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PhD thesis

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**A COHORT STUDY OF NEW REFERRALS FROM GENERAL  
PRACTITIONERS TO OUTPATIENT CLINICS TO  
DETERMINE WHY SOME PATIENTS BECOME  
"CONTINUING ATTENDERS".**

**Submitted For the Degree of Ph.D.  
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**Dr. Francis M. Sullivan 1990**

**I should like to thank my wife, Dorothy, for the patience she demonstrated in allowing me to devote time and energy to this thesis.**

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## **SUMMARY**

The aim of this thesis was to investigate why some referrals to outpatient clinics made by General Practitioners lead to continuing hospital attendance.

A cohort of 392 patients referred to six outpatient clinics by General Practitioners during 1987 were studied from the time of their first attendance until visits ceased up to two years later. Six consultant clinics were studied in three specialties: rheumatology, vascular surgery and dermatology. For each specialty a clinic in both a teaching hospital and a district were included. The cohort members were similar to that found in most adult outpatient clinics: predominantly middle-aged or elderly with a greater proportion of women. A wide distribution of disease severity scores was observed in each clinic. The patients had to wait up to 35 weeks from the date of referral until seen for the first visit.

A "continuing attender" was defined as someone in the highest quintile of visits made. Patients who were referred for therapy were more likely to continue attending. The principal reason for "continuing attendance" as perceived by patients, General practitioners and hospital doctors was the necessity for consultant supervision. In addition, analysis of observable clinical and non-clinical data was performed. This showed that diagnosis, disease severity and the grade of doctor seeing the patient in the clinic influenced the numbers of visits made and the numbers of weeks of attendance. Different diagnoses had different predictive values: rheumatoid arthritis and peripheral vascular disease patients were most likely to return for four or more visits. Increasing disease severity scores made discharge progressively less likely and seeing

a consultant made discharge four times more likely at the first visit and nine times at the second visit. Taken together these three variables could predict up to 80% of discharge decisions in this cohort of patients. (sensitivity 81%, specificity 75%).

The disease severity scales we employed failed to detect major changes in this variable for the cohort as a whole or within individual specialties. Patients however considered their visits had produced improvement in their condition in 46% of cases. 62% expressed satisfaction with their visits to the clinic.

In so far as the ideal of consultant review of all cases at every visit cannot be met, it might still be possible for consultants to effectively manage the resources within their own clinic setting. Casenote review with junior staff at the end of a clinic could usefully be performed on patients making a third or subsequent visit. This would be especially valuable where the diagnosis and a measure of disease severity suggest that the patient should be discharged. The results conclude that such an educational activity, combined with formal guidelines to junior staff on the "Clinic Discharge Policy" are worthy of further study as potential means of reducing unnecessary attendances.

This work has shown that it is possible to make useful observations on data such as age and diagnosis which are routinely gathered in the outpatient clinic. It is also suggested that it might prove useful to record prospectively other data such as patient satisfaction, the proportion of patients seen by the different grades of doctors and disease severity. The use of such readily collected data would be of value not only to the clinicians engaged in the work of the clinics, but also to the General Practitioners who make referrals to them and to those who plan the services.

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10. Psoriasis Disability Index.
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## **Key to Abbreviations.**

CSA: Common Services Agency.

D.F.: Degrees of freedom.

DGH: Shorthand for the Common Services Agency description of a  
"General Hospital with some teaching units".

F: Probability statistic derived using SPSSx Multiple  
Regression technique.

FN: False Negative.

FP: False Positive.

G.P.: General Practitioner.

GRI: Glasgow Royal Infirmary: "Large general major teaching  
hospital covering a full range of services."

HAQ: Health Assessment Questionnaire.

NHP: Nottingham Health Profile.

NHS: National Health Service.

OA: Osteoarthritis.

PDI: Psoriasis Disability Index.

PIN: Probability of F to enter equation. The default value is 0.05

POUT: Probability of F to remove from equation. The default value is  
0.10.

RA: Rheumatoid Arthritis.

RCGP: Royal College of General Practitioners.

$r_s$ : Spearman's Rank Correlation.

RWD: Reported Walking Distance.

SGH: Southern General Hospital: "General Hospital with some  
teaching units".

TH: Shorthand for the Common Services Agency description of a  
"Large general major teaching hospital covering a full range  
of services."

TN: True Negative.

TP: True Positive

VIG: Victoria Infirmary Glasgow: "General Hospital with some teaching units".

WIG: Western Infirmary Glasgow: "Large general major teaching hospital covering a full range of services."



# **1.BACKGROUND TO THE STUDY**

## **Summary of chapter**

*Why do some patients whom General Practitioners refer to outpatient clinics continue to attend for prolonged periods?*

*Enlightened observers of 'continuing attendance' have usually emphasised the clinical status of patients who are asked to return. More recently a lack of interprofessional communication at all levels has also been shown to play an important role. The introduction to this thesis considers the explanations advanced by other authors. It then moves to the historical background which explains the existing system of division between primary and secondary care. Although there are many advantages to the split which exists, there are a number of problems which arise partly because some patients continue to attend after the purpose of the referral has been satisfied. New referrals may have to wait many weeks before a first appointment, and once in the clinic they may have to wait hours to see a doctor who might not be the consultant to whom they were referred. General Practitioners may lose that overall responsibility for their patients which they seek. Hospital doctors may be overloaded in the clinics by the sheer numbers of 'return visits' being made. The National Health Service as a whole is diverting resources from other areas unnecessarily. The final section of this chapter outlines the aims and objectives of the study .*

### **1.1.Introduction**

In the current debate about efficiency in the National Health Service, a lot of adverse comment has centred on long waiting lists for outpatient clinics (Acheson D.1984). Most of the emphasis has been placed on General Practitioners' reasons for referral (Morrell D.C. et al. 1971, Armstrong P. et al.1988, Coulter A. et al. 1989 A+ B) and on the variability in their referral rates (Cummins J. et al . 1981, Wilkin D., Smith A.G. 1987 A+B, Moore A. T., Roland M.O.1989).

There is another important factor which deserves further consideration. Many clinics have long waiting lists partly because of the number of return visits being made by patients who continue to attend long after their initial referral. For Greater Glasgow Health Board in 1988, the figure for the percentage of return visits in different specialties ranged from 63% (General Surgery) to 92% (Haematology). As shown in Table 1 there has been little change in the pattern of appointments in recent years (GGHB 1983-88).

Table 1

Patients making return visits as a percentage of total clinic attendances in GGHB outpatient clinics in 1984 and 1988

<b>Specialty</b>	<b>'84</b>	<b>'88</b>
General Surgery	69	63
Orthopaedic Surgery	69	64
ENT Surgery	70	65
Ophthalmology	70	69
Urology	71	70
Neurosurgery	71	72
Thoracic Surgery	73	72
Plastic Surgery	73	73
General Medicine	74	74
Cardiology	75	75
Metabolic Disease	76	76
Neurology	79	77
Gastroenterology	82	81
Dermatology	82	82
Nephrology	83	82
Rheumatology	84	83
Respiratory Medicine	85	84
Communicable Diseases	86	84
Genitourinary medicine	86	86
Radiotherapy	88	87
Oncology	88	87
Gynaecology	89	91
Mental Illness	90	91
Haematology	93	92

These return visits include patients who have recently been

referred, and who are still under investigation or having their treatment planned. It also includes those who are "**Continuing Attenders**" i.e. patients who continue to attend the out-patient clinic for months or years after their original referral.

Continuing attendance may be entirely appropriate for some patients - for example those whose *"clinical state demands resources only available in a hospital setting"* (Black D. 1979). In other situations there may be good reasons for specific General Practitioner (Glenn J.K. et al.1983. ) or patient requests (Dornan C.E. et al.1983) that continuing care be transferred to the hospital clinic. For other patients however, their continuing attendance is unnecessary. When the diagnosis and management are clear, the patient's General Practitioner could often be entrusted with delivering an adequate standard of follow-up.

The importance of this subject lies in the less salutary reasons which some investigators have uncovered for failure to refer a patient back to the General Practitioner:

*consultants' lack of confidence in General Practitioners*(Dowie R. 1983);

*poor interprofessional communication*(Grace J.F., Armstrong D. 1986);

*low discharge rates of junior hospital doctors*(Olsen N.D.L., 1978).

In some clinics, research or educational purposes have been cited as important reasons for long-term outpatient clinic attendance (Olsen N.D.L.1976). Furthermore, in addition to the clinical aspects of the problem, there are some non-clinical factors which are relevant such as the location of the patient and the clinic, economic and social factors.

Until recently, studies in this area have been limited to single specialty areas, e.g. General Surgery (McCormack T.T. et al.1984),

Hypertension (Bulpitt C.J. et al.1982, Petrie J.C. et al.1985; Deguelet P. et al.1983), Respiratory Medicine (Leitch A.G. et al.) and Orthopaedics (West R.R., McKibbin B.1982). Other authors have investigated only a few possible reasons for continuing attendance e.g. opinions of doctors and patients (Stewart I.C., McHardy G.J. 1984), cost considerations ( Stamp E.J. et al.1985, Rees G.R.J. 1985), detection of complications (Cochrane J.P.S. et al. 1980) or the role of junior staff (Olsen N.D.L.1978). As a result of the paucity of investigations in this area, attempts to improve the position have been limited to a few educational (Badley F.M., Lee J. 1987, Zadik F.F. 1976) and administrative strategies (West R.R., McKibbin B. 1982, Duncan M. et al.1988, Doublet-Stewart M. 1988) which have not been widely adopted (Hall R. et al.1988, Hartog M. 1988).

## **1.2 Historical Background**

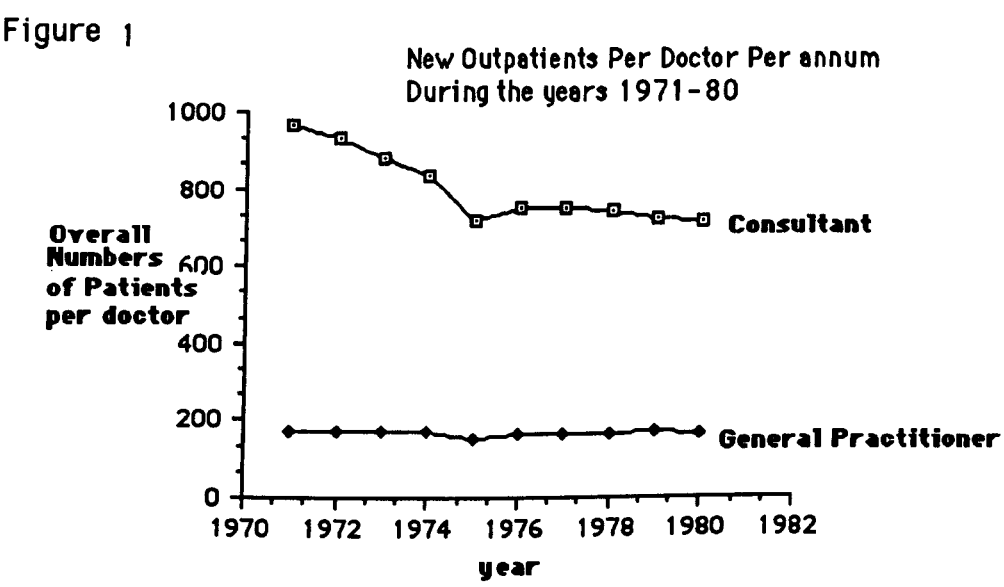
The problem of hospital referrals and patients' continuing attendance may be traced back to the earliest divisions within the medical profession in the United Kingdom. In medieval times this division reflected existing class structures with "Leeches" providing medical care to the ordinary people and the services of Physicians being restricted to the rich. A similar division existed between Surgeons and Barbers (Talbot C.H. 1967). As the population increased in Tudor times so did the numbers and categories of people providing medical services (Roberts R.S. 1962). Universities offered medical degrees to those who would describe themselves as Physicians. In order to dispense their herbs and spices, a new medical practitioner arose from the ranks of the grocers, i.e. the Apothecary who was, in many respects, the forerunner of the modern General Practitioner. In 1512 King Henry VIII introduced a licensing system which separated medicine and surgery and which resulted in the formation of the

College of Physicians (1518) and the United company of Barber-Surgeons (1540). Even at this time patients realised it was in their best interests to see someone who had knowledge of both medicine and surgery, in practice usually the Apothecary, who might deal with their health problem themselves or refer to a Physician or a Surgeon. The Apothecaries obtained a Royal Charter from James I in 1617 with a consequent rise in their status (Raach J.H.,1962). By the early nineteenth century most Primary Medical Care was undertaken by Apothecaries. Before the Medical Acts of 1815 and 1858, this system of care was relatively unregulated and open to abuse; the Act instructed the Apothecaries to prepare and dispense the prescriptions of those Physicians who were legally licensed to practice, and later legal interpretation of the act gave Apothecaries the right to prescribe on the basis of their own judgement. The Society of Apothecaries exercised this power prudently by striving to improve the quality of care provided by their members (Cule J.1980). After the National Insurance Act of 1911 the numbers of these Apothecaries/General Practitioners increased as did their income and standing (Little E.M., 1932).

The system of Patient referral that developed in the late nineteenth century was designed to eliminate competition between Apothecaries (General Practitioners) and Hospital Physicians (consultants). General Practitioners were excluded from the staffs of major voluntary hospitals at the beginning of the twentieth century, "*the Physician and Surgeon retained the Hospital, but the General Practitioner retained the Patient*"( Stevens R. 1966). As part of the charitable function of many hospitals the outpatient departments acted as a source of continuing care for those who were unable to afford to pay the fees of General Practitioners.

For many years after the introduction of the National

Health Service in 1948, most investment and development was in the Hospital Sector rather than the Community Health Services (Honigsbaum 1979). This has been reflected in the numbers of consultants working in hospitals, so that even though the number of new referrals per General Practitioner is static, more consultants are seeing fewer new referrals per consultant(fig. 1)(Metcalf D.H.H., 1984).



Specialisation in hospital medicine in the past forty years led on to superspecialisation, a development envisaged by enlightened post-war observers. *"Shall we, perhaps like a Gilbertian navy, be all Admirals and suffer from a galaxy of specialists with none to do the fieldwork, the work in the homes"*. (Whitby L.1949) . One result of this was that in many areas the long-term management of chronic disease remained within the hospital sector even though the economic necessity for this form of charity no longer operated in

the new circumstances of the NHS, where medical care was free at the point of contact(Forsyth. G., Logan R.F.1968).

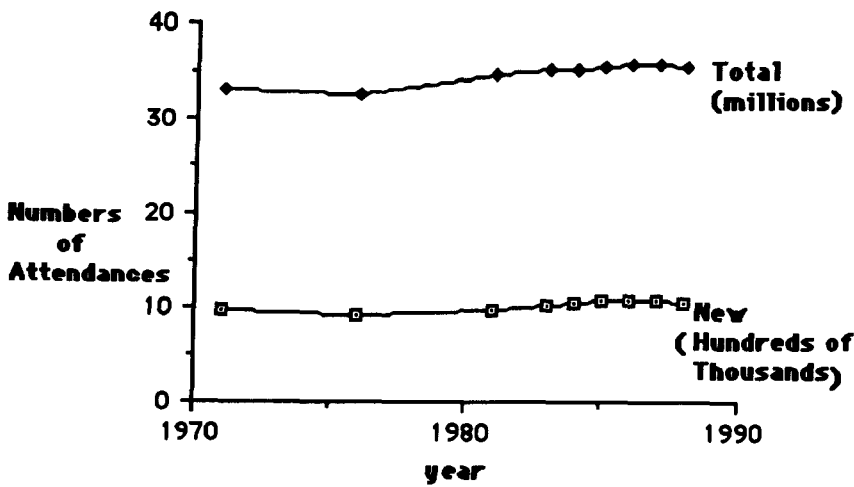
In 1950 a review of the standards and types of work being carried out in 35 representative General Practices was undertaken by J.S. Collings. His indictment of the state of General Practice at that time among other pressures led to the establishment of the Royal College of General Practitioners in 1953 and a General Practitioner's charter in 1966 (B.M.A. 1965). The spread of vocational training from 1884 (Horder J.P., Swift G. 1979) until its mandatory status in 1981 (HMSO 1979) has also served to raise standards. The accomodation standards and facilities have improved especially for those in Health Centres and group practices. By 1981 98% of General Practitioners had access to haematology investigations and 84% were working with nurses (Cartwright A., Anderson R. 1981).

With rising standards, the status of General Practice as a specialty has also risen. In recent years, it has been the most popular career choice for medical graduates (Ellin D.J. 1987). It remains to be seen whether the recent introduction of "the 1990 Contract" will alter that (Donald A.G., 1990). Many of these doctors wish to resume the long-term management of their patients' health problems (Schofield T., Hasler J., 1984).

In recent years, the numbers of patients whom G.P.s refer to hospital has been slowly increasing and the total numbers attending have mirrored this rise (fig.2) (HMSO,1989).This rise may reflect the fact that the hospital services have an increasing range of valuable services to offer. There is certainly no evidence that a higher rate of referrals means any less appropriate referrals (Coulter A. et al. 1990). Referral for a consultant opinion may be part of the longterm management of a patient: it is now less likely to imply a request

that care be transferred to the Consultant.

**Fig. 2                      Comparison of U.K.Total and New Outpatient Attendances during 1971-88**



**1.3. Current Practice**

The system of referral by a General Practitioner to a hospital consultant remains the cornerstone of the NHS (JRCGP 1988). Despite recent discussion of this apparently "Restrictive Trade Practice" by the Government (HMSO 1988), there are good reasons to believe that its advantages (Marinker M.1988) will be retained (HMSO 1989). Every year, one in five of the patients on a General Practitioner's list is referred to an outpatient clinic (Fry J.et al.1984) . With the exception of self-referral to Accident and Emergency departments all patients gain access to hospital facilities via this route. When General Practitioners refer patients to hospital it is for a Consultant opinion which may include investigations or management which the General Practitioner cannot provide. However some patients become "Continuing Attenders" and early reports suggested that a median number of three follow-up



visits are generated after each new referral (Forsyth G. et al. 1968). More recent studies confirm this finding and go further in suggesting that patients often attend both General Practitioner and hospital with the same problem for prolonged periods (Marsh, G.N., 1982) (Palfrey et al., 1980). Definitions of a "Continuing Attender" vary but 5-15% of patients are still attending one year after their first visit (G.G.H.B. 1984-8). This leads to a variety of undesirable consequences for the Patient, the General Practitioner, the hospital clinicians and the National Health Service.

#### **1.4. Problems for the Patient**

*I am sick of having to wait for an appointment - sometimes for hours. What is the point of making an appointment if you have to wait for hours?"* (I.H.S/A.C.H.C, 1986). The cost to patients' time is one of their main complaints about outpatient clinics although a direct financial burden is also involved (Stamp E.J. et al. 1985). Obviously poor appointments systems compound the situation where there is overload by patients who could be discharged. The waste of time and the economic costs will vary from patient to patient depending upon their individual circumstances. A further problem resulting from clinics being full of patients "for review" is the time that newly referred patients must wait before receiving their first appointment. In one area there are reports of a 3 year wait to see a consultant orthopaedic surgeon (Lancet 1987). The other problem for some patients may be a relative loss of contact with their General Practitioner (Strang J.R., Cove-Smith J.R. 1989).

### **1.5. Problems for the General Practitioner**

The loss of responsibility for patients is one of the main problems for General Practitioners. *A multitude of specialists often means that a patient has many doctors but not one he can really call his own*". (Whitby L.,1949). Although some General Practitioners may be glad of a respite from the demands of certain patients when they are attending hospital, Marsh has shown that this perception may be illusory. In his study in the Northern Region (Marsh G.N. 1982) he showed that of 260 follow-up attendances to Medical Outpatient clinics 21% of patients had seen their General Practitioner within the previous 7 days and a further 35% in the preceding 8-30 days.

Increasing numbers of General Practitioners wish to resume overall charge of their patient's long term problems. (Lester J.P. 1980, RCGP,1985) . Their generalist skills are required for the interacting physical, psychological and social factors involved in causing their patient's distress. Not all of these problems may be perceived as the concern of the consultant to whom the referral was made (RCGP 1985). Some consultants do favour a "holistic" approach (Mold J.H., Stein H.F. 1986) but many see their role more narrowly confined to the management of problems within the area of their own special interest.

### **1.6. Problems for the Hospital Clinician**

Consultants face a similar problem of loss of responsibility for individual patients because increasing numbers of return patients to each clinic mean less opportunity to review patients personally (Zadik F.R. 1976, Hopkins A., 1976). This results in shorter consultation times and, at times, delegation of patient care to junior staff. For both consultants and their juniors, dealing with

many patients simply "for review" leads to dilution of experience within that specialty. Consultants and junior hospital doctors must cope with patients for whom no further diagnostic or therapeutic goals are apparent. Their undoubted skills lie dormant in the majority of their work in the outpatient clinic. Another consequence of this is that time for teaching and research is reduced because of the demands imposed by simply working with their large number of return patients.

