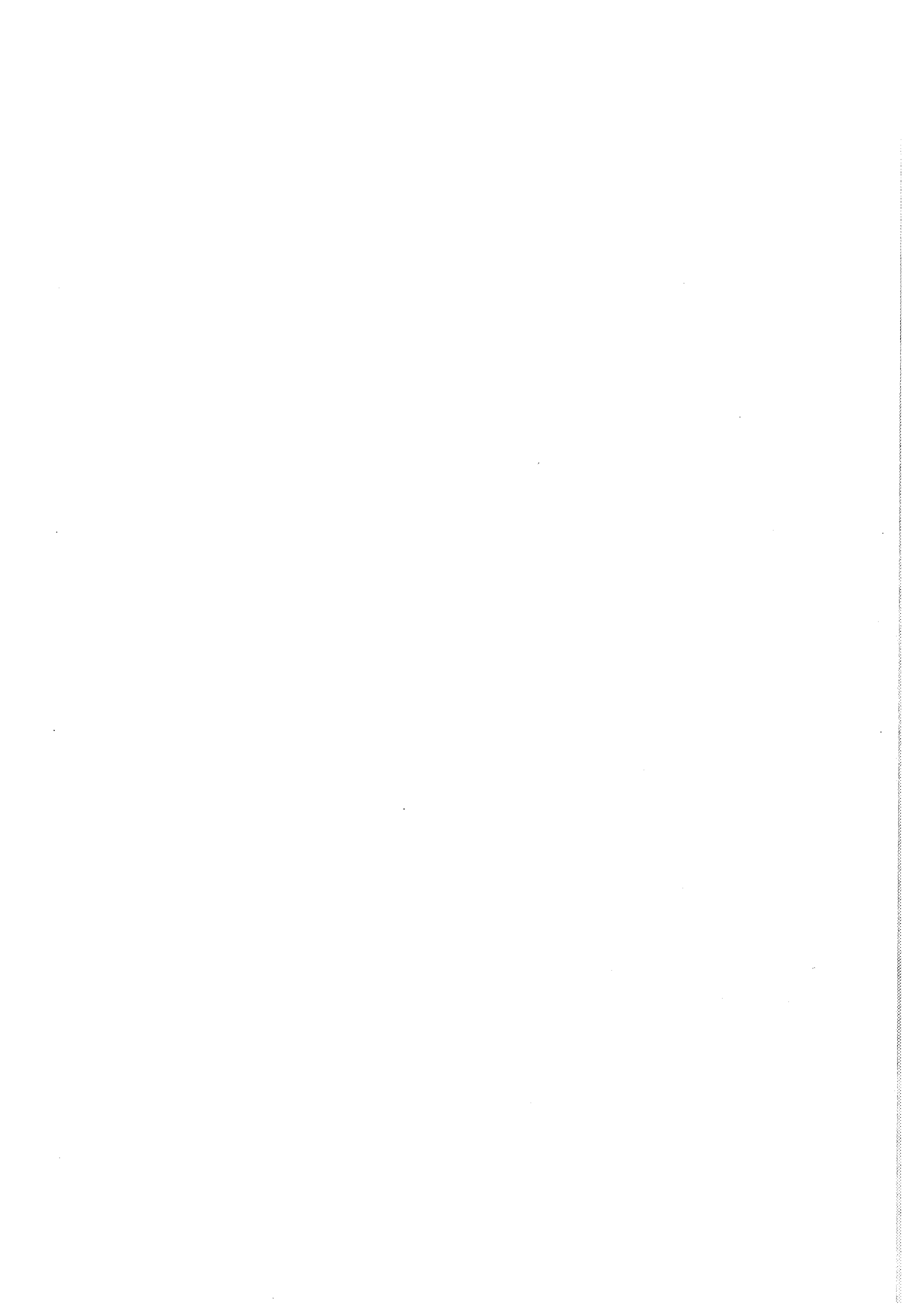
Reliability, Repeatability and Validity

Turk at el (1994) stated that an outcome measure must be assumed to be unreliable until proven otherwise and that this is particularly true for the ratings of success made by health care providers. For these ratings it is essential to collect ratings from multiple clinicians for each patient and to test the reliability of these judgments before using them to measure treatment improvements. Ideally ratings should be made by clinicians who are not directly involved with the treatment of the patient and they should be blind to the treatment condition.

The new tool as yet remains unvalidated and untested in terms of reliability and repeatability. Plans to test its reliability and repeatability have been considered, but would involve many additional staff hours and commitment that currently the Maidstone Physiotherapy Services are not able to give without additional funding. To test reliability and repeatability the tool would need to be used with a number patients for each of the common areas treated by outpatient physiotherapists and a number of physiotherapy staff of different grades would need to assess the same patients on a number of different occasions. This study has already been planned and it is the intention of the consultant to apply for funding in the short term as the next stage in the development of the tool.

Three kinds of validity are relevant to this particular tool. Firstly content validity, which is concerned with the choice of and relative importance given to each component of the index and its appropriateness for the domain they are suppose to measure. Construct validity determines if the results obtained using the tool confirm an expected pattern of relationships or derive from the theoretical constructs on which the measure is based, and criterion validity is concerned with determining whether the measure produces results which correspond with those obtained using a superior measure simultaneously or which forecast a future criterion value, in other words predicative validity.

Following review of the literature interviews with therapists and patients and a survey of NHS Hospitals nationally, the author suggests that the tool has content validity. Detailed analysis of construct and criterion validity are taking places.



Conclusions

CONCLUSIONS

An outcome measurement tool has been developed which is specifically designed for use in orthopaedic physiotherapy outpatient settings where patients with neuro-musculo skeletal dysfunction as well as those with urino genital and dermatological conditions will receive treatment. The tool has been found to be easy to complete but staff require a 10 minute extension to the first patient therapist consultation.

The tool provides, together with the Epi-info database, a comprehensive record of patient details and outcome of treatment. It has been found to be an effective educational tool enabling less experienced staff to improve goal setting and treatment choice. It is also been found to improve record keeping and generally aids treatment choice by facilitating decision making. Currently the tool allows the collection of data concerning existing practice and as such it can provide a basis for standard setting and subsequently can be used as an audit tool.

The tool has been shown to have content validity, but construct and criterion validity still need to be evaluated. The reliability and repeatability of the tool's use in a clinical setting using multi-grades of physiotherapy staff needs to be assessed, this work is now at the planning stage.

Suggestions for future work include minor modification to the instrument to incorporate codings for ethnicity, the coding of tertiary diagnoses and the inclusion of a score for patients perceived benefits in terms of education or advice received in association with treatment and codings for GP/consultant referral sources. In the long term the tool may be valuable in determining profiles of patients which may respond to certain modalities better than others and this may contribute to anticipated recovery pathway mapping. Once reliability and repeatability have been established, it may also prove to be a useful tool for research purposes in the outpatient physiotherapy setting.