### **1.7. Problems for the NHS.**

With some 36 million out-patient clinic attendances in the U.K. per annum costing in the region of £20 per visit (CSO,1988) the revenue and workload implications of "continuing attenders" are obvious (Marsh G.N.,1980). Each new outpatient referral generates a mean of 4.2 outpatient attendances for the acute specialties, (CSA 1989) a fairly constant figure over the past twenty years. However this is greater for some specialties e.g. 8.5 attendances in psychiatry. (G.G.H.B 1984-8). Another concern for those involved in administering budgets is the duplication of activities in the hospital and community service (Cartwright A., Anderson R. 1981). This is a further inefficiency which can no longer be allowed to escape scrutiny.

### **1.8. Aims and Objectives**

This study described the outcome of new referrals to six outpatient clinics in three specialties using both clinical and non-clinical variables. The views of patients, General Practitioners, and hospital clinicians were sought at each visit. The aim of the study was to develop an understanding of these factors which lead to some patients becoming "Continuing Attenders" in order to devise

methods of reducing unnecessary attendances.

## **Objectives**

1. To define who is a "continuing attender".
2. At the time of a visit to the out-patient clinic, to obtain the reasons which patients, General Practitioners and hospital clinicians give for continuing attendance.
3. To assess the relative importance of the reasons given for continuing attendance .
4. To draw correlations between the reasons for continuing attendance expressed by members of each of the three study groups.
- 5.To investigate observable clinical and non-clinical factors thought to be important in the decision to discharge a patient.
- 6.To construct a theoretical model of the current decision making strategies in those concerned with the decision to discharge or retain a patient.

In addition to these primary objectives, the study method afforded the opportunity to describe the outcome of referral to outpatient clinics in a cohort of patients. This information is of great interest but rarely available except for specific clinical problems.

## **2.PATIENTS AND METHODS**

### **Summary of chapter**

*Some of the routinely available data which might be considered when attempting to explain 'continuing attendance' were reviewed before the main study began. No obvious relationship between the numbers of new referrals or total attendances and the percentage of return visits was found. The focus of the work then shifted to consider the type of data which was might illuminate the field of enquiry i.e. a cohort study of new referrals based in 'representative' outpatient clinics. The selection of outcome measures, questionnaire development and measures of disease severity were considered in some detail. Some pilot data are presented in this chapter to illustrate the author's perception that the study method was viable. In the pilot study there was evident inability of doctors to agree about referral reasons and the importance of junior staff as a major source of 'return visits' was also obvious. Details are provided in this chapter about the method of cohort assembly and response rates (68-98%). Further method considerations are presented with a discussion of sources of bias and how these were reduced or taken into account in the analysis. The actual statistical techniques employed are explained in the final section with detailed accounts of the life-table and regression techniques.*

### **2.1. Early Considerations**

The initial approach to this problem included a review of the literature as presented in chapter one. It was considered that the currently accepted reasons for continuing attendance were insufficient to fully explain the variations seen in day to day practice. The routinely gathered Hospital Activity Statistics (GGHB 1984-8) showed as much variation between clinics in the same specialty as between those in different specialties. Even within the same specialty in the same unit, in the same hospital, individual consultants' clinics had widely different proportions of return

visits. The data neither showed any obvious correlation between the total numbers of patients attending the clinic when compared with the percentage of return visits (fig.3), nor did the number of new patients and percentage return visits show a clear-cut relationship (fig.4).

Figure 3                      Correlation of return visits and total annual attendances at outpatient clinics in GGHB ('84) (by specialty)

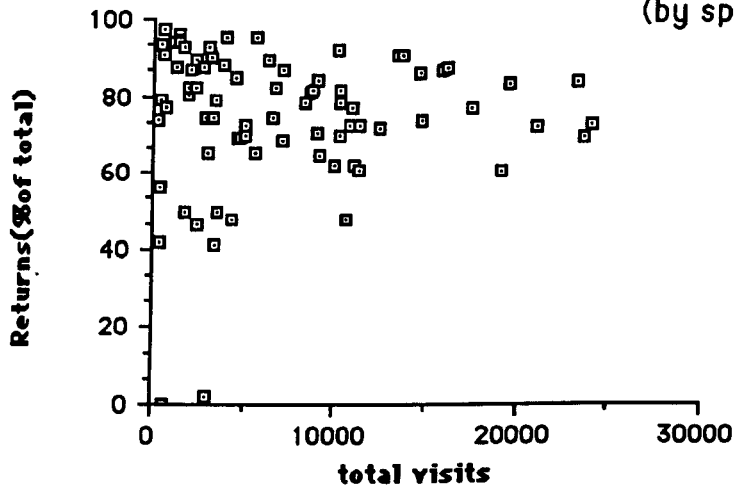
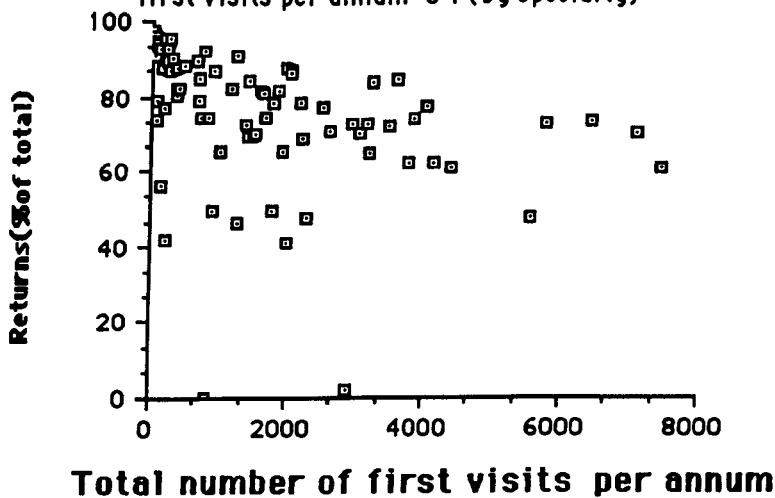


Figure 4                      Correlation of % return visits with total numbers of first visits per annum '84 (by specialty)



The next approach was to discuss the issue informally with a

number of hospital consultants and junior staff using open questions. This method suggested a number of reasons for continuing attendance similar to those already described above. Confirmation of the less overt reasons was also obtained, particularly the observation made by junior staff that the policy of the consultant in charge of the clinic was of paramount importance to them. This was rarely expressed formally but junior doctors who had worked with a particular consultant all felt they knew their policy.

It was decided that the most fruitful study method would be one based in the setting of the outpatient clinic. Data collection should be prospective to maximise the availability of information within the limits of a "service setting" (Feinstein A.R. 1983).

**2.2.Cohort Selection**

The study cohort was chosen to represent a population of patients with common conditions which G.P.s commonly refer to consultant outpatient clinics (table 2) .

Table 2      Prevalence of the study diagnoses in General Practice with annual referral rates.

Diagnosis	Annual Number of Patients consulting with diagnosis per 1000 Practice Patients	Annual Outpatient Referrals as % Consultations with diagnosis which result in referral
Rheumatoid Arthritis	34	9
Osteoarthritis	5	27
Intermittent Claudication	19	4
Atopic Eczema	10	7
Psoriasis	8	5
Source	Hodgkin K. 1978	HMSO, 1982

The diagnoses chosen are neither so trivial as to render the referral decision dubious, nor are they life-threatening conditions where continuing hospital attendance (or death) might reasonably be expected. The study subjects were all patients with the diagnoses: Rheumatoid Arthritis, Osteoarthritis, Peripheral Vascular Disease, Psoriasis or Eczema. They were attending any of the six co-operating outpatient clinics for the first time since referral by their General Practitioner. Restricting the diagnostic range to these few conditions obviously limits the extent to which these results may be applied to other clinical areas. They do, however, represent a spectrum of medical and surgical problems with some features shared by other specialties. Rheumatoid Arthritis may be seen as a model of a multi-system disorder with some comparisons possible with Diabetes Mellitus or Hypertension. Peripheral Vascular Disease is one of a range of non-malignant surgical problems which, like Prostatic Hypertrophy or Diverticulitis affect an ageing population and are amenable to a variety of medical and surgical interventions. The two dermatological conditions are like many disorders whose aetiology remains unclear and where management remains as much an art as a science.

In taking such a diversity of diagnostic groups across a wide spectrum of disease severity it is obvious that the cohort is rendered relatively heterogeneous. The statistical techniques used, life table and regression analyses, attempt to compensate for this.

Any cohort study can only truly reflect the behaviour of the actual study subjects. Further interpretation of the data depends upon the acceptance by the reader that the group is neither too exclusive nor over-inclusive.

Despite increasing interest in medical audit in recent years (Shaw C.D. 1980, Brady W.J. 1985, Jennett B.1988, Ellis B.W. 1989)



there have been very few studies on the case-mix seen in outpatient clinics (Trout K., Martindale A.1974). As a consequence of this it proved impossible to obtain recent, accurate figures on numbers of patients seen in individual out-patient clinics and reliance was put on the figures supplied by consultants working with the diagnoses chosen.

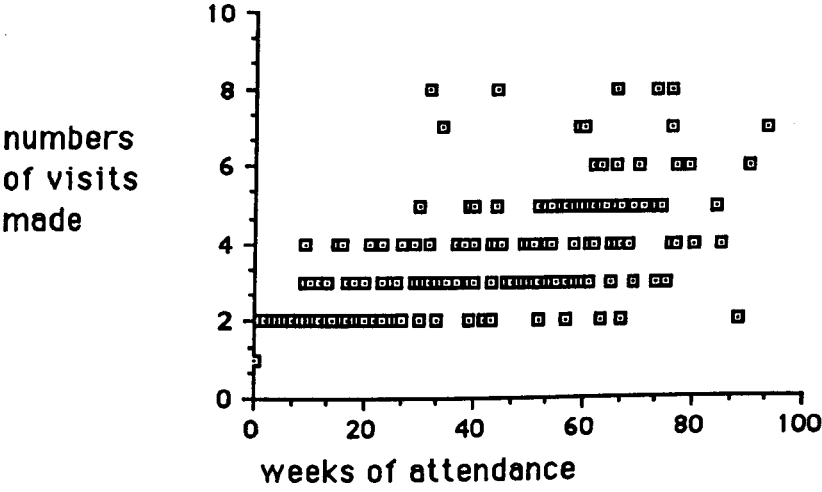
All consultant clinics in the 3 specialty areas in Glasgow were stratified according to the Common Services Agency categories (CSA 1988) and one clinic in each specialty was chosen using a random number table with one example in each of the two categories "*Large General Major Teaching Hospitals covering a full range of services*" (TH) and "*General Hospitals with some Teaching units*"(DGH). The first six consultants who were approached agreed to take part. Permission was obtained from Hospital Administrators and Ethical Committees to use the outpatient clinic areas and obtain access to the notes. The General Practice Subcommittee of the Greater Glasgow Health Board gave permission to approach all G.P.s who referred patients for further information. During 1987 all new referral letters to these six Consultant clinics (2 Rheumatology, 2 Vascular Surgery and 2 Dermatology) were screened by two research assistants. No differentiation was made between the patients who had been referred to the specific consultant in the clinic and those who were referred to any consultant in that specialty.

Checklists of diagnostic and therapeutic terms(Appendix 1) were used to identify possible study subjects before they saw the doctor at their first attendance. The study diagnosis was defined as that given by the consultant to whom the patient had been referred.

2.3. Outcome measures.

The duration of attendance at an outpatient clinic may be defined either as the numbers of visits made or the number of weeks (months, years etc.) during which the patient continued to attend hospital. These are obviously related ( $r_s=0.94, p=0.0001$  in this study, shown graphically in Figure 5) but data are presented separately from each aspect in the analysis.

Figure 5 Correlation between the numbers of visits made and the duration of attendance.



The definitions and categorisation of the data was as follows:

**Numbers of visits made** referred to the actual number except in crosstabulations where "continuing attenders" were considered to be those who made four or more visits and the remainder grouped as three or less ;

**Weeks of attendance**, grouped as Zero, 1-4, 5-12, 13-26, 27-52, >52;

**Attendance status** at the end of the study period 12-24 months after initial referral which was categorised as:

- still attending,
- discharged,

defaulted,  
lost in the hospital system,  
died,  
referred to another clinic.

Another slippery concept proved to be that of the "**Continuing Attender**". This term was preferred to the pejorative "Chronic Attender" which might imply that all such patients were attending unnecessarily. As discussed in the introduction there is evidence to support the belief that a proportion of those who continue to attend for prolonged spells do so for reasons which require further investigation. Since neither the data for numbers of visits nor weeks of attendance were normally distributed it was decided to consider the upper quintile of attendances for these two variables as being the level above which attendance duration went beyond that of the rest of the group. It was originally intended to classify each specialty's upper quintile separately but small numbers overall led this to be rationalised to only the entire cohort. The implications of this are discussed further in the results and discussion where pertinent.

## **2.4.Questionnaire Development**

The questionnaires were developed for the study having regard to earlier work in this area. The reasons given for referral were derived from two groups of workers in this field (Grace J.F., Armstrong D. 1986, 1987, Coulter A. et al 1989). The reasons for continuing attendance were based on the work of Glenn J.K. et al. (1983). Partially closed questions were developed using the concepts which these workers had found useful but modified in the light of comments made during the prepilot and pilot phases. They were intended to retain face validity as a comprehensive list which

comprised not only those factors which were considered likely to influence the outcome measures e.g. diagnosis, age, disease severity but also confounding factors e.g. referral to another specialty, method of transport to the clinic (Greenland S., Neutra R. 1980).

Patients were asked to answer a self-completion questionnaire containing both demographic and attitudinal questions (Appendix 2). Where possible the questions were closed with as few responses as possible. The range of responses was developed from a series of open questions put to unselected outpatients at a district general hospital (see pilot studies for further details). The selection of some categories may be criticised in that some of the responses were not mutually exclusive, for example *"The patient requires Consultant supervision"* may be considered analogous to *"G.P. unable to cope"*, however this did not seem to be a problem in these earlier studies or in the pilot stage of this project. It is also borne out by the infrequent use of such categories as "other" and "combinations" (chap 5.1). Those who agreed to continue in the study completed further, similar, questionnaires. These omitted information which was unlikely to change between visits (Appendix 3) at the subsequent visits. Finally, a postal questionnaire (Appendix 4) was sent within four weeks of stopping attendance. The referring General Practitioners and hospital clinicians who saw the patients were also asked to complete questionnaires derived in a similar manner (Appendices 5, 6) about their assessment of the patients' clinical state and the reason (if any) for continuing attendance at each visit. Facilities and staffing of each clinic were also noted (Appendix 7).

Costs to the patients were estimated in terms of distance travelled and mode of transport (Automobile Association, Scottish Bus Group, Glasgow Taxi Owners' Association 1988) and time missed

from work by the patient or a companion (Dept. Employment 1988). An estimate of hospital costs was made from official published sources, as were ambulance costs (C.S.A 1988). This method of apportioning costs does not allow the correct costing to be applied to individual clinic visits. Strenuous efforts were made in the pilot study to improve on this by noting investigations ordered, prescriptions issued and clinic staffing (Appendix 7). Such a process proved extremely time consuming, with incomplete availability of some costs (particularly laboratory investigations). The attempt was abandoned because of the resulting partial nature of the data which did not appear to offer an improvement upon the aggregate data which is produced.

## **2.5.Measures of Disease Severity.**

It proved impossible to find a single instrument which could provide an acceptable measure of the extent of patients' disability (functional limitation) as no universally acceptable means of quantifying such a multidimensional concept had been developed (Wright V. 1985). More recent work in this area holds out hope for the future (McDowell I. et al. 1987, Anderson J.A. et al. 1990). Different measures were used in each specialty area. Earlier work (Sullivan F.M. et al. 1987) in developing a method of disability assessment suggested that the **Health Assessment Questionnaire (HAQ)** (Fries J.F.1983) (Appendix 8) would be an appropriate measure for the Rheumatology patients. This measure gives results from zero (no problems) to thirty (severe symptoms), (Fries J.F. 1980). Discussion with several Vascular Surgeons suggested that the patients' **Reported Walking Distance (RWD)** (Appendix 9) was the measure most frequently used for their patients with Peripheral Vascular Disease. This was considered

acceptable only after an attempt to use the **Nottingham Health Profile** had not proved appropriate to the study setting (see pilot study). In the Dermatology clinics locally, the **Psoriasis Disability Index (PDI)** (Finlay A.Y., Kelly S.E.1987) (Appendix 10) was being developed and personal communication with the principal author suggested this might be a useful instrument. This gives scores from zero (no problems) to seventy (severe symptoms). In some of the analyses it was desirable to use a single measure to indicate disease severity. The disease severity scores in each of the study groups were coded into five categories of equal range from least severe to most severe to allow analysis of the results from the entire cohort. Figures 14-16 show that although these failed to provide equal numbers in each range the distribution in each specialty was broadly similar.

## **2.6. Pilot Studies**

During 1984-5 when the study method was being developed the author made five visits to his nearest District General Hospital (Hairmyres). The purpose of this "pilot" phase was to assess openly the response of patients (n=30) in the waiting area to the questions being considered for inclusion in the study. This was done by approaching patients who were waiting to be called to ask whether they would answer the pilot questionnaire. A note was made of the time taken to do so, any difficulties experienced and any spontaneous or elicited comments. In the light of the comments made, some questions were rephrased to be as readable as possible (Oppenheim, A.N. 1966) whilst retaining face validity. Similar contacts were made with groups of General Practitioners and hospital clinicians at this time.

A formal pilot study during December 1986 and January 1987 enrolled 86 study subjects. Minor alterations to the questionnaires were made to ensure that all study subjects and the participating doctors could complete the questionnaires in the conditions prevailing in the clinic. Until this point it had been intended to use the **Nottingham Health Profile** as a measure of disease severity for the patients with intermittent claudication as it had been used successfully for such patients before (Hunt S. et al. 1981). Unfortunately the time between arrival and consultation at these clinics proved too short for the questionnaire to be completed by 15 of the first 20 patients. Similar problems with completion continued although a total of 60/86 N.H.P. questionnaires were obtained. During discussions with both research assistants it emerged that some of the more threatening questions e.g. *"I feel there is nobody I am close to"* were inappropriate to the setting of a busy waiting room (some patients burst into tears). At this stage the **Reported Walking Distance** was substituted. This obviously entailed loss of many of the dimensions of the N.H.P. but a comparison between the reported walking distance and the "physical" component of the latter instrument showed a positive correlation ( $r_s$ ) of 0.5 ( $p < 0.001$ ). The complete questionnaire was tested for repeatability in one of the Rheumatology clinics by asking nine patients who had a long wait to complete the questionnaire a second time. Three insignificant differences in response were obtained and it was concluded that this method of eliciting information was stable, at least in the short term. Analysis at this stage is only presented as descriptive statistics showing recruitment and numbers of return visits (figure 6) as well as an assessment of the levels of agreement between the groups of study subjects (tables 3-5, Kappa statistics -0.38 to +0.6). These and other analyses not presented here allowed an early

validation of the study method and helped direct later interrogation of the data set. The very low levels of agreement with this pilot data meant that Kappa statistics were not calculated for the similar data in the main study.