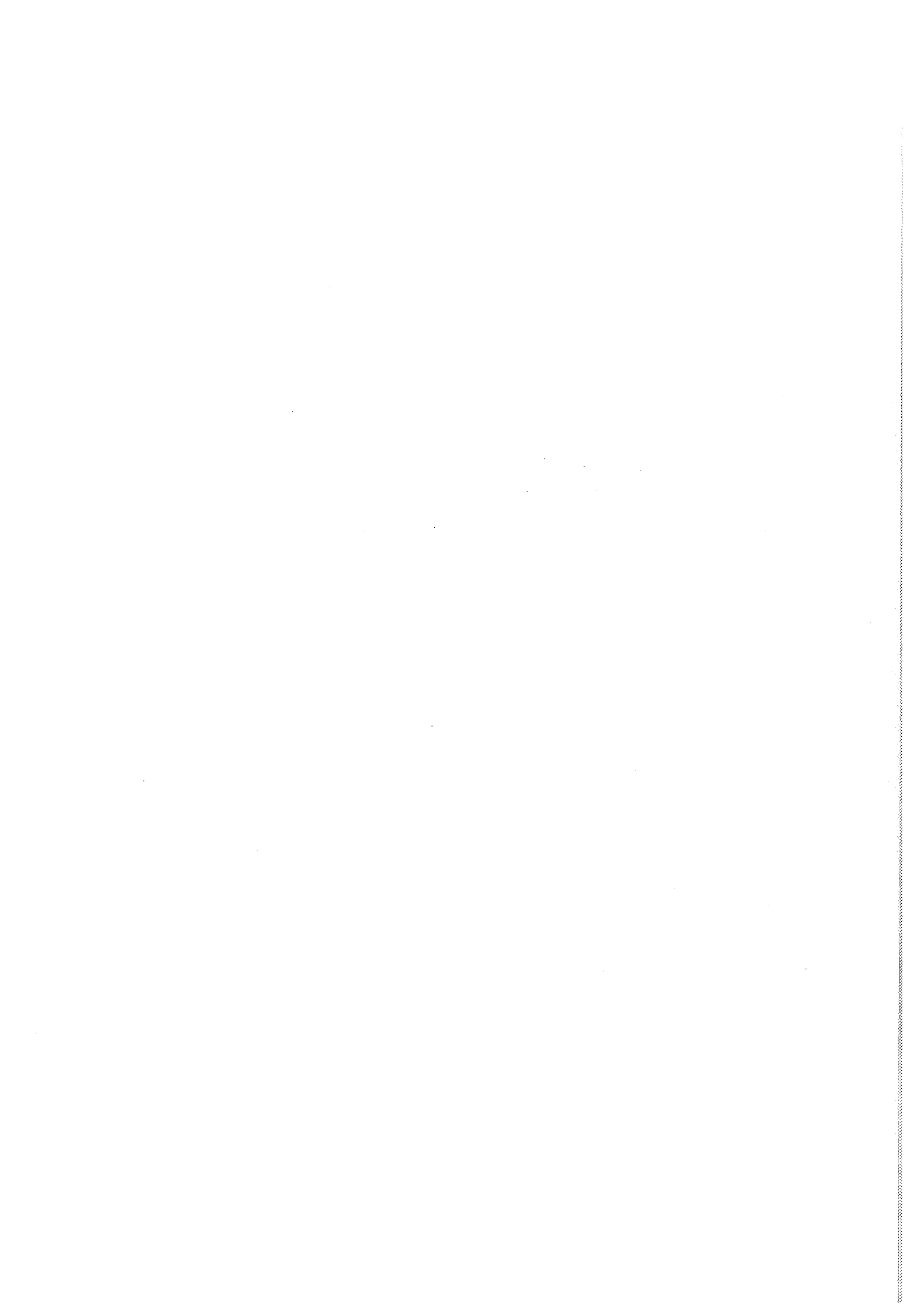
References

REFERENCES

- Ball T (1993) The Wirral formula, an effort and outcome measuring system for physiotherapists, abstract, Physiotherapy , 79(7) 503
- Chartered Society of Physiotherapy (1990) Standards of physiotherapy practice, Chartered Society of Physiotherapy, London
- Cohen S, Kamark T, Mermerlstein R (1983) A global measurement of perceived stress, Journal of Health Soc Behaviour 24: 385 - 396
- College of Occupational Therapists (1989) Standards, policies and procedures, College of Occupational Therapists, London
- College of Speech and Language Therapists (1991) Communicating quality: professional standards for speech and language therapists, College of Speech and Language Therapists, London
- Colvin D F, Bettinger R, Knapp R, Pawlicki W and Zimmerman J (1980) Characteristics of patients with chronic pain, South African Medical Journal 73 1020 - 1023
- Daly R A and Flinn R J (1985) A brief consumer satisfaction scale for use in patient rehabilitation programmes, International Journal of Rehabilitation Research 3: 335 - 338
- Dean E (1985) Wirral formula, unpublished document, Physiotherapy Department, Arrow Park Hospital, Liverpool
- Demeurisse G, Demol O and Ruboye E (1980) Motor evaluation in vascular hemiplegia, European Neurology 19: 382 - 389
- Donabedian A (1966) Evaluating the quality of medical care, Millbank Memorial Fund Quarterly, 44, 166 - 203
- Donabedian A (1980) Explorations in quality assessment and monitoring Volume 1, Anne Arbour, Health Administration Press
- Donabedian A (1985) Twenty years of research on the quality of medical care, Evaluation and the Health Professionals 8(3): 243 - 265
- Ellis R and Whittington D (1993) Quality assurance in health care - a handbook. Edward Arnold, London
- East Berkshire Health Authority (1990) Heatherwood Hospital Physiotherapy Department Quality Assurance Programme, East Berkshire Health Authority, Windsor.
- Fairbank J E C T, Cooper J, Davis J B, O'Brien J P (1980) The Oswestry low back pain disability questionnaire, Physiotherapy 66: 271 - 273
- Fitzpatrick R M, Berry M, Frank A O and Donelli T (1987) Problems in the assessment of outcome in a back clinic, International disability study,9: 161 - 165
- Fries J A (1982) Towards an understanding of patient outcome measurement, Arthritis and Rheumatism 26:692:697 - 704
- Greenhough C G, Fraser R D (1992) Assessment of outcome in patients with low back pain, Spine 17: 36 - 41

- Grimmer K (1989) Quality assurance: an integral part of private physiotherapy practice, The Australian Journal of Physiotherapy 35(3) 189 - 190
- Groom C (1994) Philosophy of patient care for physiotherapy services, Mid Kent Healthcare Trust unpublished document.
- Hamrin E and Wohlin (1982) Evaluation of function and capacity in stroke patients through an activities index, Scandinavian Journal of Rehabilitation Medicine 14 93 - 100
- Holbrooke M and Skilbeck C E (1987) An activities index for use with stroke patients, Age and Ageing 1: 233 - 238
- Hopton J L, Porter A M D and Howie J G R (1991) A measure of perceived health in evaluating general practice: the Nottingham health profile, Family Practice 8(3) 253 - 260
- HMSO (1989) Working for patients, White Paper Cmmd. 555 HMSO, London
- HMSO (1990) The quality of medical care, Report of the Standing Medical Advisory Committee, Department of Health, HMSO, London
- Hunt S M, McKewan J and McKenna S P (1980) A qualitative approach to perceived health status: a validation study, Journal of Epidemiology in Community Health 34: 281 - 286
- Jenkinson C, Coulter A, Wright L (1993) (SF-36) Health survey questionnaire: normative data for adults of working age, British Medical Journal 306: 1437 - 1440
- Jette A M (1989) Measuring subjective clinical outcomes, Physiotherapy 69(7) 580 - 584
- Jones R (1992) Physiotherapy outcome measures document, Eastbourne District General Hospital, unpublished document
- Kitson A (1986) The methods of assuring quality, Nursing Times, 27: 32-34
- Koes B W, Bouter L M, Von Mameran H, Essers A H M, Verstegen G M J R, Hofhuizen D M, Honben J F and Knipschild P G (1992) Randomised clinical trial of manipulative therapy and physiotherapy for persistent back and neck complaints, results of a one year follow up, British Medical Journal, 304:601 - 5
- Koes B W, Assendelft W J J, Van der Heijden G J M, Bouter L M, Knipschild P G (1991) Spinal manipulation and mobilisation for back and neck pain: a blinded review, BMI 303: 128 - 1303
- Le Roux AA (1993) "TELER" the concept, Physiotherapy 79(11) 755 - 758
- Lincoln N and Leadbetter D (1979) Assessment of motor function in stroke patients, Physiotherapy 65: 48 - 51
- Mahoney F I and Barthel D W (1965) Functional evaluation: the Barthel Index, Maryland State Medical Journal 14: 61 - 65
- Maxwell R J (1984) Quality assessment in health, British Medical Journal 228, 1470 - 1477
- Mayo N (1994) Editorial, Physiotherapy, Canada 46(3):145 - 148
- Meenan R F, Gertman P M and Mason J H (1980) Measuring health status in arthritis: the arthritis impact measurement scales, Arthritis and Rheumatism 23, 146 -- 152
- Melzack R (1975) The McGill pain questionnaire: major properties and scoring methods, Pain, 1277