Figure 6

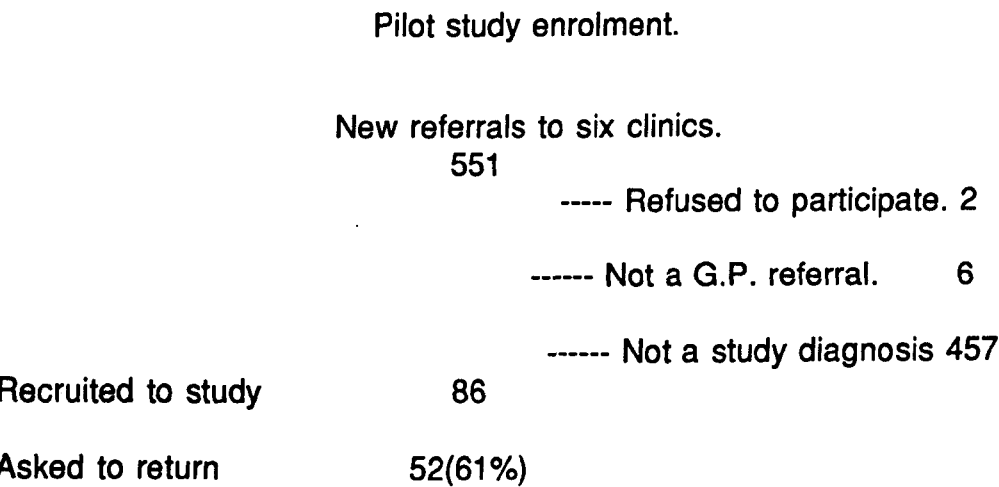


Table 3 Agreement between hospital clinicians and patients-Pilot

		HOSPITAL CLINICIAN'S REFERRAL REASON					
		Diag.	Treatment	Reassurance	Investign.	Other	Combln. TOTALS
PATIENT'S REFERRAL REASON	Diagnosis	9	10	1	4	5	31
	Treatment	3	14	0	1	1	21
	Reassurance	1	0	0	0	0	1
	Investigation	0	0	0	0	0	2
	Other	0	0	0	1	0	1
Combination		8	2	0	0	0	11
TOTALS		20	26	1	6	6	67



Table 4  
Agreement between General Practitioners and Patients-Pilot

GENERAL PRACTITIONER'S REFERRAL REASON							
	Diag.	Treatment	Reassurance	Investign.	Other	Combin	TOTALS
Diagnosis	1	3	0	1	1	2	8
Treatment	4	11	1	2	0	2	20
Reassurance	1	2	0	0	1	0	4
Investigation	2	5	0	0	0	1	8
PATIENT'S REFERRAL REASON	Other	0	1	0	0	0	1
Combination	4	1	0	1	0	0	6
TOTALS	12	23	1	4	2	5	47

Table 5  
Agreement between Hospital Clinicians and G.P.s-Pilot

GENERAL PRACTITIONER'S REFERRAL REASON							
	Diag.	Treatment	Reassurance	Investign.	Other	Combin.	TOTALS
Diagnosis	3	0	0	0	0	2	5
Treatment	5	8	0	0	0	3	16
Reassurance	2	1	0	0	0	1	4
Investigation	3	2	0	0	0	2	7
CLINICIAN'S REFERRAL REASON	Other	0	0	0	0	0	0
Combination	3	3	0	0	0	0	6
TOTALS	16	14	0	0	0	8	38

Table 4  
 Agreement between General Practitioners and Patients-Pilot

		GENERAL PRACTITIONER'S REFERRAL REASON						
		Diag.	Treatment	Reassurance	Investign.	Other	Combin	TOTALS
PATIENT'S REFERRAL REASON	Diagnosis	1	3	0	1	1	2	8
	Treatment	4	11	1	2	0	2	20
	Reassurance	1	2	0	0	1	0	4
	Investigation	2	5	0	0	0	1	8
	Other	0	1	0	0	0	0	1
	Combination	4	1	0	1	0	0	6
TOTALS		12	23	1	4	2	5	47

Table 5  
 Agreement between Hospital Clinicians and G.P.s-Pilot

		GENERAL PRACTITIONER'S REFERRAL REASON						
		Diag.	Treatment	Reassurance	Investign.	Other	Combin.	TOTALS
CLINICIAN'S REFERRAL REASON	Diagnosis	3	0	0	0	0	2	5
	Treatment	5	8	0	0	0	3	16
	Reassurance	2	1	0	0	0	1	4
	Investigation	3	2	0	0	0	2	7
	Other	0	0	0	0	0	0	0
	Combination	3	3	0	0	0	0	6
TOTALS		16	14	0	0	0	8	38

Also of interest at this stage was a review of the discharge behaviour of the different grades of hospital doctors (table 6).

Table 6

Hospital clinician's decision about discharge at first visit by grade of doctor -Pilot

		DISCHARGE DECISION		
		Retain	Discharge	Total
GRADE OF DOCTOR	Consultant	15	5	20
	Junior	13	1	14
	Clinical Assistant	2	2	4
	Total	30	8	38

Even with the small numbers in this part of the study the importance of this factor is becoming evident with junior doctors appearing to have lower discharge rates than their seniors.

The pilot study also allowed testing of the communication channels and recording methods to be used. More information about the study was requested by five General Practitioners which was incorporated into the letter which accompanied later questionnaires (Appendix 10).

### 2.7.Cohort Assembly and Follow-up

As soon as the initial results of the pilot study were available, patient recruitment began at the beginning of February 1987. The research assistants were each assigned one clinic in each specialty although both visited every study clinic at some point due to holidays and illness. During the recruitment phase it was necessary

for the research assistants to be present at every clinic on a weekly basis. Once the mechanisms for the distribution of follow-up questionnaires were established and the participating patients knew what to expect, this was delegated to the clinic receptionists when necessary.

All patients referred to the six study clinics during the next year were considered for entry and followed up until the end of January 1989. The research assistants visited these clinics every week to assist with the distribution of the self administered questionnaires. Patients who were discharged, defaulted or stopped attending for any reason were sent a final questionnaire within one month of ceasing to attend. The purpose of this was not only to assess their opinions on their series of visits to the clinic (Appendix 4) but also to verify the data extracted from the questionnaires and hospital records. At the end of the study period the notes of each patient entered into the cohort were reviewed for missing data and to confirm data entered onto the questionnaire. Reported deaths and otherwise unexplained study drop-outs were searched for in the Scottish Register of Births Deaths and Marriages.

## **2.8.Response Rates**

Response rates were excellent, with 98% of Hospital Doctors, 94% of Patients and 88% of G.P.s returning completed study questionnaires overall. Cooperation did not vary much with duration of the study. The response to the postal questionnaire when patients stopped attending was 68% after a single reminder.

## **2.9.Data Handling and Validation**

During the period of cohort assembly and follow-up of the early entrants the author held weekly meetings with both research

assistants. Data collection was reviewed and verification checks were made on coding and data entry (on an Excel database). This step was performed on an Apple Macintosh microcomputer for later analysis using SPSS-x (SPSSx 1983) and BMDP (Dixon, W.J. et al. 1985) on the Glasgow University mainframe computer (ICL). Individual patients were tracked using a Patient Monitoring sheet (Appendix 11) and weekly attendances via a Study Summary (Appendix 12). Losses to follow-up were all accounted for by the means above as well as a record search of the outpatient files. During the period of cohort assembly and follow-up of the early entrants the author held weekly meetings with both research assistants to review the data collected and verify if it was being correctly coded and entered on the computer.

Some data from individual clinic visits was lost when one of the research assistants failed to attend clinics during 1988. This occurred 3 months after the author had gone on a sabbatical period and despite continued weekly meetings with a project supervisor and monthly data summaries sent to the author. Once the non-attendance problem became apparent, an attempt was made to retrieve as much data from the study subjects attending clinics visited by this assistant as possible. The clinic staff had continued to distribute questionnaires to patients and many could be traced retrospectively to salvage a number of data points. A comparison was made of the data obtained from each research assistant to ascertain if any of the information provided had been fabricated. Inadequate identifying features were available for 112 of the subjects entered into the study by this assistant. These patients have been discarded. For the remainder whose notes could be traced demographic and initial disease severity data are compared in Table

**Table 7**

**Comparison of first visit data for each research assistant.**

STUDY VARIABLE	RESEARCH ASSISTANT	
	<b>A</b>	<b>B</b>
Mean Age(s.d.)	52.7(17.9)	51.8(17.7)
% Males	54.8	43.1
Previous attendance at outpatient clinic for same problem(%)	46.6	39.6
Patient's preferred outcome after first visit(% wishing to be retained)	72.4	67.9
Retained after first visit(%)	71.1	62.4
First visit severity scores		
Mean(s.d.) HAQ	12.5(8.8)	13.8(8.5)
RWD	4.4(1.6)	4.5(1.5)
PDI	26.0(12)	33.0(16)

With the exception of the percentages of the sexes the data from each research assistant are comparable which suggests that patients recruited into the study by each are derived from the same population. Obviously the loss of these patients from the study detracts from the certainty with which conclusions may be drawn, however the smaller study cohort does not appear to be any less representative of the population from which they are drawn.

## **2.10.Elimination of Bias**

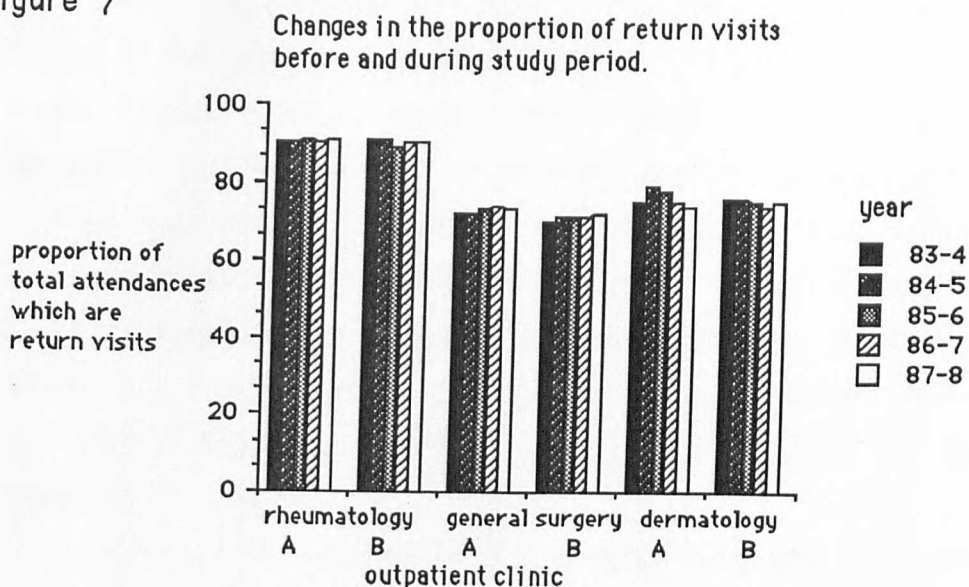
The target population was all patients referred to the study clinics from 1/2/87 to 31/1/88. The sample of clinics chosen

represents a mixture of medical and surgical specialties in both large teaching hospitals and their smaller counterparts. Selection bias for hospital clinics is unlikely as the first six consultants whose co-operation was requested agreed. Selection bias for patients is unlikely as all referrals to the clinics were considered for entry into the study cohort. The patients whom the research assistants were unable to approach (n=112) were merely those who were called in to see the doctor too quickly to complete the initial questionnaire and are therefore unlikely to differ from the rest of the study population although this assumption was not formally tested. The numbers of potential subjects refusing to enter the study were also too small (28/1246) to be of major importance. The main reason for refusal appeared to be perceived time pressure on the part of some patients.

One of the principal sources of bias considered was that of "participant bias" whereby the study might alter the discharge behaviour of the hospital doctors involved. In order to assess whether the study had any impact upon decision making, discharge rates in the study clinics before and during the study period were reviewed (figure 7) .

In the case of vascular surgery the figures for these clinics are contained within those of the general surgery clinics of that hospital in the figures which are routinely available (GGHB 1983-8). Within each of the clinics studied, discharge rates showed no significant change. The rheumatology clinics had a higher discharge rate than the other two specialties throughout the study period. The differences within other specialties over the same period were similarly unremarkable.

Figure 7



The observations within the study are indirect measures of the behaviour within consultations. For the purpose of extrapolation it is considered that these reflect the actual behaviour of doctors and patients in routine outpatient clinics. As in other studies in this setting (Bloor M. 1978) there was no evidence that the study altered the behaviour of the doctors under study, perhaps because the doctors in the Outpatient clinic are *"constrained to act as they would in the absence of a study.... because more potent forces are operating."* (Strong P.M.1979). In later studies not presented here, video recordings of outpatient clinics show apparently routine behaviour of the participating doctors.

## 2.11. Statistical Methods

Standard statistical techniques (Armitage P. 1971, Colton T. 1974) have been used to describe the characteristics of the study subjects; mean, standard deviation, standard error and 95% confidence intervals for normally distributed, continuous data;



median, range and quantiles for other continuous data; and numbers of responses for categorical data.

For further analyses the variables were examined for their approximation to normality by inspection and using the normality test (Statworks 1985). Thereafter the appropriate parametric or non-parametric tests were applied. The type of analyses considered were those designed to fulfill the aims and objectives of the study. In deriving the confidence intervals of the costs to patients and the N.H.S., natural logarithms were employed to counteract the large degree of positive skew.

The order of investigation was directed by earlier work in this area( e.g. grade of doctor, diagnosis) as well as the pilot study( e.g. clinic attended, duration of wait for first appointment) and factors which were intuitively felt to be appropriate( e.g. age, employment status). More advanced statistical inference and hypothesis testing proceeded from the initial univariate techniques on almost every variable which may have affected the outcome variables studied. Life-table analyses to examine the earlier findings were the next stage of the procedure. Finally a series of regression analyses used the most promising variables in an attempt to estimate their relative importance and to provide a basis for framing conclusions.

**Chi-square analyses** were performed to describe the interaction between pairs of variables with grouping of continuous variables as required. **Yates' correction** was used for Chi-square analyses on all 2 X 2 tables where the total number of observations was less than 100 and when any cell contained less than ten observations (Minitab 1981). **Fisher's exact test** was used instead of Chi-square where cells with expected frequency of less than five comprised more than 20% of cells (Armitage P.1971).

**Life-table analyses** (using the Lee-Desu method) (Lee E.T. 1980) were used to examine the influence of single variables on the end points of visits made and weeks of attendance. This technique is similar to the Kaplan-Meier method (ibid.1958) which is more frequently reported in studies of medical outcome (Peto R. et al.1977, Maguire P.A. et al.1986). This technique is well suited to the longitudinal method of study employed in this work: there is a clear and well defined starting point (the first clinic visit), a clear and well defined end point (discharge or failure to attend for follow-up), and that patients enter observation at different times, and at study termination, have been observed for different lengths of time. Life table analysis also provides another advantage in this setting because it makes assumptions about cases which are lost to follow-up (i.e. that loss occurs at the interval mid-point) which allows data from such cases to be used for statistical inference. Thereafter those variables which appeared to have a significant predictive effect upon outcome were included in multivariate analyses. This method of adjustment was especially helpful given that some patients were observed for only one year after referral whereas others could be observed for up to two years.

**A Multiple Linear Regression Analysis** was used to attempt to predict the numbers of visits made over the entire period of attendance. Similar techniques have been used by others to predict outcome in other clinical areas e.g. after "curative" colonic resection (Fielding et al.1986); prognosis in Rheumatoid Arthritis (Erhardt et al.1989); and outcome after hip fracture (Mossey J.M. 1989). The calculations involved in this part of the study were carried out using SPSS-x because of the complexity (Snedecor G.W., Cochran W.G.1967) of calculations which attempt to fit a linear

relationship where more than one independent variable is observed. The **stepwise** method of building an equation was employed. With this technique, if there are already independent variables in the equation, the variable with the largest probability of  $F$  is examined for removal. If the probability of  $F$  is larger than the removal criterion ( $POUT$ ), the variable is removed. The equation is again computed without the removed variable and the rest of the variables are examined for removal. Once no more independent variables need to be removed, all independent variables not in the equation are examined for entry. The variable with the smallest probability of  $F$  is entered if this value is smaller than the entry criterion ( $PIN$ ) and the variable passes the tolerance tests. Once a variable has been entered, all variables in the equation are again examined for removal. This process continues until no variables not in the equation are eligible for entry, or until the maximum number of steps set has been reached.

Unfortunately the technique of multiple regression, which examines outcome over several visits, involves discarding some of the variables which the univariate analyses and life-tables had suggested were important, but which changed at each visit: grade of doctor who saw the patient, disease severity at follow-up visits, changes in disease severity, reason for continuing attendance (patient, General Practitioner, hospital clinician). **Logistic Regression Analysis** (Hopkins A.1985) was employed as a means of predicting the outcome at the first two visits separately as well as who was a "continuing attender" (four or more visits). This technique uses a stepwise procedure similar to that described above to enter or remove variables from the model of influences on the outcome under study. Again this led to problems with loss of data as the numbers of discharges from some of the clinics were too

low to allow inclusion of their data. The calculations for visits one and two present data only from three clinics (one in each specialty area) comprising 278 cases.

Analyses using both of these regression techniques have been conducted for the cohort as a whole and for each specialty as a separate subgroup.

## **2.12 Feedback to Participants**

The results of the study have been considered in meetings with individual doctors who participated in the study. No feedback was given to patients. In the hospital sector each consultant who had allowed the work to proceed in their clinic was briefed, in detail, about the findings in their own clinic and given some de-identified or aggregate data with the other clinics. In three cases the project was also presented at more formal unit meetings attended by participating junior staff and non-participating doctors. Discussions with General Practitioners were held on an individual basis.

The comments of these doctors was included in the results and discussion sections where relevant.

### **3.Characterlistics of the Inception Cohort**

*Summary of chapter.*

*In order to allow inferences to be made beyond the study cohort there was detailed analysis of the characteristics of the inception cohort. Of the 1368 referrals to the study clinics, 504 (37%) were initially entered into the study but only 392 followed for the entire duration of attendance. The cohort were akin to that found in most adult outpatient clinics: predominantly middle-aged or elderly with more women represented. A wide distribution of disease severity scores was observed in each clinic. The patients had to wait up to 35 weeks from the date of referral until seen for the first visit. The reasons for referral given by all three groups studied were compared and a lack of agreement highlighted.*

#### **3.1.Demographic**

392 patients entered the study as summarised in table 8 with the figures from each specialty. A diagramatic version is shown in figure 8.

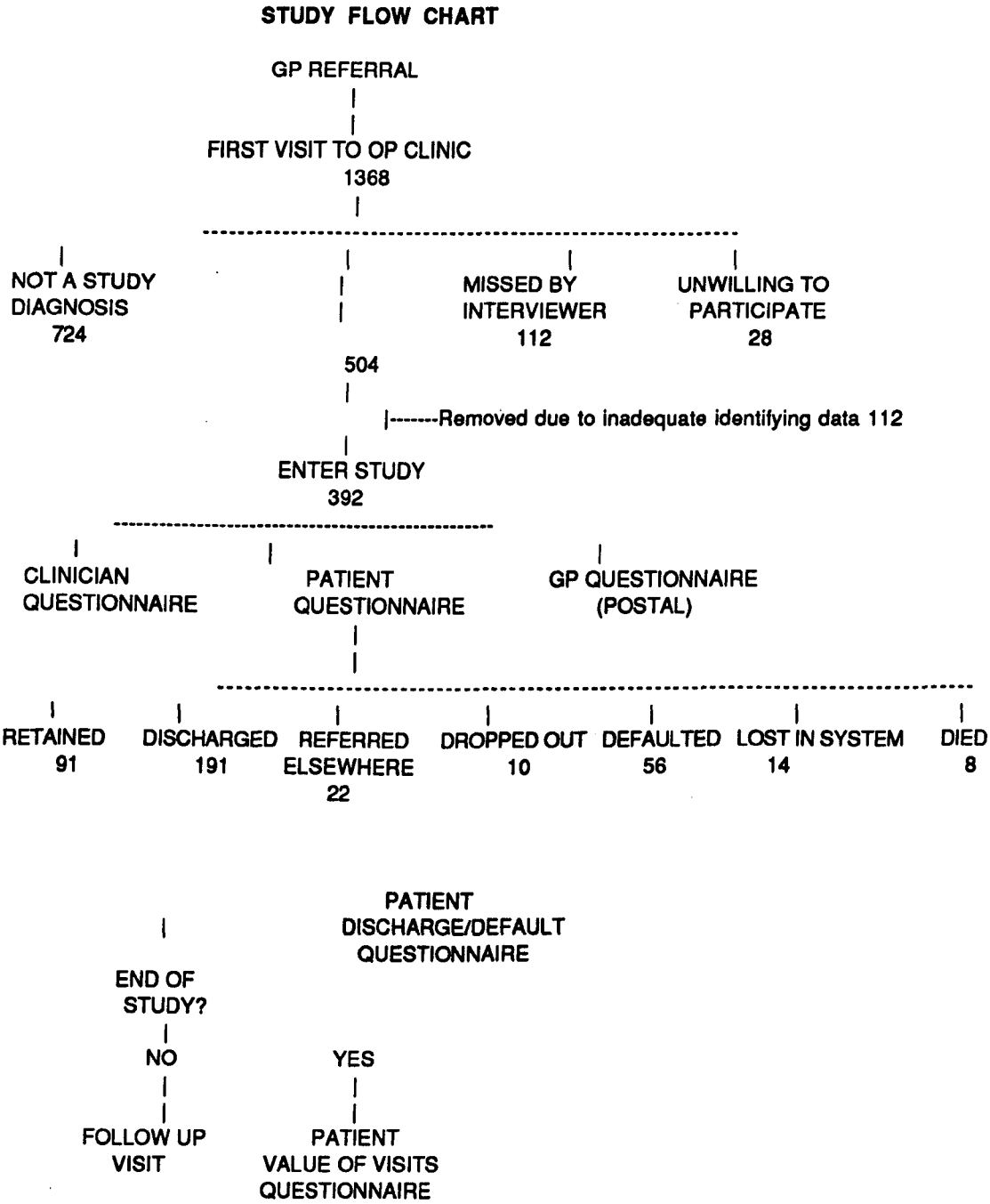
**Table 8**

**Cohort entry in each specialty area.**

<b>Specialty</b>	<b>Not a study diagnosis</b>	<b>Missed</b>	<b>Unwilling to Participate</b>	<b>Enter Study</b>	<b>Removed after entry*</b>	<b>Total First Attendances</b>
<b>Rheumatology</b>	108	26	9	230	51	363
<b>Vascular Surgery</b>	109	34	12	156	35	311
<b>Dermatology</b>	507	52	7	118	26	684
<b>Totals</b>	724	112	28	504	112	1368

\* Discussed in detail in section 2.9

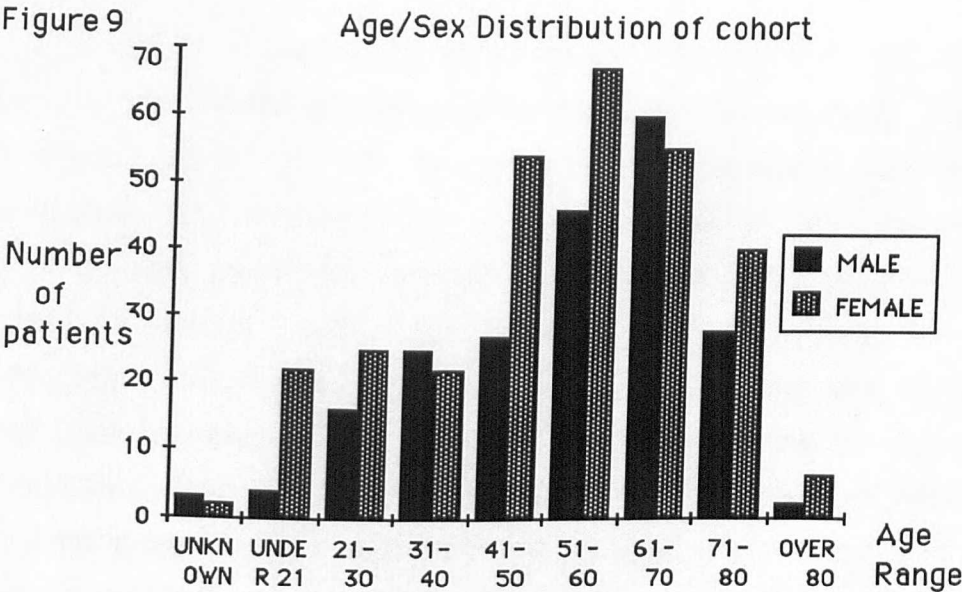
Figure 8



The table shows that variable proportions of first attenders failed to enter the study in each specialty for different reasons. This is particularly marked in the dermatology clinics with regard to diagnosis: many new referrals to dermatology clinics could not be

categorised as either psoriasis or eczema. This is the main factor explaining the variable rates of entry into the study. More patients refused to participate in the study in the vascular surgery group. Similar proportions of new attenders were missed by the research assistants as were those lost to follow-up in the problem discussed earlier.

The age/sex distribution of the entire cohort is shown in figure 9 with the age distribution of individual specialties shown in figure10.



These describe a population which is mainly middle-aged or elderly with a predominance of females. The Dermatology patients tended to be younger.

Figure 10

## Age Distribution within Specialties

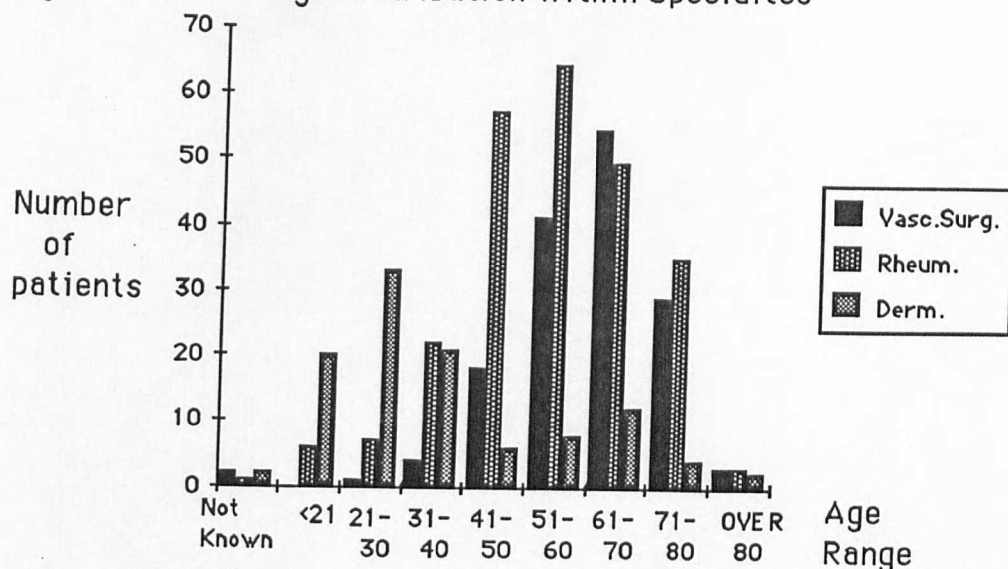


Table 9 compares the characteristics of the patients attending both clinics in each specialty at the beginning of the study. Two sets of figures here are of interest when considering the primary/secondary care interface: the high proportion of new referrals in each specialty who had been referred for the same problem on an earlier occasion (especially in Rheumatology) and the high percentage of patients (20%) attending more than one outpatient clinic simultaneously. The General Practitioner mentioned that 27% of patients had other major diagnoses in the referral letter. No separate analyses were undertaken to examine the influence of these other diagnoses.



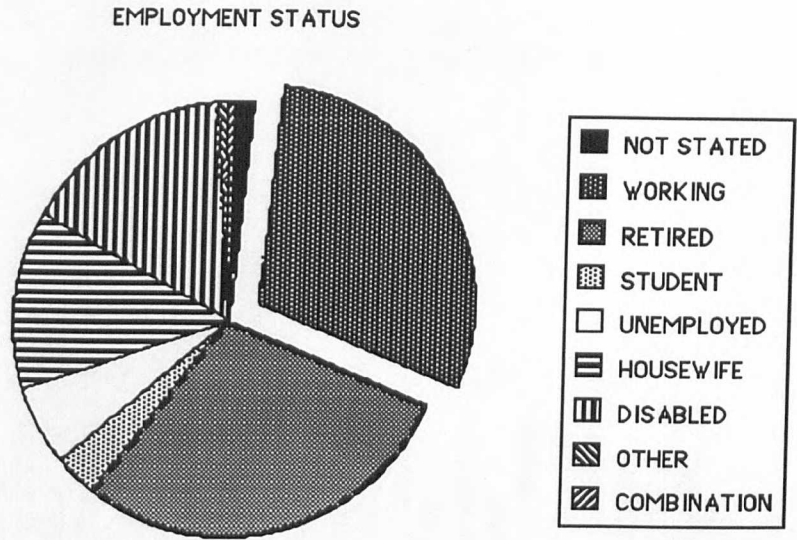
Table 9

Characteristics of patients entering the study cohort

	RHEUMATOLOGY		VASCULAR SURGERY		DERMATOLOGY	
	DGH	TH	DGH	TH	DGH	TH
Number	119	60	92	29	72	20
Mean age(SD)	55.6(13.7)	51.4(14.4)	63(10.9)	59.6(9.6)	34.8(12.4)	38.6(14.2)
% Male	30	18	62	72	40	35
Diagnosis(%)						
Rheumatoid arthritis	70	63				
Osteoarthritis	30	37				
Psoriasis					42	40
Eczema					48	60
Previous outpatient attendance for same diagnosis(%).	50	51	30	32	36	35
Currently attending another outpatient clinic(%).	23	26	29	33	7	5
Currently employed	22	25	22	24	47	37

Further details are given of the composition of the study sample in figure 11 which shows the employment status of the patients. In fact, 76% of those in employment were missing work to attend hospital.

Figure 11

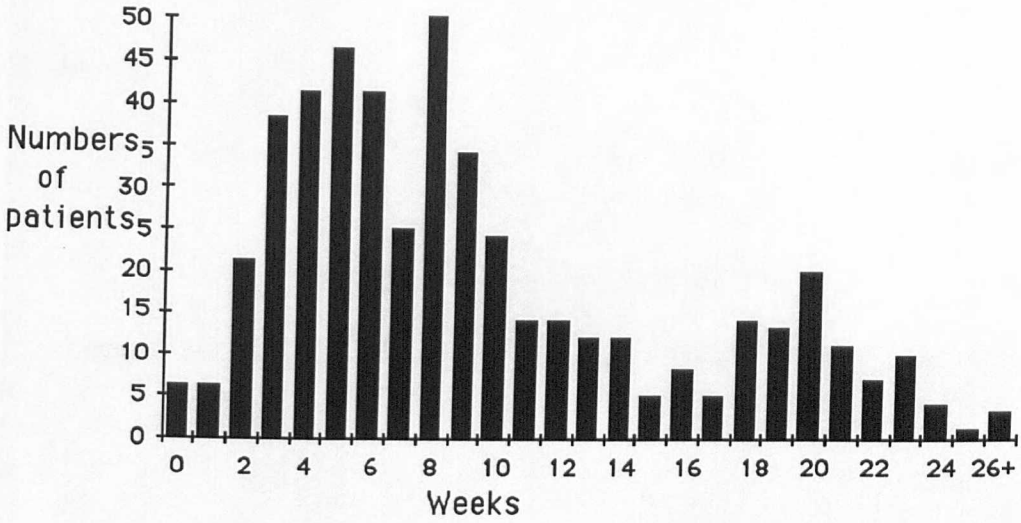


Furthermore, half of the clinic attenders are accompanied to the clinic and almost half of their companions took time off work to come with them. Some other noteworthy features were that 27% of the patients were travelling more than 10 miles to the clinic, and that 10% needed an ambulance to make their first visit.

**3.2.Waiting time for first appointment**

The patients had waited 0-35 weeks for their first appointment (fig.12) (mean 8.6 S.D. 5.9). The longest waiting times were for the Rheumatology clinic which required a mean of 11.8 weeks compared to the 4.5 weeks in Vascular Surgery and 8.3 weeks in Dermatology.

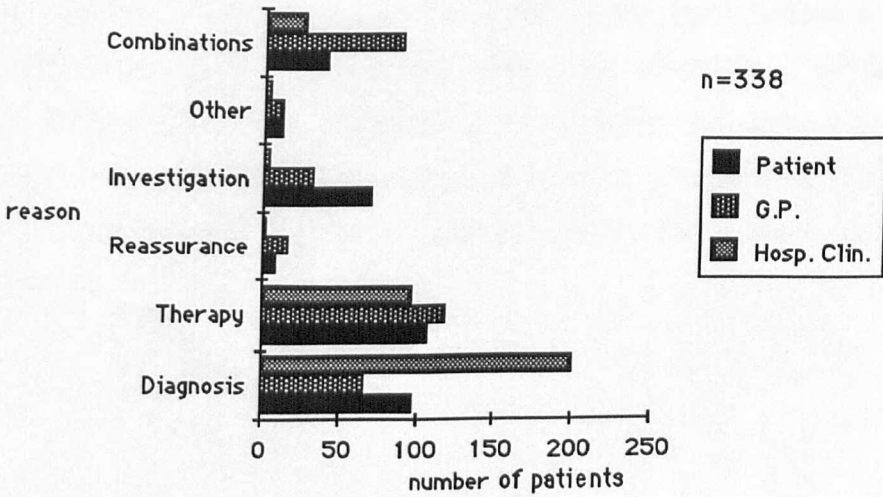
Figure 12 Time between referral and first clinic visit.



### 3.3 Reasons for referral

Reasons for referral are shown for all three groups in figure 13. The principal reason given by General practitioners and patients is therapy whereas the hospital doctors thought that the main reason for referral was usually diagnosis.

Figure 13 Reason given for referral



Tables 10-12 consider the levels of agreement between the patient, General Practitioner and hospital doctor for the entire cohort in some detail.

Table 10

Agreement(%) between General Practitioners and Patients about the reason for referral.

GENERAL PRACTITIONER'S REFERRAL REASON							
	Diag.	Treatment	Reassurance	Investign	Other	Combin.	TOTALS
Diagnosis	21	30	6	11	5	28	99
Treatment	17	53	7	5	4	22	108
Reassurance	2	2	1	1	0	3	9
Investigation	10	20	2	11	1	26	70
PATIENT'S REFERRAL REASON	Other 5	5	0	0	2	0	12
Combination	13	9	1	4	2	11	40
TOTALS	68	119	17	32	12	90	338

The most commonly cited reason for referral by both patients and General Practitioners was therapy. Hospital doctors frequently disagreed, believing that the patient was referred for diagnosis. It is of interest that the doctors questioned always provided a definite response to this question, whereas five of the patients were unable to state the reason for referral.

Table 11

Agreement(%) between hospital clinicians and patients about the reason for referral.

## HOSPITAL CLINICIAN'S REFERRAL REASON

	Diag.	Treatment	Reassurance	Investign	Other	Combin.	TOTAL
<b>Diagnosis</b>	81	17	1	1	0	6	106
<b>Treatment</b>	50	56	1	2	2	9	120
<b>Reassurance</b>	8	2	0	0	0	1	11
<b>Investigation</b>	50	14	1	1	4	12	82
<b>PATIENT'S REFERRAL REASON</b>	<b>Other</b> 8	4	0	0	0	0	12
<b>Combination</b>	30	12	0	0	0	4	46
<b>TOTALS</b>	227	105	3	4	6	32	377

Table 12

Agreement(%) between doctors about the reason for referral.

## GENERAL PRACTITIONER'S REFERRAL REASON

	Diag.	Treatment	Reassurance	Investign	Other	Combin.	TOTALS
<b>Diagnosis</b>	56	51	10	26	7	51	201
<b>Treatment</b>	9	55	4	2	5	23	9
<b>Reassurance</b>	0	0	1	0	0	2	3
<b>Investigation</b>	0	1	0	1	0	2	4
<b>CLINICIAN'S REFERRAL REASON</b>	<b>Other</b> 0	4	0	0	0	1	5
<b>Combination</b>	4	9	2	3	0	9	27
<b>TOTALS</b>	69	120	17	32	12	88	338

Table 13 summarises the low levels of agreement among those involved in the decision to refer: patient, General Practitioner and hospital clinician.

Table 13

Absolute agreement(%) by matching response category on the referral reason overall and in individual specialties.

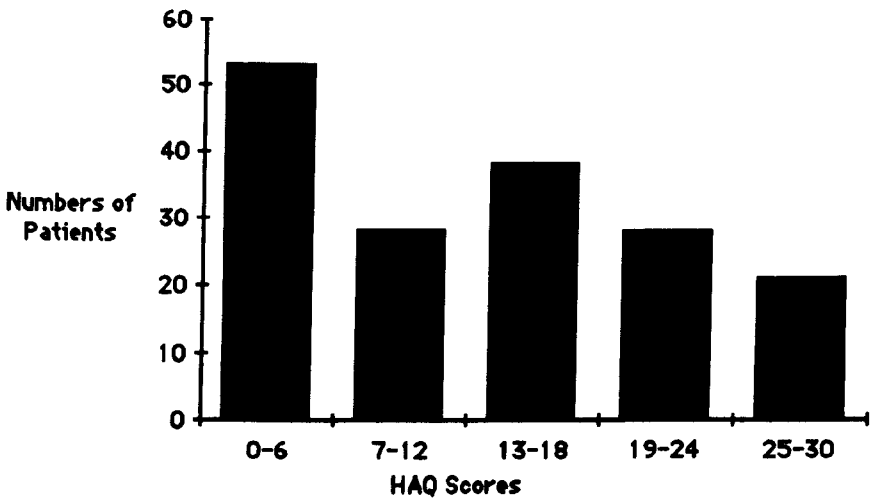
	General Practitioner	Hospital Clinician
Patient: Overall	29	37
Rheumatology	33	34
Vascular Surgery	20	36
Dermatology	33	44
General Practitioner: Overall		36
Rheumatology		37
Vascular Surgery		21
Dermatology		56

The lowest levels of agreement were found in the Vascular Surgery clinic because the General Practitioner frequently felt that the principal reason for referral was for therapy whereas the patient and hospital doctor usually considered investigation to be the motivation. Conversely most agreement was achieved in the Dermatology clinic where the patients and hospital doctors agreed with the referring General Practitioner that the principal reason for referral was treatment of an already diagnosed condition. Despite the lack of agreement on the reason for referral, General Practitioners agreed with the hospital clinician's decision to discharge or retain the patient at the first visit in 94% of cases. The effect of failure to agree is considered further in chapter 5.

### 3.4.Clinical

The distributions of scores for the measures of disease severity recorded at the first visit are shown in figures 14-16.

**Figure 14**                      **Distribution of HAQ Scores**



**Figure 15**                      **Distribution of reported walking distance scores**

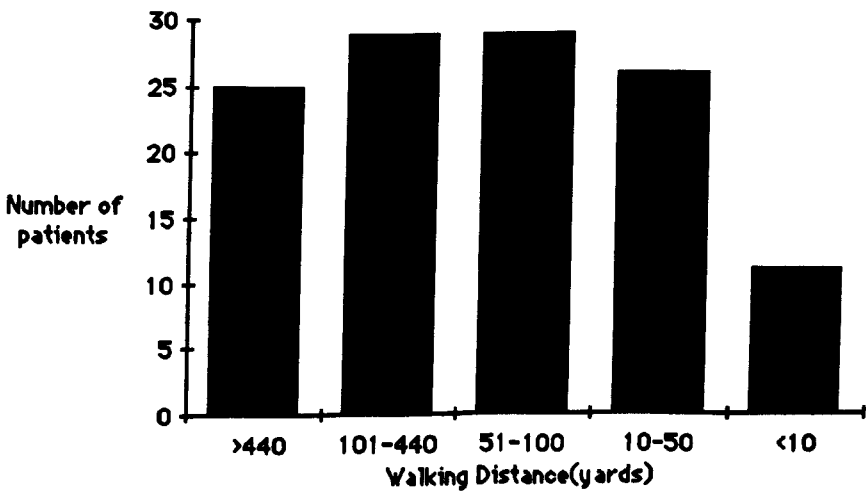
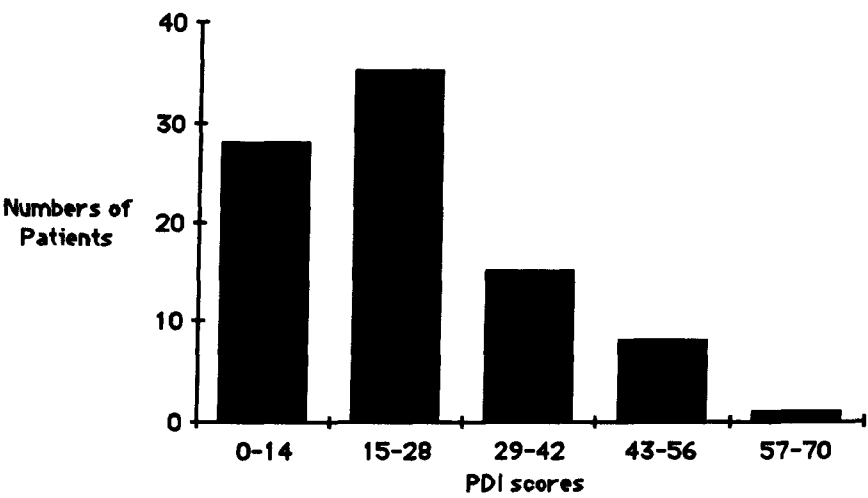


Figure 16                      Distribution of PDI Scores



The Health Assessment Questionnaire and the Psoriasis Disability Index scores show a predominance of low scores and the Reported Walking Distance a more normal distribution. There was a weak tendency for older patients to report higher disease severity scores. Table 14 compares the disease severity scores of the patients recruited from both clinics of each specialty at their first visit. There are no significant differences between the groups ( $p>0.05$  in every case).

Table 14                      Comparison of Disease Severity at First Visit  
in DGH and TH settings

SPECIALTY	DGH	TH
Rheumatology mean H.A.Q.(S.D.)	12.5(8.8)	13.8(8.5)
Vascular Surgery mean R.W.D (S.D.)	4.5(1.5)	4.4(1.6)
Dermatology mean PDI(S.D.)	26(12)	33(16)



## **4.OUTCOME OF REFERRAL**

### *Summary of chapter.*

*The outcome of the referral was described in terms of visits made, duration of attendance and final attendance status at the end of the study period. The median number of visits made was two, 45 patients were in the upper quintile of visits made i.e. four or more. 179 patients attended the clinic for twelve weeks or more, 46 attended for a year or more. Most patients who stopped attending were discharged (191) , 56 defaulted and 14 were lost to follow-up due to administrative error. There was great variability within and between specialties whichever method was used. Dermatology patients had fewest visits over the shortest periods. The upper quintile of the distribution of visits made was considered to be the most suitable for further analysis. The cost of attendance was estimated to be from zero to £2279.50 for individual patients. The cost to the hospital service was less precisely estimated but ranged from £11.20 to £139.20. Many newly referred patients (30%) hoped to be discharged at their first visit. 46% felt that attending the clinic had improved their condition but, only 23% of those discharged disagreed with the decision to discharge. Most satisfaction was expressed by those who made most visits.*

### **4.1.Duration of Attendance**

The 392 patients who entered the study cohort made a total of 936 visits (median 2 range 1-8) during 8518 patient-weeks (median duration of attendance nine weeks range 0-93 weeks) of observation (figure 17). Those who made four or more visits constituted the upper quintile of the distribution of visits made.

Rheumatoid patients were more likely to have made four or more visits (35%) compared to the other four diagnoses. These were respectively: Osteoarthritis 10%, Peripheral Vascular Disease 18%, Psoriasis 11% and Eczema 11% (figure 18).