- Melzack R (1987) The short form McGill pain questionnaire, Pain, 30: 191 - 197
- Office of Population and Census Surveys (1992)
- Ovretveit J (1992) Health Service Quality Blackwell Science, Oxford P. 70
- Qureshi K N, Hodkinson H M (1974) Evaluation of a ten question mental test in the institutionalised elderly, Age and Ageing 3: 152 - 157
- Royal College of General Practitioners (1983) The quality initiative, Journal of the Royal College of General Practitioners, 33, 523 - 524
- Royal College of General Practitioners (1995a) Assessing quality of care in general practice, Royal College of General Practitioners, London
- Royal College of General Practitioners (1995b) What sort of doctor? Report from general practice 23, Royal College of General Practitioners, London
- Royal College of Nursing (1990) Dynamic standards setting system, Royal College of Nursing, London
- Ruta D A, Garrett A M, Wardlore D, Russel I T (1994) Developing a valid and reliable measure of health outcome for patients with low back pain, Spine, 19 (17) 1887 - 1896
- Seedhouse D (1986) Health the foundations for achievement, John Wiley, Chichester
- Shaw C D (1994) Quality and audit in rehabilitation services, Clinical Rehabilitation 8: 183 - 187
- Smith R (1994) Validation and reliability of the elderly mobility scale, Physiotherapy, 80(11) 744 - 747
- Turk D C, Rudi T E, Sorkin B A (1993) Neglected topics in chronic pain, treatment outcome studies, determination of success, Pain 53: 5 - 16
- Waddell G, Main C J (1984) Assessment of severity in low back pain disorders Spine 9: 204 - 208
- Weed L L (1968) Medical records that guide and teach (1 and 2) New England Journal of Medicine 278, 593 - 600 and 652 - 657
- Wilkinson R (1990) Quality assurance in managed care organisation, Joint Commission for the Accreditation of Health Care Organisations, Chicago
- World Health Organisation (1985) The principles of quality assurance: report on working group meeting, World Health Organisation Copenhagen
- Zinnaker B (1995) Which outcome measure? Physiotherapy 81(4) 184 - 186



Bibliography

BIBLIOGRAPHY

Bowling A (1991)

Measuring Health. Open University Press, Buckingham

Dingwall R , Fenn P (Eds) (1992)

Quality and Regulation in Health Care International Experiences.
Routledge, London.

Jenkinson C (Ed) (1994)

Measuring Health and Medical Outcomes. Oxford University Press, Oxford.

Kitson A (1989)

Standards of Care: a Framework for Quality - a Patient Centred Approach to Quality Assurance in Health Care. R.C.N. Harrow.

NHS (1993)

The Quality Journey: a Guide to Total Quality Management in the NHS. NHS Management Executive. For information write to Health Publications Unit, Heywood Stores, No. 2 Site, Manchester Road, Heywood, Lancashire, OL10 2PZ.

NHS TD (1994)

Improving Patient Care Through Clinical Audit. Open University, London.

South East Thames Regional Health Authority (1993)

Service Standards. For information contact Mrs. Ainna Fawcett - Henesy, Director of Nursing, Quality and Programmes, STRHA, Thrift House, Collington Avenue, Bexhill on Sea, East Sussex, TN39 3NQ.

Wilkin D, Hallam L, Doggett M A (1992)

Measures of Need and Outcome for Primary Health Care. Oxford University Press, Oxford.

Williamson V, Lewis J R (1993)

Report of the Assessment of Patient Perceptions of Quality Care in General Practice, Health and Social Policy Research Centre, University of Brighton.

Williamson V, Henfrey D (1995)

Patient Participation in Audit. Health and Social Policy Research Centre, University of Brighton, Faculty of Health, Falmer, Brighton, BN1 9PH (01273 643480)

Wright C and Whittington D (1992)

Quality Assurance: an Introduction for Health Care Professionals. Churchill Livingstone, Edinburgh.



Appendices

Assessment Methods which may be adapted as
Outcome Measures in Health and Social Care

General Health Indicators

1. **Nottingham Health Profile**

Hunt S M et al (1981). The Nottingham Health Profile: subjective health status and medical consultation. *Social science and medicine* 15a (22) 1 - 9.

Comment: based on lay perceptions of health status, is short and simple. Part 1 assesses mobility, pain energy, sleep, emotional reactions and social isolation. Part 2 assesses the effects of health on work, looking after the home, social life, home life, sex life, interests, hobbies and holidays. Suitable for use with patients, clients and the general population.

2. **The Sickness Impact Profile (SIP)**

Deyo R A , INui T S , Leininger J D et al (1982) Physical and psychological function in rheumatoid arthritis: clinical use of a self administered instrument, *Archives of Internal Medicine* 142 879 - 882.

Comment: assesses the impact of sickness on daily activities and behaviour. Consists of 136 items. Assesses illness related dysfunction in work, recreation, emotion, home life, sleep, rest, eating, ambulation, mobility, communication and social interaction. Has been used for in and out patients and home care clients, particularly those with chronic diseases.

3. **The McMaster Health Index Questionnaire (MHIQ)**

Chambers L W , Sacket D L , Goldsmith C H et al (1976), Development and application of an index of social function. *Health Service Research* 11 430-441.

Comment: assesses physical, social and emotional functioning and has been used for psychiatry outpatients, diabetic patients, patients following myocardial infarction and rheumatoid arthritis sufferers.

Quality of Life Measures

1. **Quality of Wellbeing Scale (QWB)**

Bush J W (1984) General health policy model: quality of wellbeing (QWB) scale, In Wenger N K, Metson M E, Forberg C D et al (Eds) *Assessment of quality of life in clinical trials of cardio vascular therapies*. Le Jacq publications Company Incorporated, New York.

Comment: summarises current wellbeing and prognosis. Is intended as a measure of needs for care and an outcome measure for health programme evaluation. Assesses mobility, physical activity and social activity and also symptom/problem complexes. It is applicable to any age or disease category and is very appropriate for primary health care setting.

Disability Measures

1. **The Barthel Index**

Mahoney F I and Barthel D W (1965) Functional evaluation: the Barthel Index, Maryland State Medical Journal 14: 61 - 65

Comment: assesses degree of independence in patients with neuromuscular/musculo skeletal problems. Used prior to hospital admission and after discharge. Also to assess benefit of rehabilitation programmes, estimate prognosis, anticipate outcomes and evaluate services. 10 items which are rated: unable to perform, requires help or manages independently, functions assessed pertain to the bowels, bladder, grooming, toileting, feeding, transfer, mobility, dressing, stairs and bathing. Observer completed.

2. **Index of Independence in Activities of Daily Living (ADL)**
Katz S and Akpon C A (1976). Index of ADL Medical Care, 14: 116 - 118

Comment: used with elderly patients who have chronic problems. Assesses function in terms of bathing, dressing, toileting, transferring and continence. Observer completed. For use in community care, primary care.

3. **Rand Functional Status Indexes**

Stewart A L, Ware J E and Brook R H (1978) Conceptualisation and measurement of health for adults in the health insurance study, Volume II Physical Health in Terms of Functioning, Rand Corporation, Santa Monica R - 1987/2 - HEW

Comment: function is assessed in terms of: 1. personal limitations, 2. role limitations and 3. physical capabilities. It is designed for self completion and for use in the general population with non elderly adults and has been used extensively in the primary health care setting.

Pain Measures

1. **The McGill Pain Questionnaire**

Melzack R (1975) The McGill pain questionnaire: major properties and scoring methods, Pain 1277

Comment: designed to provide quantitative measures of clinical pain, there are five versions of different length. It is designed for self completion. Clients select descriptors which best describe the pain experienced at the time. Categories of pain are divided into sensory, effective, evaluative and miscellaneous categories. The questionnaire also includes a linear scale for the assessment of present pain intensity. It is used for a wide variety of patient groups including cancer patients, those with low back pain, in post operative care and with headache sufferers.

Patient Satisfaction Measures

1. Patient Satisfaction Questionnaire (PSO) (Whare and colleagues 1987).

Comment: designed to assess satisfaction with medical care (focusses on doctors).

2. Evaluation Ranking Scale (ERS) (Pascoe and Attkisson 1983)

Comment: used to evaluate health care delivery within practices and also for comparing performance between practices. Is designed for self completion. Items include location of clinic and access to it, building structures involved, staff services offered and results of consultation.

3. Client Satisfaction Questionnaire (CSO) (Attkisson et al 1979).

Comment: for use in a wide variety of settings. Originally developed for patients attending mental health programmes. Items for assessment include physical surroundings, support staff, type of service offered, treatment by staff, quality of service, amount of service, outcome of service, general satisfaction and procedures. Is used mainly in primary health care.

Severity of Illness Classifications

These are mainly taxonomies (lists of medical conditions or categories)

1. Diagnosis related groups (DRG)
2. Acuity Index Measure (AIM)

3. Acute Physiology and Chronic Health Evaluation (APACHE2)
4. Computerised Severity Index (CSI)
5. Medical Illness Severity System (MISS)
6. Patient Management Categories (PMC)
7. International Classification of Diseases (ICD 9/10)

Record Techniques

1. **Problem Orientated Medical Records (POMR)**

Weed L L (1968) Medical records that guide and teach (1 and 2) New England Journal of Medicine 278, 593 - 600 and 652 - 657

Comment: consists of a systematic approach to developing a database during the assessment of a client and the production of a problem list and the recording systematically of the results of intervention in terms of problem resolution. The method is characterised by the use of soap notes which incorporate subjective, objective assessments together with a plan of action. Can be used also as a quality assurance technique and is used by the professions allied to medicine and nursing extensively.

Measures of Mental Health/Mental Illness

1. **Zung Self Rating Depressing Scale (ZDS)**

Zung W W K (1965) A self rating depression scale, Archives of General Psychiatry 12: 63 -70

Comment: quantitative measurement of the subjective experience of depression as characterised by effective, cognitive, behavioural and psychological symptoms. It is used in monitoring changes during treatment and in non hospital settings on normal populations.

2. **Beck Depression Inventory (BDI)**

Beck A T, Mendleson M, Mock J et al (1961) Inventory for measuring depression, Archives of General Psychiatry 4: 561 - 571

Comment: used to assess the existence and severity of depression for clinical and research purposes. It consists of 21 items which assess stress, cognitive symptoms, self esteem, general life satisfaction, mood, relationships, appetite and sleep and is either for self completion or completion by interview. It is for use in "normal" and physically ill populations.

3. **Montgomery - Asberg Depression Rating Scale (MADRS)**

Montgomery S A and Asberg M (1979) A new depressive scale designed to be sensitive to change, British Journal of Psychiatry 134: 382 - 389

Comment: is used to evaluate quickly and precisely the severity of depression and changes with treatment. It is used in primary care but also for in and out patients. It is completed by interview.

4. **General Health Questionnaire (GHQ)**

Goldberg D P (1978), Manual of the general health questionnaire, Nfer Nelson, Windsor

Comment: designed to detect non psychotic psychiatric illness/effective disorder in the community setting. There are two versions, one a sixty item and the other a twenty eight item questionnaire. They both assess somatic symptoms, anxiety and insomnia, social dysfunction and severe depression. They are self administered and they are primarily for use in community settings.

5. **Life Satisfaction Index (LSI)**
Neugarten B L , Havighurst R J and Tobin S S (1961), Measurement of life satisfaction, Journal of Gerontology, 16: 134 - 143

Comment: is a self administered questionnaire for use with older people and is used in hospitals and in the community.

Measures of Life Satisfaction and Morale

1. **Life Satisfaction Index A (LSIA) and Life Satisfaction Index B (LSIB)**
Neugarten B L , Havighurst R J and Tobin S S (1961), Measurement of life satisfaction, Journal of Gerontology, 16: 134 - 143

Comment: this assesses feelings and the aim is to identify successful aging. It is completed by self report.

2. **Life Satisfaction Index Z (LSIZ)**
Wood V, Wylie M L and Scheafar B (1969), An analysis of a short self report measure of life satisfaction: correlation with rater judgements, Journal of Gerontology, 24: 465 - 469

Comment: a thirteen item questionnaire similar to the above, used most commonly in gerontological research.

3. **The Effect - Balance Scale (ABS)**
Bradburn N M (1969), The structure of psychological well being, Aldine Publishing, Chicago

Comment: assesses indications of happiness or general psychological wellbeing.

4. **The Philadelphia Geriatric Centre Morale Scale**
Lawton M P (1975), The Philadelphia Geriatric Centre morale scale, a revision. Journal of Gerontology 30: 85 - 89

Comment: assesses agitation, attitude to aging, loneliness, dissatisfaction. It is multi dimensional and is for use with older and institutionalised clients. Is self administered or can be completed by interview.

5. **Delighted/Terrible Faces (D/T) Scale**
Andrews F M and Withey S B (1976), Social indicators of well being, Americans perceptions of life quality, Clenham Press, New York

Comment: designed to provide an effective evaluation of quality of life. Involves cognitive evaluation and positive/negative feelings. The client chooses a face which most closely expresses feelings about such things as self accomplishment, family togetherness, income, family life and accommodation.

Measures of Social Support

1. **Inventory of Socially Supportive Behaviours (ISSB)**
Barrera M (1980), A method for the assessment of social support networks in community survey research, Connections 3: 8 - 13

Comment: consists of forty items. Measures four types of support, emotional, instrumental, information, appraisal and socialising. It is designed for use in the community.

2. **Perceived Social Support from Family and Friends**
Procidano M E and Heller K (1983), Measures of perceived social support from friends and

from family: 3 validation studies, American Journal of Community Psychology 11: 1 - 24

Comment: this is designed to assess the functions of social networks and is self administered. It consists of twenty items.

3. **Rand Social Activities Questionnaire**

Donald C A, Ware J E, Brook R H et al (1978), conceptualisation and measurement for health for adults in the health insurance study Volume iv Social Health, Rand Corporation, Santa Monica, California, R - 1987/4-HEW

Comment: this consists of eleven items which assess social contacts, group participation, social activities and subjective evaluation of quality of relationships. It is designed for use in large scale research and in primary health care.

4. **Social Relationships Scale (SRS)**

McFarlane A H, Neil K A, Norman G et al (1981), Methodological issues in developing a scale to measure social support, Schizophrenia Bulletin 7: 90 - 100

Comment: measures the role of social support in cushioning the effects of life stressors on health. Identifies individuals who can provide support in areas of potential stress, for example, work, money, home, family and finances. It is designed for use with adults in the community.

Disease Specific Measures

1. **Quality of Life Index (QL)**

Spitzer W O, Dobson A H, Hall J et al (1981), Measuring quality of life of cancer patients: a concise QL index for use by physicians, Journal of Chronic Diseases 34: 585 - 597

Comment: assesses the general wellbeing of patients suffering from cancer and is used to evaluate supportive services and treatment. For use again with the terminally ill.

2. **Arthritis Impact Measurement Scale (AIMS)**

Meenan R F, Gertman P M and Mason J H (1980), Measuring health status in arthritis, the Arthritis Impact Measurement Scales, Arthritis and Rheumatism 23: 146 - 152

Comment: devised to assess patient outcome in arthritic and other chronic diseases to assess physical, social and emotional well being.