Figure 17                      Numbers of visits made by cohort

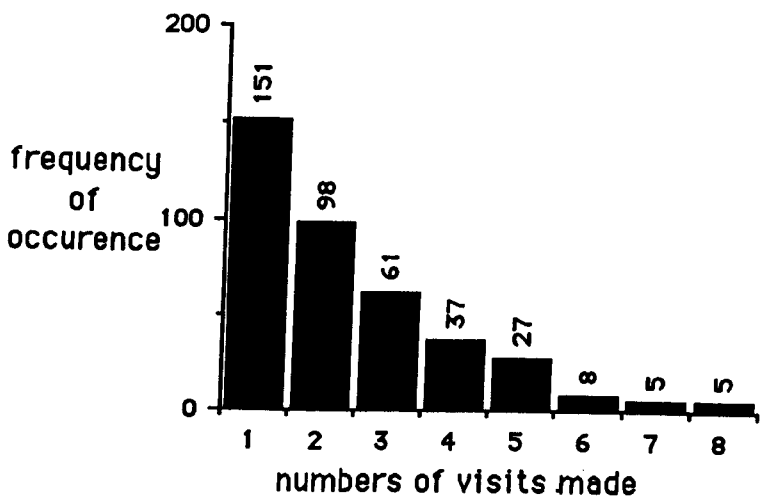
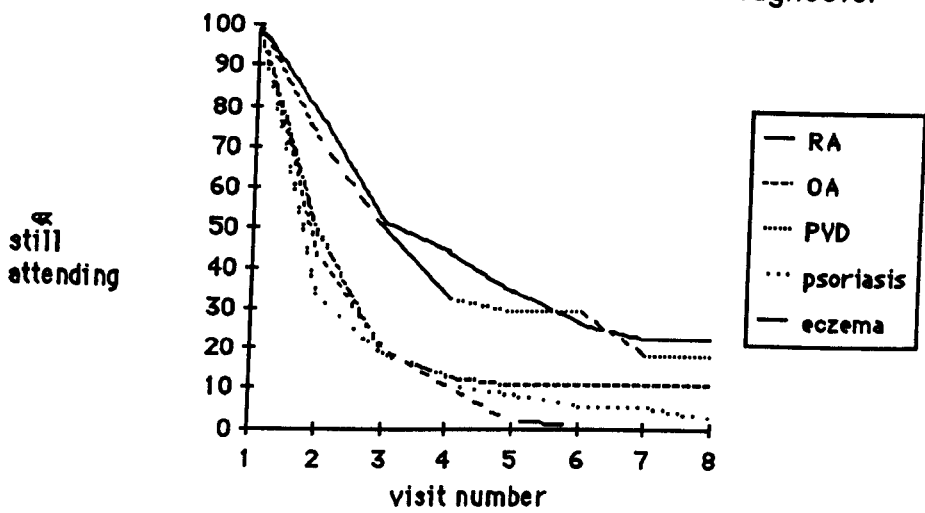
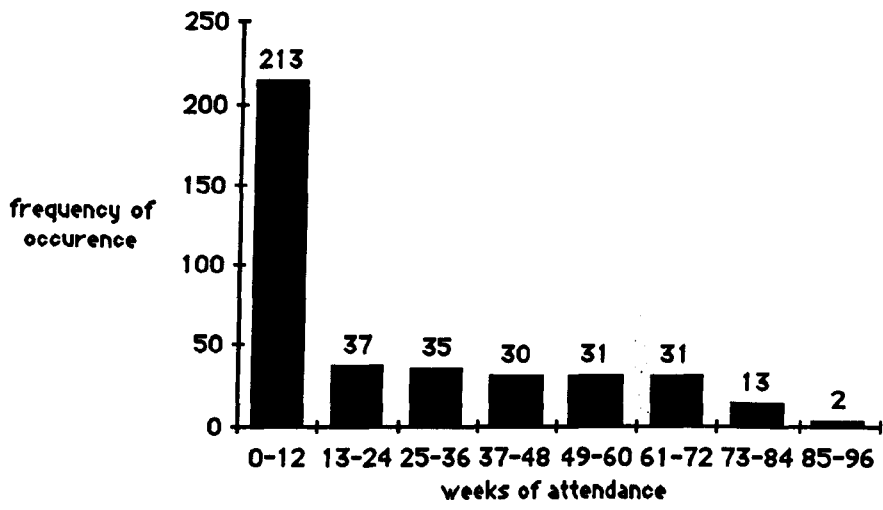


Figure 18                      Life table of numbers of visits made by diagnosis.



Another method used was to consider those who attended for more than twelve weeks. This interval may be considered arbitrary but it does allow adequate time for investigation and evaluation of one or two management plans as shown in figure 19.

Figure 19                      Duration of attendance

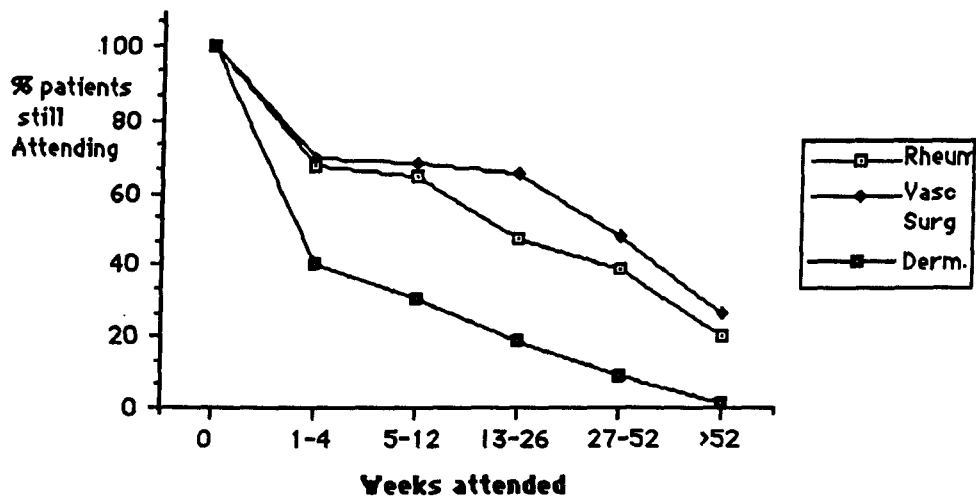


The variability in different specialties with this criterion was as great for the weeks of attendance as with the number of visits criterion: 73(60%) Rheumatoid, 12(21%) Osteoarthritis, 78(64%) Peripheral Vascular Disease, 7(19%) Psoriasis and 9(17%) Eczema patients.

91(23.2%) of the patients were still attending at the end of the study period one to two years after their first visit. The numbers of weeks of attendance are shown in figure 20 subdivided for the different specialties. Rheumatoid Arthritis and Peripheral Vascular Disease contributed 45% and 46% respectively to the total of those who continued to attend for more than a year.

Figure 20

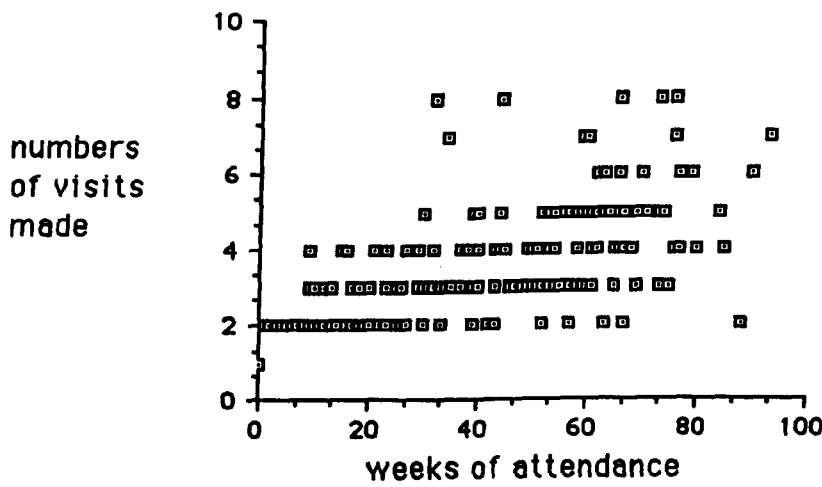
Life table of weeks of clinic attendance by specialty



Obviously the numbers of visits made and the duration of attendance are closely related as shown graphically in Figure 21 ( $r_s=0.94$ ,  $p=0.0001$ ).

Figure 21

Correlation between the numbers of visits made and the duration of attendance.



## 4.2.Attendance Status

The most common reason for stopping outpatient attendance was discharge as shown in figure 22 i.e. 191/392(49%), but 56(14%) defaulted and 14(4%) were lost to follow up due to administrative error. Default usually occurred after the first (23/56) or second (16/56) visit. The reasons given by the 25/56 patients who replied to this were as follows:

G.P. asked me to stop coming-2-;

unable to continue to miss work-11-;

wait in clinic too long-9-;

clinic too far away-3-.

The reasons for loss to follow-up due to administrative error (again mainly after the first two visits 11/14) were as follows:

failure to send appointment once results of tests available - 5;

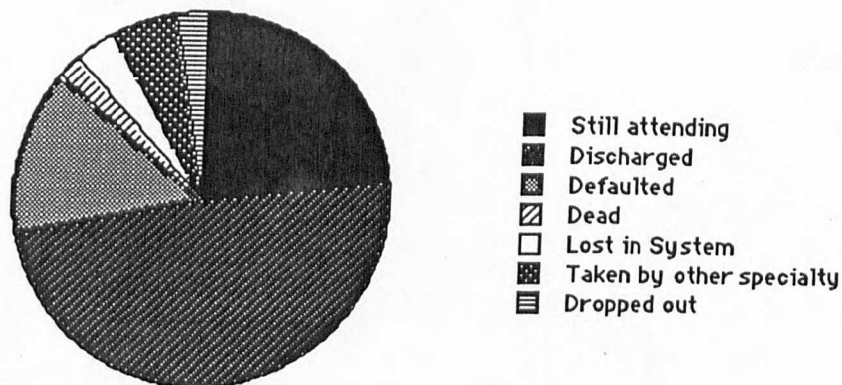
clerical error-6;

patient failed to make appointment as requested-3.

Interestingly, 11/14 patients had been seen by a junior doctor on the occasion that administrative arrangements went astray.

Figure 22

Outcome of referral for all patients



There is already concern that the administrative arrangements for outpatient clinics may lead to major inefficiencies. For example policy of late notification that leads to "*Failed Appointments*" (Frankel S. et al.1989) for first visits. The above data suggest another area of clinic administration which might be reviewed in some hospitals.

Table 15 shows the percentages of patients admitted after the first visit and at any time. As with many other observations the differences within specialties are as great as those between specialties. As expected the surgical clinics admitted significantly more patients. The dermatology patients were either admitted after the first visit or not at all. Associations between admission data and outpatient attendance were sought but none were found. It is not considered any further.

Table 15

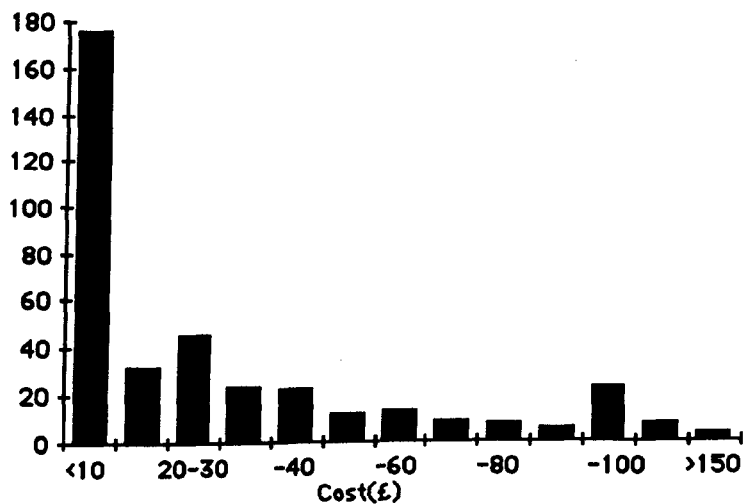
% Admissions of cohort patients from each hospital clinic.

Specialty	Clinic	After first visit	At any time
Rheumatology	DGH	7.6	8.4
	TH	1.7	5.0
Vascular	DGH	25.0	33.7
Surgery	TH	58.6	82.8
Dermatology	DGH	1.4	1.4
	TH	25.0	25.0

4.3.Costs

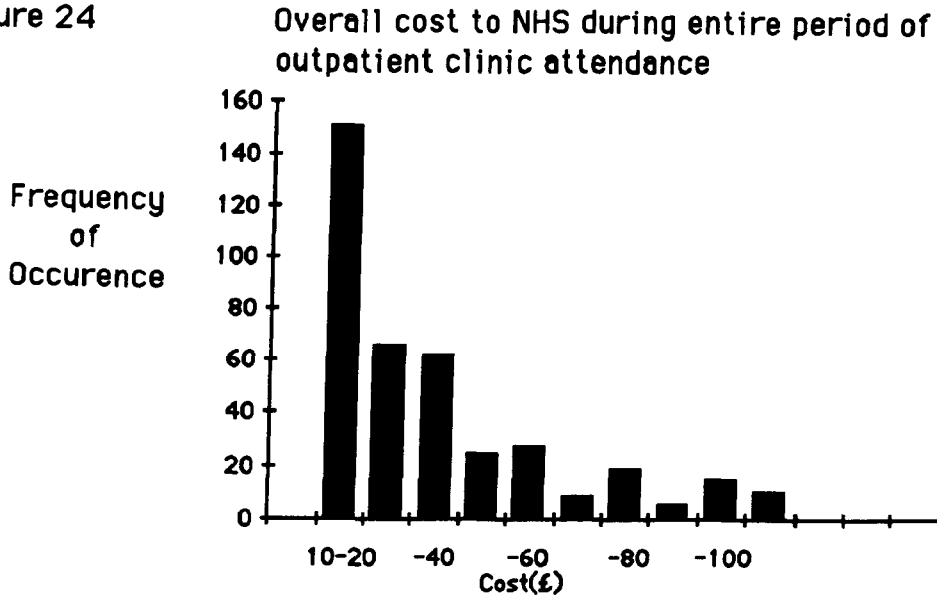
The distributions of outpatient costs for the entire duration of attendance were not normally distributed for either individual patients or to the NHS. There was a particularly noticeable positive skew for the costs to patients (figure 23) where the range was zero to £2279.50 (median £17.70 mean £44.81). For those in employment, loss of earnings was the main cost. For some individuals whose journey required the services of two taxis and public transport, the costs could be very high. The cost per visit had no effect on the rate of default although employed patients showed a greater tendency to default ( $p=0.06$ ).

Figure 23 Overall cost to patient during period of outpatient clinic attendance



These figures do not allow any consideration of the opportunity cost of clinic attendance. Employed persons who attended during time off work and unemployed patients could consider the loss of leisure time to have a monetary value equivalent to the rate of pay they might have received (Mooney G. 1983). This may partly explain why the costs accounted for above did not significantly affect default rates.

Figure 24



Hospital clinic costs are shown in figure 24. They were considered to be the average cost for a clinic in that specialty at that hospital added to any ambulance transport costs. These varied between £11.20 - £139.20 (median £28.50, mean £35.80). The highest costs here were incurred by long ambulance journeys by a few patients. No information on differential costing at individual visits was possible.

There was no evidence to suggest that the doctors in this study considered cost data when deciding whether to discharge or retain individual patients.

The cost per clinic attendance to the NHS is calculated using very broad assumptions (CSA 1988) the true cost for an individual visit being highly dependent on time with health professionals, clinic administration arrangements, investigations performed treatment given (and whether this cost was borne by the hospital or primary care sector). With the exception of a few hospitals such as Guy's in London this data is not available to the clinician seeing the

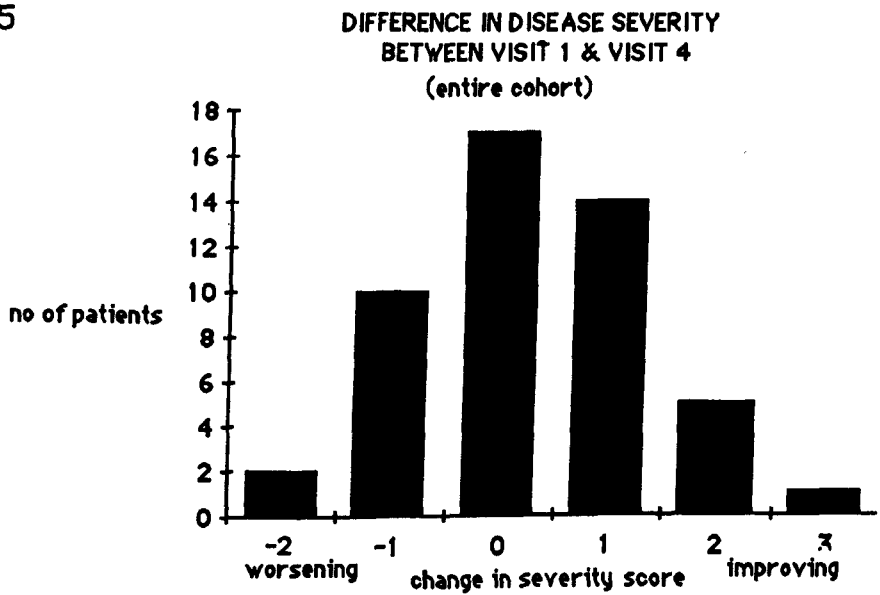


patient. Feedback of cost data has been shown to reduce costs incurred by doctors (Tierney W.M. et al. 1990).

#### 4.4. Benefits

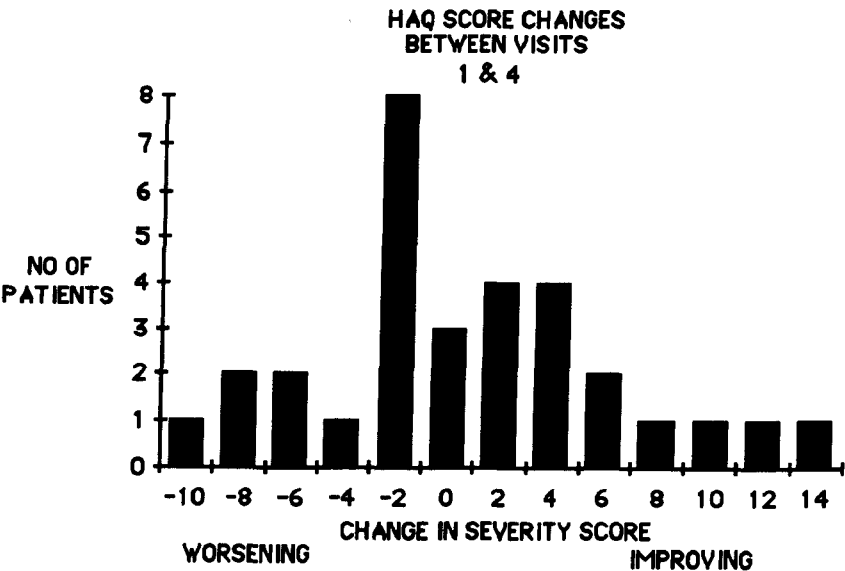
The study failed to discern any overall improvements in the patients' levels of disease severity for those who continued to attend the clinic for four or more visits (fig.25).

Figure 25



This finding also held true when it was looked at by individual specialty, for example in Rheumatology (figure 26).

Figure 26



The observation of a lack of benefit using the outcome measures chosen also held true between each clinic visit for individual clinics, specialties and the complete cohort. Similarly the time after initial attendance failed to show any association with overall improvement. This probably reflects the great heterogeneity of the study sample even within diagnostic groups. Individual patients with Rheumatoid Arthritis, for example, may spontaneously improve or deteriorate independently of whether they continue to attend the Rheumatology clinic. Management plans are usually formulated on the basis of complex patterns of symptoms, signs, investigations and other individual patient characteristics not for groups of patients. Such plans have variable success rates, with the aim in some patients being merely the arrest or slowing of disease progression rather than improvement.

The outcome measures have been validated as described earlier but usually in the setting of a more homogeneous group of

patients. With such a wide spectrum of diagnoses, disease severity and clinics studied perhaps it is hardly surprising that the study showed so little overall effect upon these measures.

4.5. Patients' Opinions

Before seeing the hospital clinician at their first visit patients were asked: "If given the choice today, which would you prefer: To be referred back to your own G.P.; To come back to the clinic for further visits; Don't know".

30% of patients hoped to be discharged (figure 27).