3. **Stanford Health Assessment Questionnaire (HAQ)**

Fries J F, Spitz P W and Jung J Y (1982), The dimension of health outcomes: the Health Assessment Questionnaire disability and pain scales, Journal of Rheumatology 9: 789 - 793

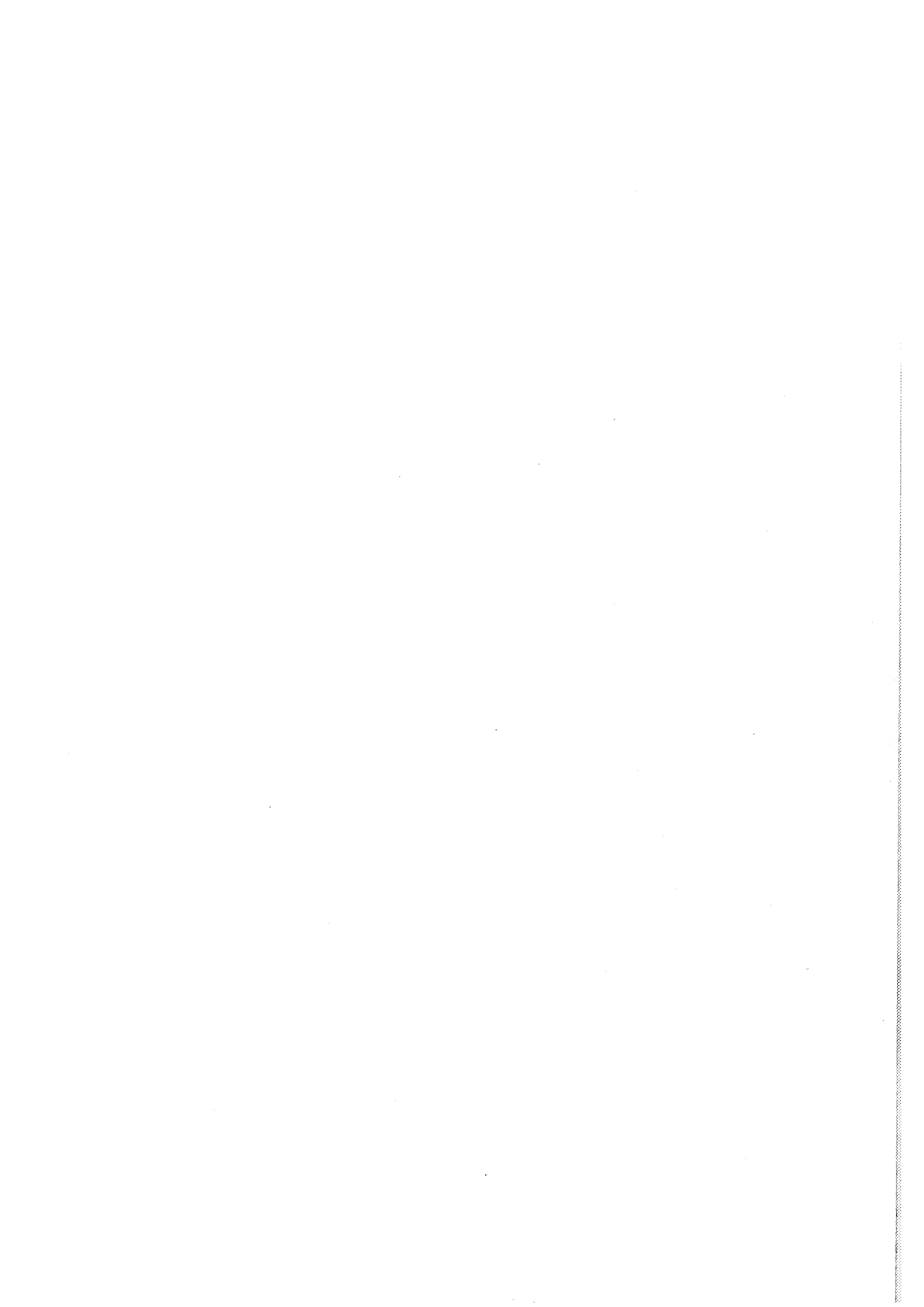
Comment: designed to assess disability, pain, drugs side effects and costs in patients on normal subjects.

Multidimensional Measures

1. **The Co-op Function Charts (Nelson et al 1987).**

Comment: designed for use in clinical practice, or in the community. Nine charts, one each for assessing the following: physical condition, emotional condition, daily work, social activities, pain, change in condition, overall condition, social support and quality of life. The charts are designed for use individually so that a pack appropriate to the context of the assessment can be chosen and put together at will. Designed for self completion.

All the instruments cited above have been subject to validity and reliability studies in specific settings.



The Mid Kent Healthcare Trust
and
University of Brighton
Outcome Measurement Tool
for Outpatient Physiotherapy Services

Physiotherapy OPD
Mid Kent Healthcare Trust
Discharge Summary Sheet

1. Unit Location of O.P.D. SURNAME _____

2. Occupation

3. Patient Identification No

4. Date of Birth 5. Age 6. Gender

7. Primary Diagnosis (I.T.C.D.)

8. Secondary Diagnosis (Physiotherapy)

9. Tertiary Diagnosis

10. Body Site 1. 2. 3. 4.

11. Laterality of Symptoms 12. Date of Referral

13. Date of Commencement

14. Length of Wait from 1st GP contact to Referral (in Weeks)

15. Length of Wait from Referral to Commencement of PT (in weeks)

16. Reason for Referral

17. Weighting of Psycho-social and Physical Factors

18. Initial Assessment of Functional Ability

19. Assessment of Expected Functional Outcome

20. Actual Functional Outcome Score

21. Date PT terminated

22. Outcome of Referral

23. Treatment Details

24. Total Effort Score

25. Goal Achievement at Discharge

26. Other Factors Influencing Outcome

27. Number of Treatments

28. Physiotherapist

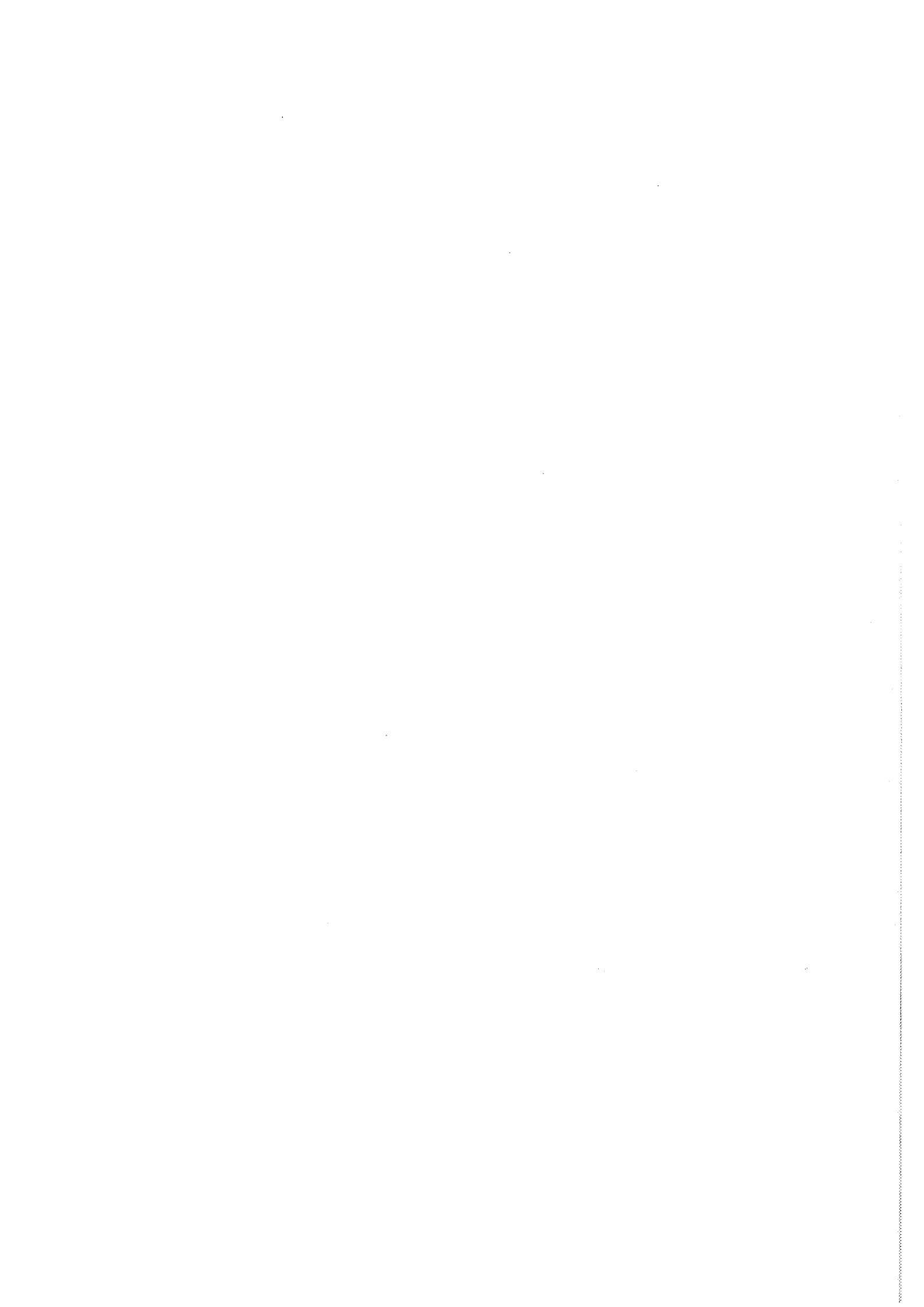
29. Grade

30. Patient Perceived		
<u>Pain</u>	<u>Function</u>	<u>Ability to Work</u>
<input type="text"/>	<input type="text"/>	<input type="text"/>
At initial examination		
<input type="text"/>	<input type="text"/>	<input type="text"/>
At completion of treatment		



This document should be treated as
Copyright Material
and should not be reproduced without
the permission of the author or
Mid Kent Healthcare Trust's representative
Mrs C Groom, Therapy Manager

This document should be treated as
Copyright Material
and should not be reproduced without
the permission of the author or
Mid Kent Healthcare Trust's representative
Mrs C Groom, Therapy Manager



CODINGS FOR DISCHARGE SUMMARY SHEETS

1. Unit/Location of O.P.D.

- 1 = Maidstone
- 2 = Heathside
- 3 = Churchill
- 4 = Community - Centre
- 5 = Community - Home
- 6 = Swaleside

2. Occupation

- 1 = Professional
- 2 = Employer/Manager
- 3 = Intermediate & junior non manual
- 4 = Skilled Manual & own account non professional
- 5 = Semi skilled manual and personal service
- 6 = Unskilled manual
- 7 = Unemployed (more than 2 years)
- 8 = Retired (if more than 2 years)
- 9 = Housewife /husband if more than 2 years)
- 10 = School person
- 11 = Student

NB Use categories 1 - 6 if employment ceased for less than 2 years for reasons stated in 7 - 9.

6. Gender

- 1 = Female
- 2 = Male

7. Primary Diagnosis (I.T.C.D.) See Appendix I

8. Secondary Diagnosis

- 10 = Respiratory
- 20 = Neurological
- 21 = UMN
- 22 = LMN
- 30 = Surgical
- 31 = Pre Op
- 32 = Post Op
- 40 = Medical
- 50 = Neuro Musculo Skeletal
- 51 = Traumatic
- 52 = Degenerative
- 53 = Inflammatory
- 54 = Pathological
- 55 = Postural
- 56 = R.S.I.
- 60 = Obstetrics & Gynaecology
- 61 = Stress Incontinence
- 62 = Unstable Bladder
- 70 = Dermatological
- 80 = Oedema
- 90 = Stress

9. Tertiary Diagnosis

Handwritten Maximum 50 Characters

10. Body Site Codes (use more than 1 code if appropriate)

Head	01
Neck	02
Neck + Referral	03
Thoracic	04
Thoracic + Referral	05
Lumbar	06
Lumbar + Referral	07
Sacroiliac	08
Shoulder	09
Shoulder Girdle	10
Upper Arm	11
Elbow	12
Forearm	13
Wrist	14
Hand	15
Finger	16
Thumb	17
Hip	18
Thigh	19
Knee	20
Lower Leg	21
Ankle	22
Foot	23
Chest	24
Abdomen	25
Upper Limb	26
Lower Limb	27
Whole Body	28
Multiple Regions	29
Skin	30
Nerve	31
TMJ	32
Face	33
Pelvic Floor	34
Bladder	35
Ribs	36
Coccyx	37
Other	38

11. Laterality of Symptoms

Unilateral	=	1
Bilateral	=	2

16. Reason for Referral

Advice or assessment only	01
Cardiac rehabilitation	02
Boot clinic	03
Medical chest care	04
Developmental delay	05
Skin care	06
Urino genital	07
Surgical cases	08
Hydrotherapy	09
Surgical rehabilitation	10
Medical rehabilitation	11
Neuro rehabilitation	12
Orthopaedic rehabilitation	13
Co-ord/ Percep Problems	14
Palliative Care	15
Pain relief	16
Neuro musculo skeletal	17
Maintenance	18
Lymphoedema	19
Provision of A.D.L.	20
Examine and Treat	21
Appliances only	22
Education patient/carers	23
Gait re-education	24
Posture assessment and re-education	25
Relaxation	26
Prophylaxis	27
Advice and Exercises	28
Other and state reason (maximum 50 characters)	29

17. Weighting of Psycho Social and Physical Factors Affecting the Physiotherapy Process

	1	2	3	4	5	TOTAL
		Mild	Moderate	Quite Severe	Severe	
1. Problem	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2. Communication /Sensory	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3. Mobility	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4. Other Conditions	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
5. Social Circumstances	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Categories 2 - 5 should all have a direct impact on ease or difficulty of Physiotherapy treatment

GRAND TOTAL

MAXIMUM POSSIBLE TOTAL SCORE = 25
 MINIMUM POSSIBLE TOTAL SCORE = 0

Items 18 , 19 and 20 on the Summary Sheet: Functional, Physical and Subjective Outcomes

Scores should be completed by the Therapist and also by the patient for the initial assessment of functional ability, the expected functional outcome and the actual functional outcome.

- 10 = Normal lifestyle, fully independent, able to work, no pain or disability, participate fully in sporting activities. Joint range equivalent to 90/100% of available active physiological movement. Normal healthy individual.
- 9.5
- 9 = Independent, able to work but some slight discomfort or dysfunction. Not able to carry out competitive sport but is able to attend and participate in training sessions. 80/90% of normal active physiological movement range is available.
- 8.5
- 8 = Independent to a large degree without walking aids. Able to return to non manual work but only to modified manual work. Very modified sports training is accomplished. Some aspects of ADL slightly restricted. Some mild pain present for periods during the day. Joint range restricted to between 70% and 80% of normal available range.
- 7.5
- 7 = Mobile with minimum support and walking aid. e.g. walking stick. Able to return to non manual work part time but not to manual work. Some general marked functional limitation. 60% - 70% of normal active physiological range of movement is available in one or more limbs or region. Mild to moderate pain levels exist.
- 6.5
- 6 = Unable to work due to moderate pain levels and disability. Marked functional limitation in one limb or region. 50% - 60% of normal active physiological range of movement is available.
- 5.5
- 5 = Able to carry out most ADL but needs occasional help. Dependent upon aids for mobility but walks unsupervised. Unable to work. Moderate limitation of joint range with 40% - 50% of the normal active physiological range of movement available. Moderate pain levels with some postures and/or at rest.
- 4.5
- 4 = Independent for some ADL but needs some help either by one professional or by one lay person for one or more activities. Walks with an aid and standby supervision. Severe limitation of joint range between 30% to 40% of normal active range of movement is available. High levels of pain on movement moderate resting pain.