Figure 27

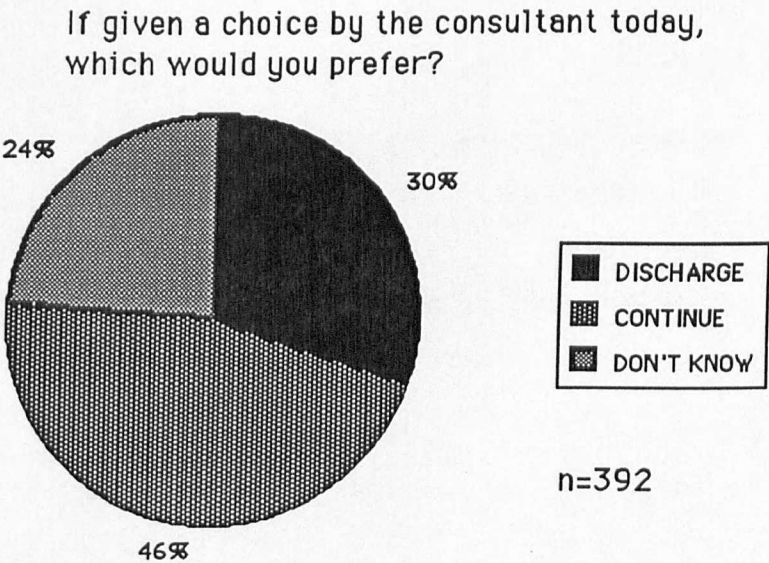
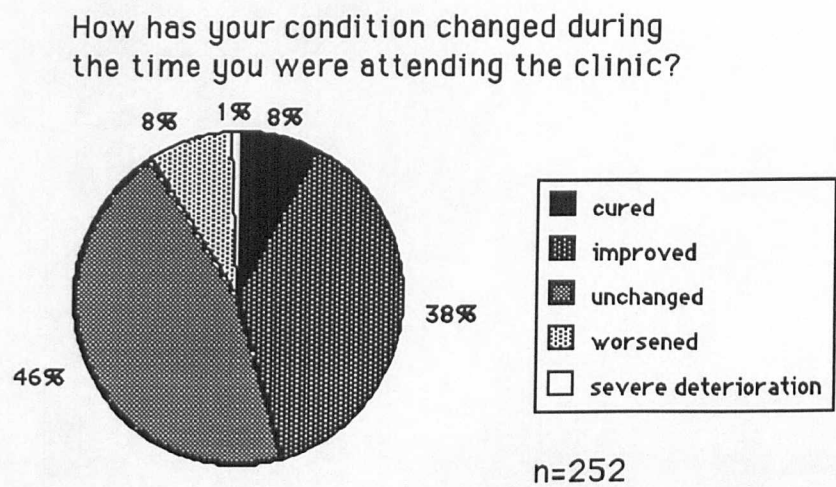


Figure 28 shows patients' opinions on the value of their time in the clinic.

Figure 28

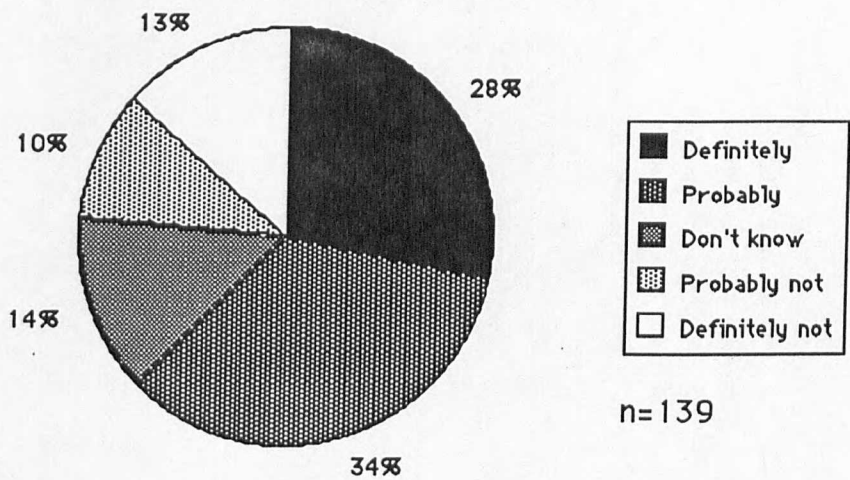


Vascular Surgery patients expressed greatest benefit and Rheumatology patients reported the least improvement in their problems.

Figure 29 shows the views of the discharged patients on the decision by the hospital doctor to discharge them.

Figure 29

Do you agree with the hospital doctor's decision to discharge you?



The Vascular Surgery patients again expressed greatest satisfaction with the discharge decision definitely agreeing in 50% of cases as against 14% and 30% for Rheumatology and Dermatology respectively.

62% of the Patients considered that their attendance at the outpatient department had been worthwhile, with more satisfaction expressed by those who attended for most visits (table16)(chi-square 21.6, DF=4, p=0.0002).

Table 16  
PATIENTS' OPINION ON VALUE OF ATTENDING O.P. CLINIC

TOTAL	Very Worthwhile	Worthwhile	Uncertain	Not Helpful	Waste Of time
Three visits or less 197	41	69	43	22	22
Four visits or more 55	27	19	4	2	3
Total 252	68	88	47	24	25

The patients who defaulted or who were lost to follow up due to an administrative error were less likely to be satisfied compared to those who continued to attend (table 17).

Table 17

**PATIENTS' OPINION ON VALUE OF ATTENDING O.P. CLINIC**

TOTAL	Very Worthwhile	Worthwhile	Uncertain	Not Helpful	Waste Of time	
Still Attending After 1 yr.	27	28	8	2	1	64
Discharged	31	45	31	15	17	139
Defaulted	3	9	7	2	4	25
Lost in hospital System (ADMIN.ERROR)	3	2	0	4	1	10
Referred to another outpatient clinic	7	4	1	0	1	13
TOTAL	71	88	47	23	24	257

## **5. Reasons for continuing attendance**

### **Summary of chapter**

*The views of the patients, General Practitioners and hospital clinicians about the reasons for referral and their perceptions about the reasons for continuing to attend were sought. Patients who were referred for therapy were more likely to continue attending. The most common reason for continuing attendance given by all three groups was consultant supervision. The influence upon discharge of the grade of doctor seeing the patient at each visit was extremely important. The variables which earlier work and the pilot study had suggested as important in the decision to continue attendance were also considered in greater detail. These were statistically analysed in a progressively more complex fashion beginning with univariate tests, moving to life-table techniques then finally on to multiple and logistic regression analyses. At each stage the earlier findings were incorporated into the progressively more complex analysis. Different diagnoses had a different predictive value: rheumatoid arthritis and peripheral vascular disease patients were most likely to return for four or more visits. Increasing disease severity scores made discharge progressively less likely and seeing a consultant made discharge four times more likely at the first visit and nine times at the second visit. Taken together these three variables could predict up to 80% of discharge decisions in this cohort of patients.*

### **5.1 The importance of the reason for referral**

Table 18 describes the outcome of referral by the G.P.s perceived reason for making the referral. Those referred for therapy were most likely to still be attending (chi square 15.0, d.f. 6,  $0.05 > p > 0.01$ ). Discharge was more likely where the referral reason was for diagnosis or reassurance. There were no other statistically important influences arising from the General Practitioner's reason for referral.

Table 18

GENERAL PRACTITIONER'S REASON FOR REFERRAL( column %)

	Diagnosis	Therapy	Reassurance	Investigation	Other	TOTAL
<b>Still attending after 1 yr.</b>	8 (11)	57(27)	1(6)	8(25)	5(42)	79(23)
<b>Discharged</b>	47(66)	88(41)	13(77)	16(50)	3(25)	167(48)
<b>Defaulted</b>	11(16)	32(15)	2(12)	3(9)	2(17)	50 (15)
<b>Dead</b>	0(0)	5(2)	0(0)	1(3)	0(0)	6(2)
<b>Lost in Hospital System (ADMIN.ERROR)</b>	1(1)	11(5)	0(0)	1(3)	0(0)	13(4)
<b>Referred to another Specialty</b>	3(4)	13(6)	1(6)	2(6)	2(17)	21(6)
<b>Dropped Out of study</b>	1(1)	8(4)	0(0)	1(3)	0(0)	10(3)
<b>TOTAL</b>	71	214	17	32	12	346



5.2. Patients' and doctors' perceptions about the reason for continuing attendance at each visit .

When asked at the first and subsequent visits for the reasons for continuing attendance the respondents answered as shown (as percentages of responses at each visit) in figures 30-32. The absolute numbers fell from 392 at the first visit to 30 or less beyond the fifth visit.

Figure 30        Patients' reasons for continuing attendance during first five visits to the Outpatient clinic.

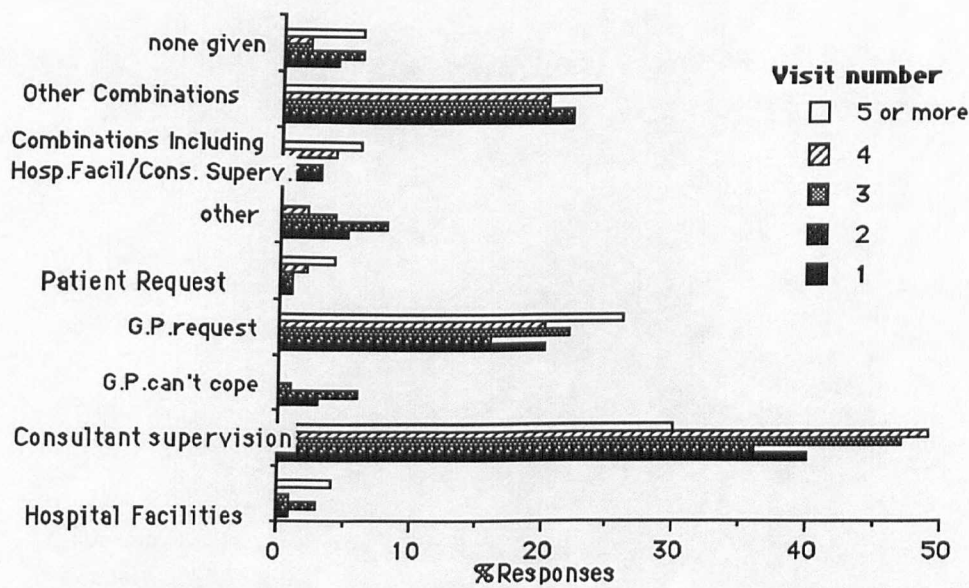


Figure 31      General Practitioners' reasons for continuing attendance during first five visits to the Outpatient clinic.

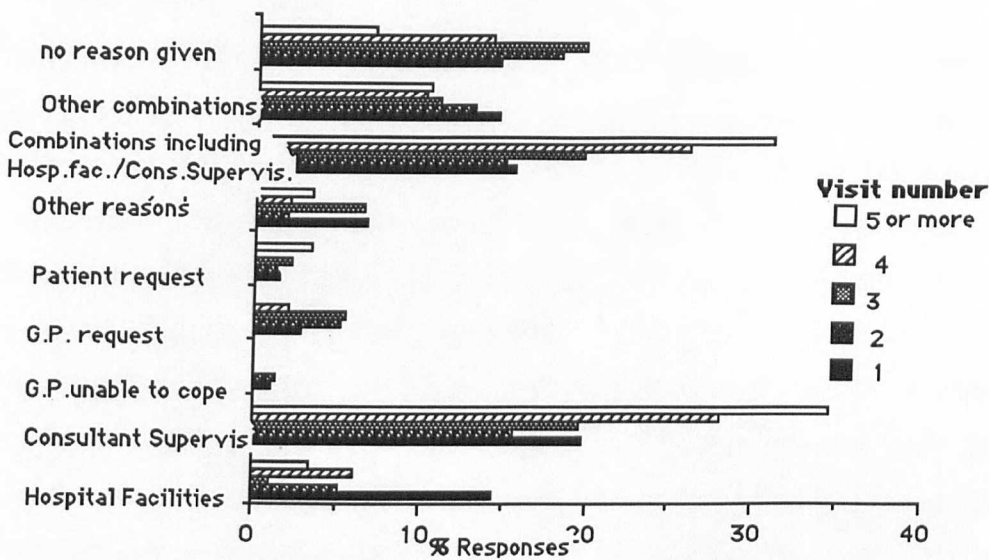
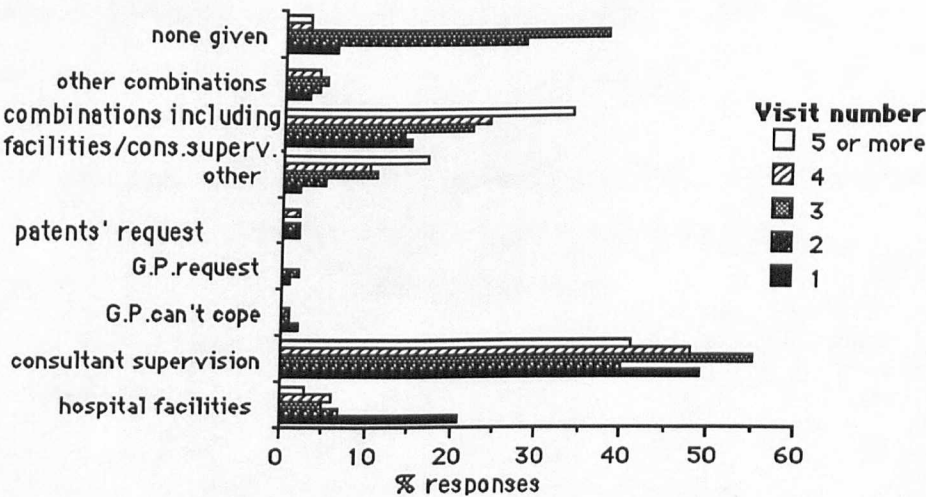


Figure 32      Hospital Clinicians' reasons for continuing attendance during first five visits to the Outpatient clinic.



Each group agreed that the main reason for continuing attendance was Consultant supervision. This held true for the initial visit as well as follow-up.

Patients more often perceived that their General Practitioner had requested that their management be transferred to the hospital sector than did either group of doctors. This was also reflected in the inclusion of this reason in the "other combinations" response. Patients' requests that care be transferred were infrequent, the apparent rise in the percentage of responses during follow-up (figure 30) being explained by falling absolute numbers. Even by the fifth visit only two patients had made such a request. Compared to the two groups of doctors studied, the patients placed less emphasis upon the hospital facilities and rather more upon the skills of the consultant to whom they had been referred. The value put upon attendance at the clinic appeared to be related to increasing numbers of visits made ( $p=0.0002$ ) (table 16). This also held true in each of the specialty areas, but only reached statistical significance ( $p=0.01$ ) in the rheumatology clinics(table 19).

Table 19

Patients opinions on the value of attending a Rheumatology clinic categorised according to the number of visits made.

Opinion	Numbers of visits		Total
	Three visits or less	Four visits or more	
Very Worthwhile	13	17	30
Worthwhile	30	14	44
Uncertain	18	1	19
Not Helpful	12	1	13
Total	73	33	106

There were no important statistical differences between the General Practitioners and clinicians with regard to the reasons for continuing attendance. They may not have agreed on individual cases but overall their responses were congruent. The perceived need for consultant supervision was the reason most commonly cited by both groups of doctors: either singly or in combination with other factors. The importance of hospital facilities became less important for those who continued to attend.

A significant difference (chi-square,16.42 D.F. 7, p= 0.02 ) was noted between the consultants and their junior staff as shown in table 20 with juniors suggesting (at the first visit at least) that Consultant supervision was less important than some of the other factors. Of particular interest is the observation that only six of the doctors stated that the patients' own doctor would be unable to cope with the clinical problem and four of these were juniors who might be expected to have a less clear idea about the abilities of the General Practitioner who was so judged.

Table 20  
Reason for continuing attendance given by different grades of hospital clinicians.

Reason for continuing attendance	Grade		
	Consultant	Junior	Total
Hospital Facilities	25	29	54
Consultant Supervision	73	52	125
G.P. unable to cope	2	4	6
G.P. Request	0	2	2
Patient Request	0	4	4
Combinations which include hospital facilitiesand/or consultant supervision	22	35	57
Other combinations	4	10	14
Total	127	139	266

**5.3. The importance of Junior Staff in the discharge decision.**

Junior staff decided to retain patients within the clinic setting more often than their consultants in each specialty (table 21). The exact likelihood was elucidated further in the regression analysis.

Table 21

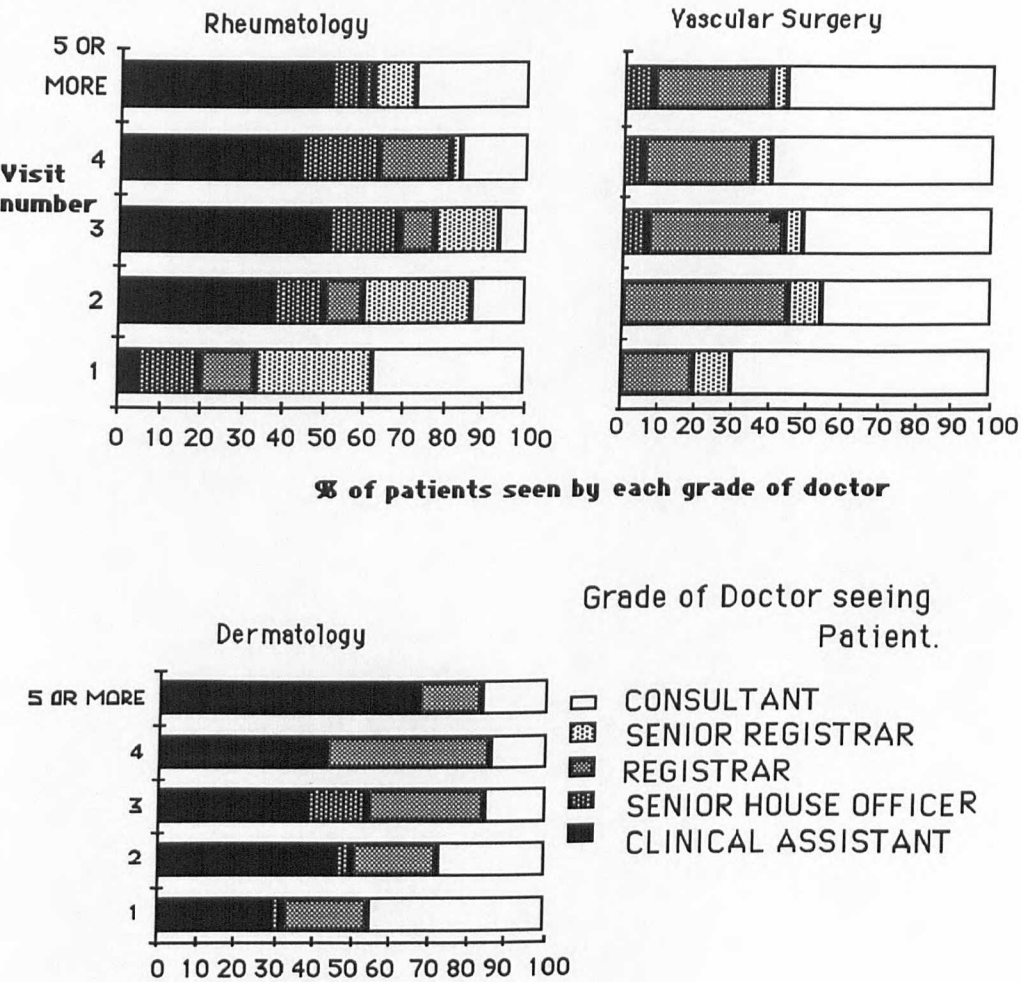
Overall discharge rate(%) of each grade of hospital doctor in each specialty.

Grade	Specialty		
	Rheumatology	Vascular surgery	Dermatology
Consultant	34	20	48
Senior Registrar	18	4	*
Registrar	16	7	25
Senior House Officer	18	0	0
Clinical Assistant	11	*	29

\* not applicable

It is of interest that this observation holds true even for the senior registrar (pre-consultant) grade. This factor has a greater influence at later visits as junior staff saw a higher proportion of the patients at follow-up visits than did Consultants (figure 33) in each specialty.

Figure 33 Percentage of patients seen by different grades of hospital doctors at each visit in each specialty.

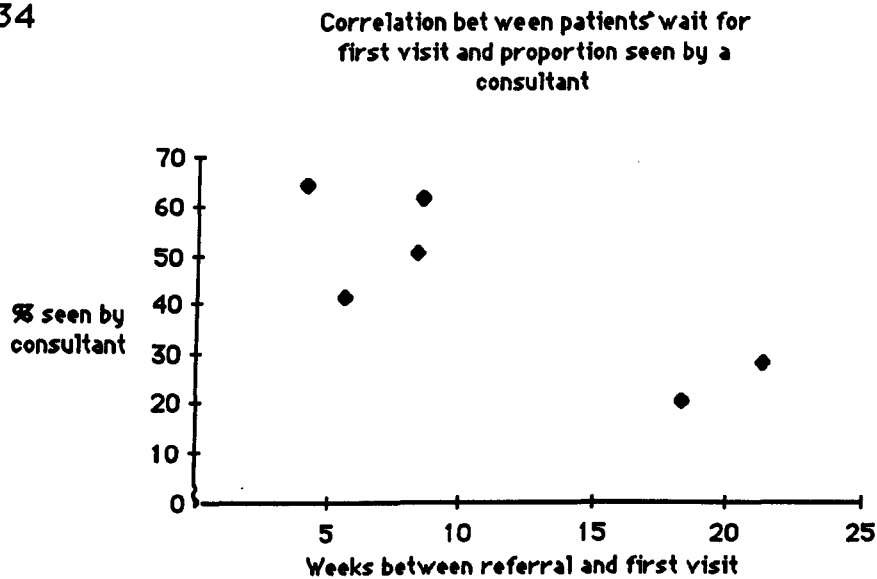


In particular the numbers of patients seen by clinical assistants at follow-up visits rose to more than 50% in those clinics (rheumatology and dermatology) where they worked. Most clinical assistants are General Practitioners working on a sessional basis. This matter was elucidated further in the Logistic Regression Analysis below.

It was also interesting to compare the proportions of patients seen by consultants with the average waiting time for each clinic

(figure 34). The spearman correlation coefficient here was -0.71 but failed to be significant ( $p=0.01$ ) with the small numbers of clinics in the study.

Figure 34



5.4. Univariate Analyses

Crosstabulations were performed to examine the interaction between each of the study variables and the following outcome measures:

- numbers of visits ;
- weeks of attendance;
- attendance status at the end of the study period.

These analyses were performed for the entire study cohort as well as for specialty and diagnosis separately .

## Numbers of Visits

When subdivided into three or less and four or more, the numbers of visits was influenced by specialty attended (table 22). In rheumatology 39% of the patients made four or more visits compared to 47% in vascular surgery but only 21% of the dermatology patients ( $p=0.0001$ ).

Table 22

Numbers of visits in each specialty			
Specialty	three or less	four or more	total
Rheumatology	109	70	179
Vascular surgery	67	54	121
Dermatology	73	19	92
Total	249	143	392

Categorisation by diagnosis (table 23) enabled this to be taken further with rheumatoid arthritis 53% and peripheral vascular disease 30% contributing most of the "continuing attenders" ( $p<0.0001$ ).

Table 23

Numbers of visits in each diagnostic category			
Diagnosis	three or less	four or more	total
Rheumatoid arthritis	80	41	121
Osteoarthritis	52	6	58
Peripheral vascular disease	67	54	121
Psoriasis	32	6	38
Eczema	41	13	54



The preference for discharge or continued attendance which patients expressed at their first visit showed a non-significant trend towards influencing the numbers of visits made ( $0.10 > p > 0.05$ ) (table 24). A wish to be discharged on the patient's part resulted in three or fewer visits for 83% of these patients compared to those who wanted to continue attendance where the comparable figure was 76%.

Table 24

The effect of the patient's preference of outcome upon the number of visits made.

Patient's expressed preference	NUMBERS OF VISITS		total
	three or less	four or more	
Continue to attend	138	43	181
Discharge to G.P.	174	35	209
Total	312	78	390

The referral reason given by the patient's General Practitioner also showed a non-significant trend in influencing the number of visits made (table 25).

Table 25

The effect of the General Practitioner's reason for referral upon numbers of visits.

G.P. referral reason	three or less	four or more	total
Diagnosis	63	6	71
Therapy	87	34	121
Reassurance	16	1	17
Investigation	26	6	32
Other	9	3	12
Combinations	70	23	93
Totals	271	75	346

The principal effect evident in this case being that those referred for therapy or combinations of reasons which included therapy were more likely to be in the group that made most visits ( $p=0.06$ ). This reached levels of statistical significance in the vascular surgery clinic ( $p<0.05$ ) with patients referred for therapy attending for most visits. The hospital clinician's perceived reason for referral was found to be important only in the rheumatology clinic ( $p=0.006$ ) with patients referred for therapy making most attendances.

Another association of interest in the rheumatology clinic was that of male sex and the numbers of visits made. 18/47(38.3%) of males made four or more visits compared to 31/132(23.5%) of females (chi-square 3.82, D.F.=1,  $p=0.05$ ). Perhaps this was due to the rarity or perceived greater severity of the disease in males.

Being accompanied to the outpatient clinic was found to have a small influence upon visits made in that such patients 47/197(23.9%) made the larger number of visits than those who attended on their own 30/191(15.7%) (chi-square 4.05, D.F.=1,  $p=0.04$ ).

### **Weeks of Attendance**

The number of weeks of attendance was influenced by specialty of referral (figure 20), with 41% of rheumatology, 35% of vascular surgery and 82% of dermatology patients being discharged by 12 weeks of attendance ( $p<0.00001$ ). Crosstabulation by diagnosis (table 26) again showed that it was the patients with Rheumatoid Arthritis(41%) and Peripheral Vascular Disease(44%) that were responsible for attendance beyond twelve weeks (chi-square 100.9, D.F.=20,  $p<0.00001$ ).

**Table 26**                      **Weeks of attendance by diagnosis**

	<b>Rheumatoid Arthritis</b>	<b>Osteo Arthritis</b>	<b>Peripheral Vascular Disease</b>	<b>Psoriasis</b>	<b>Eczema</b>	<b>Tot</b>
<b>Immediate Discharge</b>	28	31	37	24	31	151
<b>1-4 weeks</b>	4	1	2	2	6	15
<b>5-12 weeks</b>	16	14	3	3	8	44
<b>13-26 weeks</b>	12	3	21	4	5	45
<b>27-52 weeks</b>	29	5	26	3	4	67
<b>&gt;52 weeks</b>	32	4	31	0	0	67
<b>Total</b>	121	58	120	36	54	389

There was a non-significant trend for patients who were referred for therapy to attend for longer periods ( $p=0.058$ ). This was also seen within individual clinics: Vascular Surgery clinic ( $p=0.09$ ) and the Rheumatology clinic where referral for therapy reached formally significant levels of association( $p=0.04$ ). This referral reason was incorporated into further analyses below.

### **Attendance Status**

This analysis attempted to account for the reasons that follow-up ceased. Significant associations were found in the entire cohort between attendance status and hospital clinic attended ( $p<0.0001$ ) (table 27). The differences evident when comparing the rheumatology clinic were that the "teaching hospital" still had a higher proportion of patients attending at the end of the study 35% compared to 25% in the "district general hospitals). In vascular surgery the outcome was more uniform. The dermatology clinics showed zero rates of continuing attendance but high default rates for the TH 55% as opposed to 11% in the DGH although the numbers of patients recruited in the former makes interpretation less certain.

Table 27

Attendance status at the end of the study in each outpatient clinic.

	Rheumatology		Vascular surgery		Dermatology		Tot
	TH	DGH	TH	DGH	TH	DGH	
Still attending	21	28	12	30	0	0	91
Discharged	24	61	11	32	7	56	191
Defaulted	7	12	2	16	11	8	56
Dead	0	2	1	5	0	0	8
Lost in hospital administration	1	4	1	3	2	3	14
Taken by other specialty	7	8	1	5	0	1	22
Dropped out of study	0	4	1	1	0	4	10
Total	60	119	29	92	20	72	392

Employment status ( $p=0.008$ ) (table 28) likewise seemed to influence attendance status in the cohort as a whole in that retired and disabled patients were more likely to be retained.

Table 28

The influence of employment status upon attendance status.

	Working	Retired	Student	Unemployed	Housewife	Disabled	Other	Tot
Still attending	23	36	0	3	8	20	0	90
Discharged	61	50	12	12	31	21	1	188
Defaulted	14	13	0	3	13	10	2	55
Dead	1	5	0	0	0	1	0	8
Lost in hospital administration	3	2	1	1	4	3	0	14
Taken by other Specialty	8	9	0	1	0	4	0	22
Dropped out of study	7	0	1	0	1	1	0	10
Total	117	115	14	20	57	60	3	386

For those in employment having to take time off work was important ( $p=0.0003$ ) (Table 28) i.e. persons in employment who had to miss work were more likely to be discharged or default. As expected, diagnosis was found to be important ( $p<0.0001$ ) with Rheumatoid Arthritis and Peripheral Vascular Disease contributing 45% and 46% respectively to the total of those who continued to attend for more than a year.

Grade of doctor seen in the clinic for first visit (table 29) was found to influence eventual outcome ( $p=0.004$ ) with the patients seen by junior doctors exhibiting lower discharge rates (46% v 52%) and higher rates of default (16% v 12%) and administrative loss (6% v 2%).

**Table 29**

The association between the grade of doctor seen at the first clinic visit and attendance status.

	<b>Consultant</b>	<b>Junior</b>	<b>Total</b>
<b>Still attending</b>	51	40	91
<b>Discharged</b>	100	91	191
<b>Defaulted</b>	24	32	56
<b>Dead</b>	4	4	8
<b>Lost in hospital administration</b>	3	11	14
<b>Taken by other specialty</b>	10	11	21
<b>Dropped out of study</b>	1	9	10
<b>Total</b>	193	198	39

### 5.5. T-tests

For those patients whose disease severity scores could be expressed as a continuous variable, t-tests were performed. A two sample unpaired t-test was performed to examine the influence of the disease severity scores upon the decision to discharge or retain the patient at their first visit: this only reached the point of statistical significance in the dermatology clinics where the mean PDI in discharged patients was 19.4 (s.e. 1.9) and among those retained it was 25.6 (s.e. 1.7) ( $p=0.02$ ).

In the rheumatology clinics patients who made three visits or less had a mean H.A.Q. score of 11.7 (s.e. 0.76) at their first clinic visit and those making four or more visits scored 16.08 (s.e. 1.27) two tailed probability on paired sample test,  $p=0.003$ ). In the dermatology patients the difference in P.D.I. scores failed to reach statistical significance ( $p=0.06$ ).

The importance of advancing age as a determinant of outcome was demonstrated in the analysis which showed that the 314 patients who made three visits or less had a mean age of 51.4 years (s.e. 1.0) and the remaining 78 had a mean age of 55.7 years (s.e. 1.5) ( $p=0.005$ ).

### 5.6. Life table analyses.

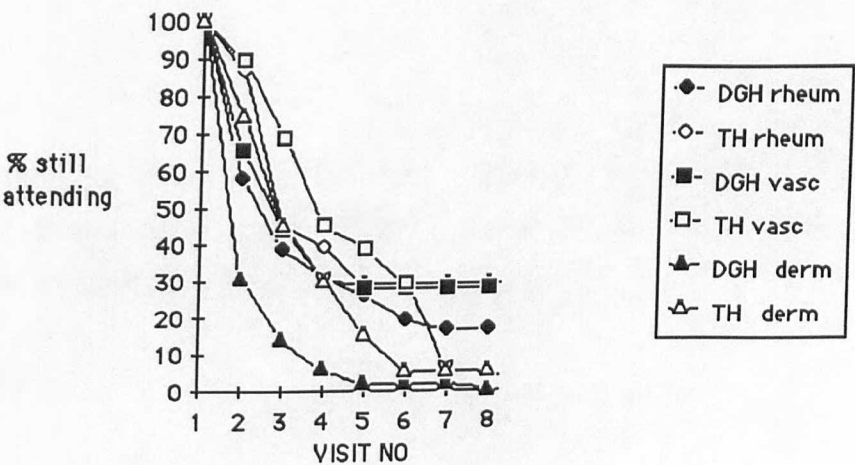
These were performed for the variables which seemed, on the basis of the univariate analyses above, to predict continuing attendance. They confirm and amplify the findings of these earlier analyses by showing where the variation in numbers of visits (figure 18) or weeks of attendance (figure 20) was operating. The analysis being possible for specialty or diagnosis.

It is evident from figure 18 even after the first two visits that

those patients with Rheumatoid Arthritis and Peripheral Vascular Disease are following a different curve than those with the other diagnoses in reaching a higher level of continuing attenders and dropping more dslowly. The high discharge rates of the dermatology clinics was evident after the first visit in both figures.

Further analyses are also possible with this technique, figure 35 shows the proportion of patients making each visit to individual clinics.

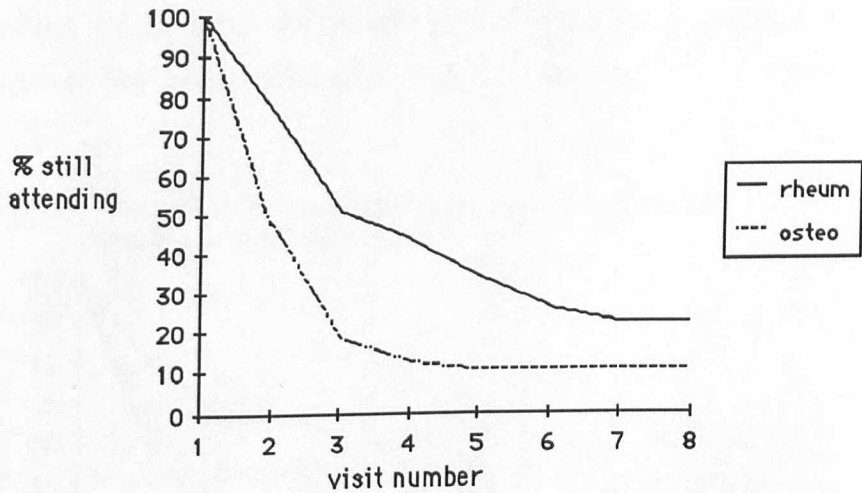
Figure 35      Proportion of patients continuing to attend each study clinic.



This suggests that the differences between individual clinics within the same specialty may be as large as the differences between specialties. No consistent difference was found when comparing DGHs and THs. It is obvious that the Dermatology clinics discharge their patients earlier than the other 2 specialties ( $p<0.0001$  for both numbers of visits made and weeks attended), but that even between the two dermatology clinics significant differences existed ( $p=0.001$ ).

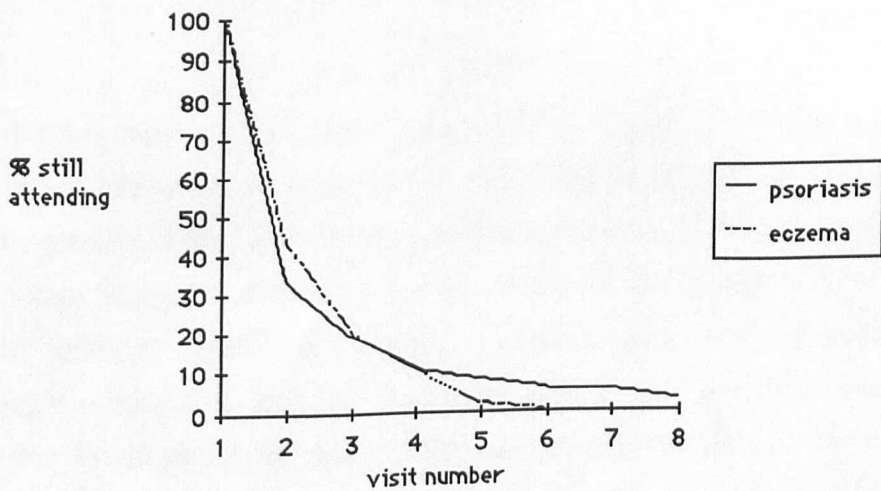
Figures 36 and 37 show an analysis by diagnosis for the specialties which had two diagnostic groups.

Figure 36 Proportion of rheumatology patients attending at each clinic visit described by diagnosis.



In this specialty many patients with osteoarthritis were discharged early, but those who continued to attend beyond the fourth visit were likely to continue to do so.

Figure 37 Proportion of dermatology patients still attending at each visit by diagnosis.



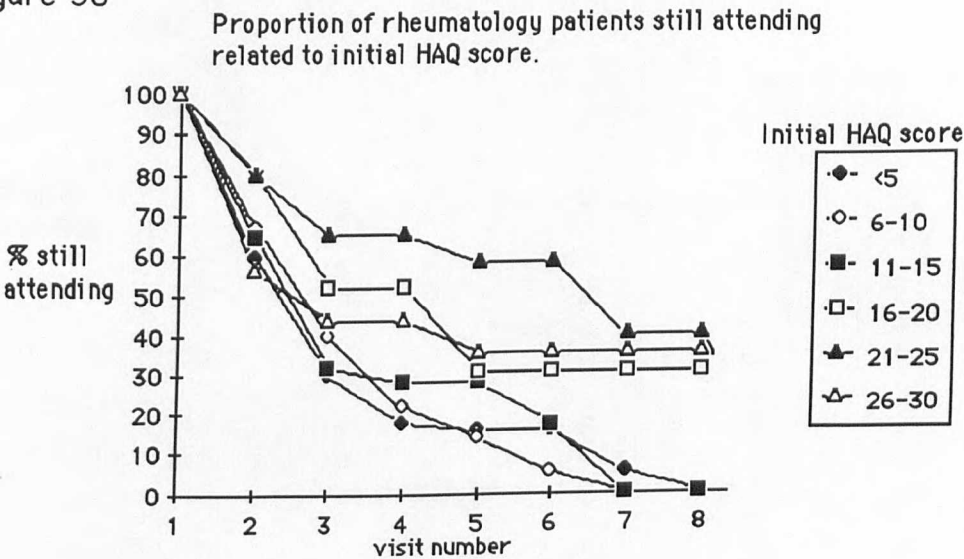


The differences between diagnoses in the dermatology clinics are less marked although the psoriatic patients made more visits.

Similar relationships to the above were evident in the plots which used "weeks attended" as the end-point.

The effect of patients' initial disease severity was examined in a series of three life table analyses (figures 38-40).

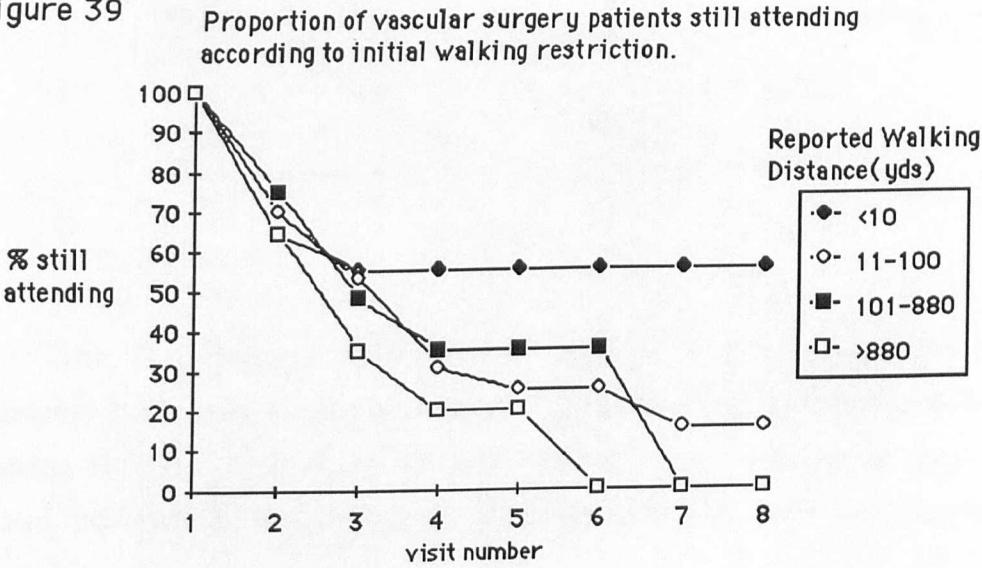
Figure 38



Inspection of this chart immediately reveals an association between initial disease severity score and outcome. All patients in the three groups with the lowest scores (which indicate milder disability) have stopped attending by the seventh or eighth visit. For those with greater disability scores, 30-40% are still attending beyond eight visits. The overall pairwise Lee-Desu statistic which compares the result of all six subgroups was 11.35, d.f. 5 ,  $p = 0.04$  which suggests that these evident differences are statistically significant. When the experience of the group with the lowest score

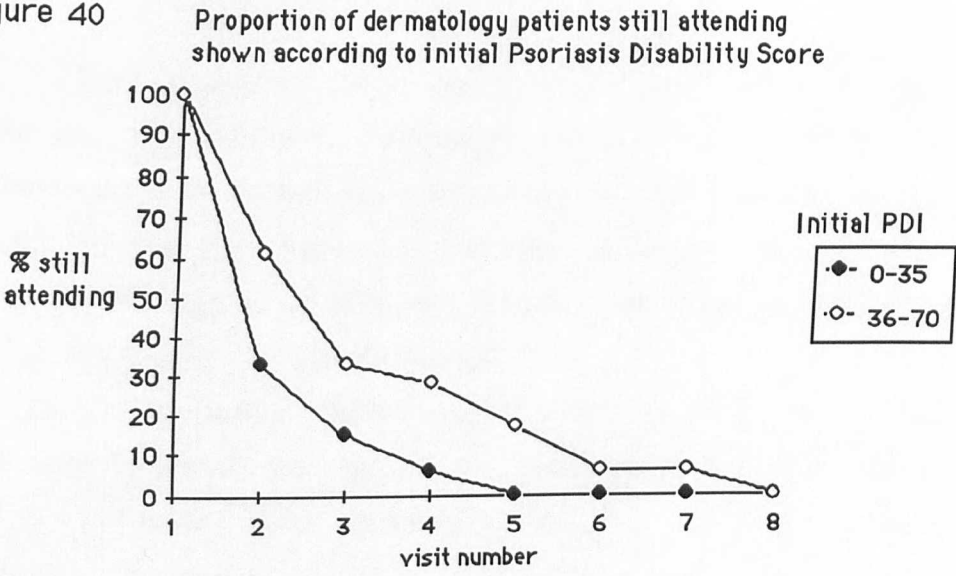
(H.A.Q. of less than five) was compared with one of the higher scoring groups (score 16-20) the pairwise comparison Lee-Desu statistic was 5.6 (d.f. 1,  $p=0.02$ ).