3.5

3 = Performs minimal ADL with help. Needs moderate physical help with walking and transferring. i.e. uses a walking aid and one helper. Has severe pain at rest worse with movement. Active range of movement is limited to 20% to 30% of normal range of movement available.

2.5

2 = Dependent on help for most ADL due to mental or physical disabilities. e.g. following multiple injuries. Unable to walk or needs maximal help i.e. two helpers. Active range of physiological movement is limited to zero or has less than 20% of range available.

1.5

1 = Totally dependent, helpless, unable to perform any ADL, e.g. Unconscious.

22. Outcome of Referral

Inappropriate referral	01
Treatment not commenced (department informed)	02
Treatment not commenced (department not informed) (D.N.A.)	03
Treatment interrupted (F.T.A) Department not informed	04
Treatment interrupted (U.T.A.) Department informed (Includes self discharges)	05
Transferred within district	06
Transferred outside district	07
Assessment completed no Physiotherapy required	08
Assessment completed. Advice re self care given Review arranged	09
Treatment completed. Regular discharge	10
Died	11
Referred back to GP/Consultant	12
Patient non compliant	13
Physiotherapy not effective	14
Other	15

23. Treatment Details

Advice re self management or advice to carer	01
Interferential	02
S.W.D.	03
TENS	04
Ultrasound	05
Local heat (I.R. packs pad)	06
Active exercises	07
Passive exercises	08
Traction	09
Mobilisations/manipulation	10
Reflexology	11
Aromatherapy	12
Ice	13
Hydrotherapy	14
Wax	15
Faradism	16
Massage	17
Frictions	18
C.T. Massage	19
Strapping	20
Education	21
Appliance fitting	22
Ultra violet	23
Laser	24
P.N.F.	25
Electro diagnosis	26
Facilitatory/re-education techniques	27
Gait re-education	28
Re-Education of Muscle Imbalance	29
Neuro dynamic facilitation	30
Active exercises and advice	31
Mobilisations and active exercises	32
Frictions and Ultrasound and S.W.D.	33
Mobilisations, active exercises and advice	34
Mobilisations, traction and active exercises	35
Mobilisations and advice	36
Mobilisations, passive exercises and S.W.D.	37
Mobilisations, Ultrasound, S.W.D. and advice	38
S.W.D., active exercises, passive exercises and mobilisations	39
Active and passive exercises and advice	40
Mobilisations, S.W.D. and education	41
Re-education of muscle, active exercises, mobilisations and advice	42
Active exercises, education and advice	43
Mobilisations, advice and Ultrasound	44
S.W.D., active exercises and advice	45

24. Total Effort Score (O.P.D. only)

<u>Activity</u>	<u>Approx Time Taken</u>	<u>Score</u>
Patient Interview no treatment, short letter	5 mins	1
US/IR/SWD/Laser Traction/TNS/Trophic Stimulation/Mobilisations/ Exercises/Thoraktin/Normal Administration /Wax	10 mins	2
Acupuncture/IF/Mobilisations Traction	15 mins	3
Mobilisations/UVR Education/Advice	15 mins	4
Mobilisations/simple peripheral joint examination & assessment	20 mins	5
Moderately complex peripheral joint examination & assessment	20 mins	6
Complex peripheral joint examination & assessment	30 mins	7
Simple neck/back/shoulder examination & assessment. Basic neurological treatment e.g. Brachial Plexus, lesion, facial palsy	30 mins	8
Moderately complex back/neck.shoulder examination & assessment Complex Brachial plexus lesion	45 mins	9
Complex back.neck/Shoulder/neurological examination	60 mins	10

1 extra point for each extra member of staff involved
in the treatment

1 extra point for each extra modality e.g. simple mobilisations
+ U.S + exercises = 4

Classes

60 min class 12) then divide by the number of patients
90 min class 18)

If more than one Physiotherapist involved then double class score i.e. 2 Physiotherapists
doing 1 hour class with 12 patients each patient scores 2.

24. Total Effort Scores (O.P.D. only) (Continued)

Effort is a mixture of:-

Knowledge application
Skill application
Vigour
Time expended
Self motivation
Physical and mental exertion
Strength
Concentration
Conviction
Motivation of others

Effort is graded 1 - 10 and is recorded at the end of each contact with the service as the clinical records are updated.

Total effort score for whole treatment period is recorded on discharge sheet.

25. Goal Achievement at Discharge (in terms of patient and therapist goal achievement)

Note: goals should include pain, range of movement, function, patient's interpretation of subjective perceived improvement and the ability to work.

a. -	Goals exceeded	[	1 - 5	Treatments	1
			6 - 10	Treatments	2
			11 - 15	Treatments	3
			16 +	Treatments	4

When the goal/outcomes expected at the initial assessment have been surpassed by the actual achievements attained by the patient, i.e. symptom free, increased range of movement compared to other limb before incident, function better than before. Able to work fully.

b. -	Goals fully achieved	[	1 - 5	Treatments	5
			6 - 10	Treatments	6
			11 - 15	Treatments	7
			16 +	Treatments	8

All goals/outcomes achieved to 100%. i.e. symptom free, full range of movement, no pain, function as before incident. 100% perceived improvement. If during assessment it is clear that advice only is needed or that the aim of intervention was to assess mobility and this is achieved then the goal is fully achieved. A non physiotherapy goal may be set e.g. to involve other agencies, if this is done then the goals are fully achieved. Also, if goal was to achieve 80% recovery at discharge, for the patient to achieve 100% recovery with appropriate home management strategy, then goals have been fully achieved.

c. -	Goals significantly achieved	[	1 - 5	Treatments	9
			6 - 10	Treatments	10
			11 - 15	Treatments	11
			16 +	Treatments	12

When 50% or more of the agreed goals are achieved or the patient is half way to the expected outcome, i.e. there may be a 50% improvement in subjective and objective findings, one or more problems still present but are resolving slowly but majority of problems have already been resolved. Patient able to work in a restricted or modified way.

d. -	Goals partially achieved	[	1 - 5	Treatments	13
			6 - 10	Treatments	14
			11 - 15	Treatments	15
			16 +	Treatments	16

Less than 50% of the goals set are achieved, there is minimal improvement of subjective and/or objective findings based on the initial assessment, some problems still outstanding, some initial improvement which has failed to continue. Patient unable to work but will manage some domestic tasks and contemplate return to work in a highly modified way.

e. -	Goals not achieved	[	1 - 5	Treatments	17
			6 - 10	Treatments	18
			11 - 15	Treatments	19
			16 +	Treatments	20

No change in the objective or subjective finding, inappropriate goals set and were not a measure of true potential, or when goals were not met due to influences outside the therapists control the reasons for this should be linked with the other factors and stated in the patient's notes. In all circumstances the signs and symptoms for this group of patients functions will have remained static. Patient unable to contemplate work.

f. -	Other i.e. worse poor referral additional problems etc	[	1 - 5	Treatments	21
			6 - 10	Treatments	22
			11 - 15	Treatments	23
			16 +	Treatments	24

Any eventualities not covered in the above sections use 'other factors' as a linkage and state what other factors were involved in the patient's notes. In this circumstance there may have been increase in local pain, decreased range of movement, increased local swelling, the development of referred pain and/or decreased function. Reduced and/or inability to work. In the assessment of goals between the therapist and the patient a linear visual analogue could be used using the 10 cm line, 0 - 10 for pain, range of movement, function, subjective improvement and the ability to work.

26 Other Factors Influencing Outcome in terms of rate/nature of recovery

1. Pain free at first visit.
2. Inappropriate referral.
3. Re-referred to consultant or GP
4. Other medical intervention, e.g. drugs, injection, osteopath, chiropracter, homeopath, collar, corset, surgery, etc.
5. General state, e.g. compensation case, stress levels, level of intelligence, attitude of patient, motivation, social circumstances, understanding of condition, smoking, drinking, etc.
6. Lifestyle influences, e.g. job, home circumstances, age, sport, etc.
7. Other medical conditions, e.g., cardiac.
8. Time, natural progression of condition, lack of treatment, e.g. patient moves from the area or is unwilling to attend for treatment.
9. Ceased to attend.
10. Requires educational advice only.
11. Teamwork.
12. Transfer to another hospital.
13. RIP.
14. No other factors.
15. Exacerbation of condition

28. Physiotherapist

Use Physiotherapist codes

29. Physiotherapist Grade

1. = Junior
2. = Senior 2
3. = Senior 1
4. = Superintendent IV
5. = Superintendent III
6. = Superintendent II
7. = Superintendent I
8. = Student

30. Patient Perceived Pain, Function and Ability to Work

Instructions to therapists on the completion of patient perceived pain levels, functional ability and ability to work.

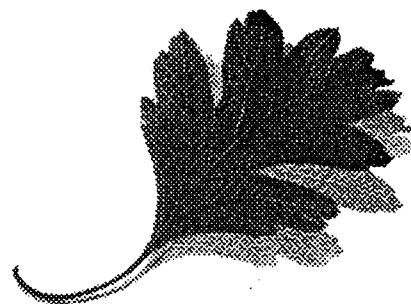
The patient is asked to indicate their level of pain, functional ability and ability to work before treatment commences and when treatment is terminated. In order for this outcome measure to be reliable it is important that all patients are asked for information in the same way. The following statement should be made by all therapists in respect of each patient that they assess:-

"In order to monitor the effectiveness of your treatment, it is important that we find out about your levels of pain, your functional ability and your ability to work at the present time. Please choose a number on the scale of 0 to 10 which indicates:-

1. *Your present level of pain when it is at its worst where 0 = the least amount of pain you could envisage and 10 = the worst pain that you could imagine.*
2. *Ability to work where 0 = complete absence of ability to work and 10 = working normally.*
3. *Functional ability where 0 = total absence of ability to carry out functional tasks at home and in the social setting and 10 = maximum or normal ability to carry out functional tasks."*

The questions are asked again on completion of physiotherapy treatment.





Interim Consultancy Report
October 1994

**The Establishment of a Quality Assurance System
for Outpatient Physiotherapy Services
(Mid Kent Healthcare Trust)**

Consultant

**Dr Ann Moore PhD Grad Dip Phys MCSP Dip TP Cert Ed,
Department of Occupational Therapy and
Physiotherapy, University of Brighton**



University of Brighton

Interim Consultancy Report - October 1994

Consultant

**Dr Ann Moore, Department of Occupational Therapy and
Physiotherapy, University of Brighton**

Project Title

**The Establishment of a Quality Assurance System for Outpatient
Physiotherapy Services (Mid Kent Healthcare Trust)**

Negotiations between the Consultant Dr A P Moore of the University of Brighton and Carol Groom, Physiotherapy Manager, Mid Kent Healthcare Trust began in July 1993. From preliminary meetings with the Therapy Manager and members of the existing departmental Quality group a programme of consultancy work was established. A costing exercise took place and a contract between the Mid Kent Healthcare Trust and the University of Brighton was drawn up and agreed and formally signed in February 1994. See appendix 1.

Progress of Work to Date

The Departmental Quality Group has worked systematically on the production of local standards and measurable criteria for work within the Outpatients Setting. The Consultant has attended some Quality Group meetings at which refinement of standards and criteria have taken place and suggestions for further work has been made.

Standards have now been produced for the following:-

1. Staff performance review appraisal
2. Professional development
3. Documentation
4. Cardiac arrest procedures
5. Fire procedures
6. Accident procedures
7. Personal attack
8. Security of Physiotherapy Department
9. Waiting area
10. Policy and procedures for outpatient reception
11. Treatment areas

A national survey of 300 Physiotherapy Outpatient departments has taken place to establish existing outcome measures appropriate for Mid Kent's needs.

Some 170 replies were received, the survey revealed a general paucity of existing relevant and sensitive outcome measures, however some useful information was obtained and has been incorporated into the pilot outcome measures instrument in a modified way. See Appendix 2.

A literature review of outcome measures used in Physiotherapy has taken place, again highlighting the paucity of information in this area and demonstrating the need for further development.

It is to be regretted that some NHS Hospitals and Trusts decline to respond to requests for information re existing outcome measurement due to the issue of Trust ownership. The obstacle that the lack of sharing information imposes is counterproductive in terms of professional development and also in terms of the rise in the quality of patient care nationally. Generally this must be deplored.

As a result of the literature review and also the survey work carried out a pilot version of outcome measures was drawn up together with a Discharge Summary Sheet for patient records, see Appendix 2.

The instrument was piloted by one experienced manipulative Physiotherapist at Maidstone District General Hospital for two weeks. A meeting was held following this period to discuss the format and user friendliness of the documentation. As a result of feedback the instrument was adjusted and some changes were made. The instrument was then piloted again at Maidstone District General Hospital, this time by three full-time Physiotherapists working in the Outpatient Department. At the end of the one month period further minor adaptations were made to the instrument.

At the end of the one month trial period an analysis of the completed data discharge summary sheets was made by hand and revealed some deficiencies in record keeping but generally showed the instrument to be sensitive and relatively easy to use.

Results from 32 patient summary discharge sheets were presented to Physiotherapists representing the six Outpatient Physiotherapy Department Sites and a training session was run in order to familiarise staff with the format of the documentation and give the opportunity for full discussion. The key uses of the instrument were defined as:-

1. Measuring effectiveness and efficacy of Physiotherapy outpatient treatments.
2. Offering quantifiable data which could be used in patient profiling.
3. An educational tool for junior and less experienced staff in terms of realistic goal setting, documentation and choice of treatment regimes.

Generally there has been a very positive response to the introduction of the package.

Some staff have commented unfavourably in terms of the time taken to fill in the new documentation but with familiarity this problem seems to be reducing.

Simultaneously to the month's piloting period, negotiations and discussions took place with Simon Sorsbie, the Clinical Information Systems Manager, in order to set in place a database for the storage of discharge summary sheet data.

Coding of data has taken place and staff training has been instigated to ensure accurate entry of encoded data into the epi-info package which is now in use in the department.

Data protection issues have been addressed by the Therapy Manager in consultation with the relevant Trust personnel.

The final outcome measures document and discharge summary sheets have been produced and are being utilised in all Outpatient Physiotherapy Departments within the Trust.

A full scale pilot study commenced on September 5th 1994 and will run until the 3rd January 1995 to coincide with Junior Physiotherapist and Senior II Physiotherapist rotations.

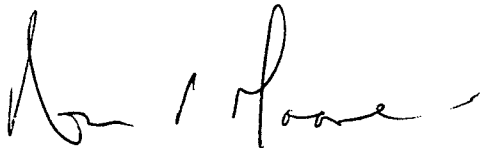
During the pilot period the Consultant will carry out regular site visits to ensure that the system is running smoothly.

In mid October a sample of the data collected will be taken in order to pilot methods of analysis using the Minitab Statistical Software package utilised by the University of Brighton.

Plan of Future Work

The previously described pilot stage is seen as representing necessary pre audit research. Following this exercise, when norms have been established for existing practices, appropriate standards and criteria can be established and then a full clinical audit can be carried out of subsequent outpatient rotation periods.

If the system in Outpatients proves to be successful, then it is hoped that the instrument will be modified to suit the needs of other specialist services within Physiotherapy.



Dr Ann Moore, PhD, Grad Dip Phys, MCSP, Dip TP Cert Ed
Deputy Head Dept. of Occupational Therapy and Physiotherapy
Consultant to Mid Kent Healthcare Trust