Figure 39



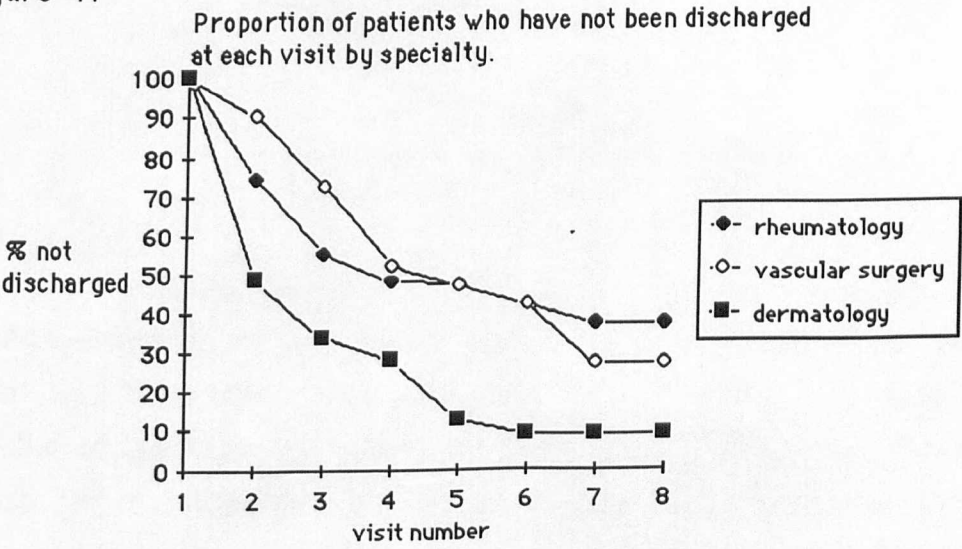
Once again, the influence of initial disease severity appears to be important, particularly for the most seriously disabled group who were unable to walk more than ten yards before experiencing intermittent claudication. This group clearly made significantly more visits.

Figure 40



The Dermatology patients also showed a significant difference between their two levels of severity (pairwise comparison Lee-Desu statistic 6.1, d.f. 1,  $p=0.01$ ). In this case the main difference was the speed with which less seriously disabled patients were discharged.

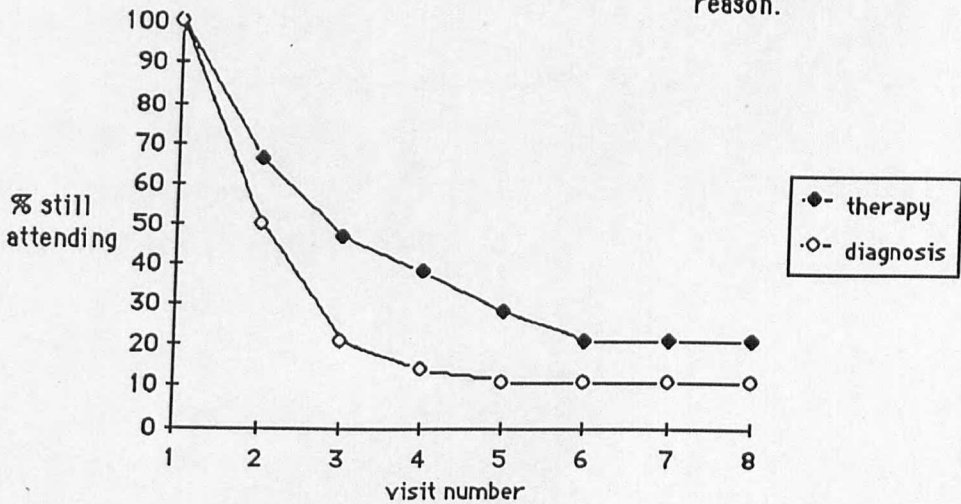
Figure 41



Further analyses were performed using different outcome measures, for example, discharge (figure 41) ( $p < 0.005$  for all comparisons) and default from follow-up) ( $p < 0.01$  overall and  $p = 0.01$  for the comparison between the dermatology patients and the others). These types of analyses showed no new insights beyond those of the global "% still attending" .

Other life-tables were constructed to examine whether agreement between the referring General Practitioner and the hospital clinician who initially saw the patient influenced attendance (figure 42).

Figure 42 Proportion of patients still attending at each visit when G.P. and hospital doctor agree on the referral reason.



Agreement on therapy as the reason for referral was more likely to lead to further attendances ( $p = 0.01$ ). This amplifies the findings presented in the crosstabulations by showing that all except 10% of referrals for diagnosis are discharged rapidly, within the first three visits. Those patients whom the referring General Practitioner considered therapy to be the main reason for referral and the

hospital doctor agreed were likely to require several visits and a higher proportion (25%) were likely to continue attending for four or more visits.

Other life tables for the entire cohort and the individual specialties failed to reveal any new factors which might be included within the regression analyses.

### **5.7. Regression analyses.**

In order to assess the relative importance of the various factors identified as significant, or possibly important, in the earlier analyses presented above, a series of regression analyses were undertaken.

#### **Multiple Linear Regression Analysis**

This technique was used to look at patients' experience during their entire period of clinic attendance. The dependent variable studied was the visit number (0-8) and the explanatory variables included in the equation were:

- age,
- sex,
- diagnosis,
- initial disease severity,
- hospital attended,
- reason for referral (given by patient, General Practitioner and hospital clinician),
- agreement between doctors on the referral reason,
- whether the patient was accompanied,
- employment status,
- distance from the hospital,
- and cost(to the patient and the NHS).

It was only possible to explain 11% of the variance(R square) in outcome with hospital, diagnosis, and disease severity being (in order of importance) the most significant predictors of numbers of visits made overall(table 30).

Table 30

Multiple Logistic Regression Data				
Sample	R Square	Standard Error	Significant variables	Significance
Entire cohort	0.11	1.55	Disease Severity	0.0007
			Diagnosis	0.0001
			Sex	0.03
Rheumatology	0.21	1.57	Disease Severity	0.017
			Sex	0.022
			Diagnosis	0.039
Vascular Surgery	0.15	1.47	G.P.Referral reason	0.032
Dermatology	0.24	0.80	Hospital	0.00001
			Companion	0.008

For individual specialties, some of the other variables appeared more important, e.g. male patients were less likely to be discharged from the rheumatology clinics and the General Practitioner's reason for referral was of greater importance in the dermatology clinic. Despite this, it was only possible to explain a small proportion of the variance in outcome in each specialty (rheumatology 21%, vascular surgery 15% and dermatology 40%).

Further analyses were performed for subsets of the data, e.g. for different diagnoses, different hospital types, cases where General Practitioners and hospital clinicians agreed on the referral reason etc. None led to any major improvements in the amount of variance explained.

In the overall numbers of visits made by each patient as the

dependent variable, multiple regression failed to allow consideration of factors operating at individual visits e.g. grade of doctor and change in disease severity. As these appeared important from earlier analyses another type of regression analysis was required.

### **Logistic Regression Analysis**

This technique allowed inclusion of those variables which the multiple regression did not.

At visit one, there were 92 discharges among the 392 patients. The following factors were significantly associated with discharge: clinic and diagnosis (with osteoarthritis, psoriasis and eczema having high discharge rates), disease severity (with quintiles one and two having much lower discharge rates), grade of doctor (with consultants having higher discharge rates than all other grades), age (older patients have lower discharge rates), work (employed patients have higher discharge rates), General practitioner referral reason (patients referred for therapy have lower discharge rates).

Stepwise logistic regression used three of these factors: diagnosis, disease severity and grade of doctor in discriminating between patients who were discharged at visit one and those who were not. After adjusting for diagnosis and disease severity, the odds ratio for discharge by a consultant relative to any other grade of doctor was 4.4 (95% C.I. 2.2 to 9.0). After adjusting for diagnosis and grade of doctor. The odds ratio for discharge for a patient in disease severity quintiles 3,4 or 5 relative to a patient in disease severity category 1 or 2 was 2.2 (95% C.I. 1.1 to 4.7). These three factors can be used to estimate the probability of discharge for each patient at visit 1.

Table 31 indicates the importance of diagnosis, disease

severity and grade of doctor in the analysis of decisions at the first visit giving confidence intervals for the exponentials of the coefficients (which are equivalent to an odds ratio calculated by the Mantel-Haenszel equation) where appropriate.

**Table 31**                    Logistic regression data at first visit.

Variable	Coefficient	Standard error	Exponential of coefficient	95% confidence interval
Diagnosis-RA	0		1	
OA	-2.51	0.52	0.81	
PVD	0.58	0.48	1.8	
Psoriasis	-1.47	0.52	0.23	
Eczema	-1.8	0.49	0.17	
Disease Severity	0.81	0.37	2.24	1.1-4.7
Grade of Doctor	1.49	0.36	4.43	2.2-9.0

These coefficients may be used to assign a score for each patient from which the probability of discharge or continuing attendance may be calculated as shown in table 31.

**Table 31**

Probability Table at different levels of cut-off constructed from coefficients at first visit.

Cut-off point	% Correct		Numbers correct		Numbers Incorrect	
	Continue	Discharge	Continue	Discharge	Continue	Discharge
0.142	99.0	8.1	189	7	2	80
0.225	99.0	8.1	196	7	2	80
0.242	95.8	28.7	183	25	8	62
0.292	95.8	32.2	183	28	8	59
0.392	94.8	44.8	181	39	10	48
0.475	91.6	55.2	175	48	16	39
0.558	90.6	56.3	173	49	18	38
0.592	85.9	65.5	164	57	27	30
0.642	83.8	69.0	160	60	31	27
0.725	74.4	79.3	142	69	49	18
0.875	58.6	86.2	112	75	79	12
0.925	22.0	95.4	42	83	149	4
0.942	20.4	96.6	39	84	152	3
0.958	6.9	100	13	87	178	0
0.975	0	100	0	87	191	0



These predicted probabilities of discharge or continuing attendance are shown in figures 43 and 44 for each patient using their individually calculated coefficients.

Figure 43

The accuracy of the logistic regression to predict continuing attendance at the first visit.

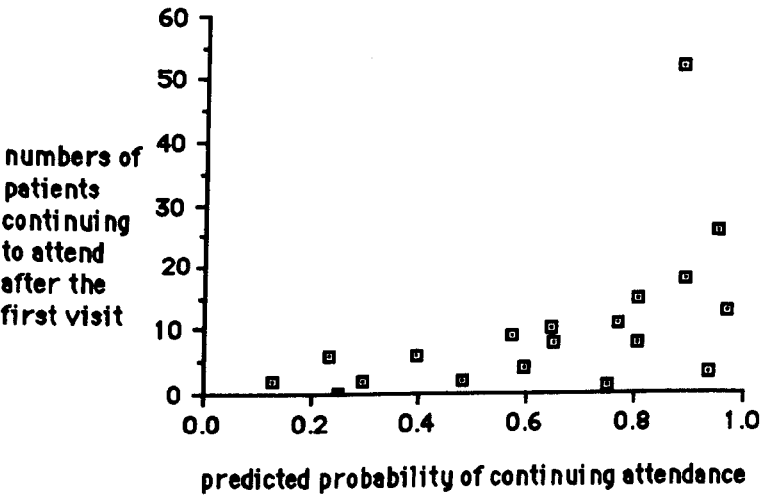
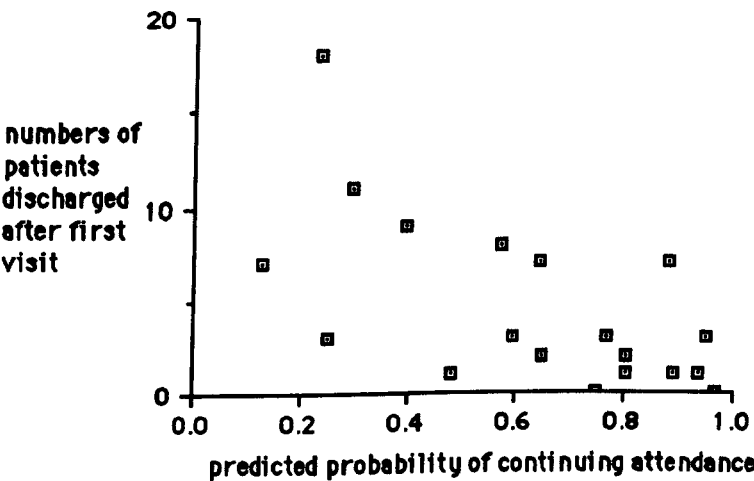


Figure 44

The accuracy of the logistic regression analysis to predict discharge at the first visit.

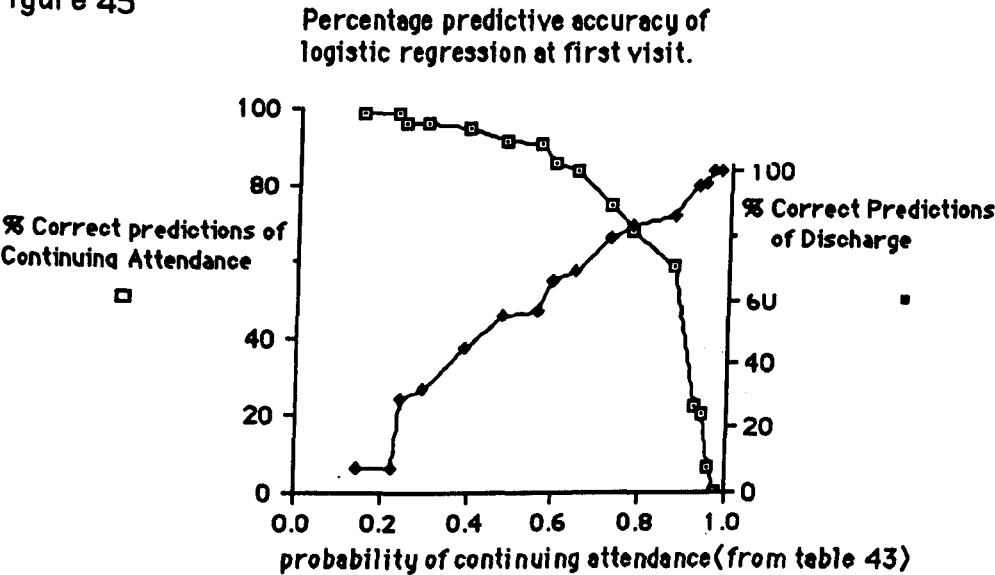


These probability figures show how imperfect the separation of the two groups is using the variables we were able to include

from the earlier analyses. They do provide a basis to examine the overall findings at the first two visits.

The proportion of correct predictions at various cut-off points is presented graphically in figure 45.

Figure 45



Thus taking a cut-off point of 0.475 in the probability calculation would correctly predict 80.2% of the decisions made (91.6% of the decisions to continue, 55.2% of the decisions to discharge). This gives a sensitivity (TP/TP+FN) of 81.2% and a specificity (TN/TN+FP) of 75% for this level of cut-off.

At visit two, there were 45 discharges among 247 patients. No factors recorded at visit one were significantly associated with discharge at visit two. Only diagnosis and grade of doctor at visit two were significantly associated with discharge at visit two. After adjusting for diagnosis, the odds ratio for discharge by a consultant relative to any other grade of doctor was 9.0 (95% C.I. 3.2 to 25.6). There were insufficient numbers of discharges at subsequent visits to allow the analysis to be considered further.

The calculation for the second visit dropped disease severity as an important variable. It again pointed to the grade of doctor seeing the patient as being highly significant (odds ratio 9.0,confidence interval 3.2-25.6). Further analyses of the data beyond the second visit failed to produce statistically significant results because of falling numbers. Thus it is impossible to use this data-set to discover why patients with low disease severity scores might be contained within the quintile of the cohort which attended beyond three visits.

The calculation comparing those who attended for four or more visits with those who had fewer visits left out those variables which changed at each visit (as in the Multiple Regression). The summarised results of this are shown in table 33.

Table 33  
 Logistic regression analysis on patients attending for four or more visits.

Variable	Coefficient	Standard error	Exponential of coefficient
Diagnosis-RA	0		1
OA	1.28	0.49	3.62
PVD	0.75	0.61	2.12
Psoriasis	0.26	0.80	1.29
Eczema	-0.16	0.11	0.73
Disease Severity	-0.30	0.37	2.24
Companion	0.34	0.28	1.40

An analysis of factors predicting default at the first two visits (separately and combined) failed to show any association other than with diagnosis as half of the early defaults were from the Vascular Surgery clinics.

## **6. Discussion**

The aim of this study was to develop an understanding of those factors which lead to some hospital outpatients becoming "continuing attenders". Greater understanding might then lead to methods of reducing unnecessary visits. Definition of the target group was done by a retrospective analysis of the patterns of attendance. This led to a definition of "continuing attenders" as patients whose number of visits placed them in the upper quintile of the distribution of visits made. The reasons given by patients, General Practitioners and hospital clinicians for continuing attendance were successfully obtained. The relative importance of these reasons in different subgroups and at different times was evaluated. The correlations of these reasons between the doctors and patients was poor. By taking these perceptions and the observable clinical and non-clinical variables recorded it was possible to construct a theoretical model of current decision making strategies employed by doctors working in outpatient clinics. These data have a number of areas where uncertainty is present, particularly where numbers of observations are small. Other factors such as variability in duration of study were compensated for by the methods of analysis.

The findings in this study appear to be as relevant at its conclusion as they were when the idea was originally conceived. There continues to be a realignment between the hospital and the community based services, partly as a result of pressures from within the professions involved (Livingstone A., Widgery D., 1990) and partly as a result of government policy (HMSO 1989). There are a number of caveats with which to ring the findings of this work; but there are some important conclusions to be drawn. There have been

questions in earlier studies about the role of junior doctors in discharge from outpatient clinics which this work has partly answered. There was evidence of a need to improve communication between General Practitioners and hospital doctors, between doctors and their patients, and there were lessons about the lack of information feedback from the outpatient clinics to the community.

In some clinics it is rare for new referrals to become continuing attenders. For example in a metabolic clinic many obese patients will be referred for investigation but few will continue to attend as few will be found to have a disorder which is amenable to metabolic therapy. In other clinics many of the new referrals will continue to attend for prolonged periods e.g. in renal medicine clinics, most patients will be found to merit continuing investigation and follow up. The role of new referrals in the problem of continuing attenders is in adding to the total pool of clinic attenders who might continue to attend, by virtue of diagnosis, disease severity, or preference of the doctor who sees them. A retrospective study of those who might be considered to be continuing attenders was contemplated but discarded in favour of a prospective design. Although Farr's dictum might appear too rigorous for most purposes: *"Is your study to be retrospective or prospective? If the former, the replies will be general, vague, and I fear of little value."* (Farr W. 1837) in this case it seemed the best approach. The prospective design allowed various definitions of the problem to be considered and the influence of a number of variables to be tested at different visits and at different durations of attendance.

The study cohort was shown to constitute a reasonably representative sample of new referrals to outpatient clinics by General Practitioners. The conditions studied represent common

problems which General Practitioners commonly refer to consultant outpatient clinics. The diagnoses chosen are neither so trivial as to render the referral decision dubious, nor are they life-threatening conditions where continuing hospital attendance (or death) might reasonably be expected. The high response rates from patients and doctors suggest the choice of study instruments was reasonable. Patients and hospital doctors were initially reminded to be diligent in the completion of the questionnaire by the presence of the research assistants. In the later stages of the study they perhaps identified with the study sufficiently to encourage continuing participation. This certainly appeared true for those clinicians who were present at feedback sessions. Participating General Practitioners often had only a few patients in the study at any one time so did not have to spend too long in replying to their postal questionnaire. There were only two General Practitioners who absolutely refused to reply to enquiries, in one case the reason given was perceived time pressure, in the other "confidentiality".

The problem of study numbers is often a vexed one. In this study, it had initially been hoped to recruit some 1500 study subjects. By the end of the pilot this had been revised downwards to 800-1000. Despite the best efforts of the research assistants and the investigator the actual number entered into the cohort was 504. The loss of data on 112 patients recruited by the dysfunctional research assistant who could not be identified meant that many analyses could not be carried out beyond the second visit. Those calculations which were possible had their precision reduced by the smaller numbers studied.

As the study questionnaire demanded that the patients views be assessed before seeing the hospital doctor at the first visit some new referrals could not be included in the study. These were

patients missed by the research assistant before seeing the doctor. This difficulty occurred in a random fashion at any time during a clinic session. In some cases the research assistant was not aware that a new referral had arrived, sometimes the research assistant was already busy speaking to a patient and on other occasions the patients were called immediately upon arrival. No formal assessment of this group was made. By noting the distributions of demographic data, diagnoses and disease severity it might have been possible to compare this group with the study cohort. In the absence of such data it is only possible to say that there is no reason to consider that this group differed substantially from those who did enter the study.

Another potentially confounding variable was the fact that some patients could have been followed for up to two years whereas others might only be observed for one year. The use of a life-table approach in the analyses of univariate data would prevent a major influence being overlooked or a minor variable overemphasised. Since the median duration of attendance was nine weeks (range 0-93) and 83% of patients terminated attendance in less than one year it is likely that this source of bias was minimal.

No effort was made to identify the patients who were referred to a specific consultant rather than to any consultant within the specialty being considered. Such a differentiation has been shown to influence the approach of the consultant at the first visit (Dowie R. 1983). This is less likely to have affected the junior doctors who saw half of all new referrals. It is also unlikely to have had a major effect upon second and subsequent visits.

The importance of measuring disease severity in the study cohort also deserves further consideration. Ideally two measures applicable to every patient would have been available. One measure

reflecting the doctor's perception and the other the patient's view of this variable. Both would be necessary as they are likely to differ (as shown when comparing the reasons for referral and continuing attendance). The importance of this factor is reported by all doctors when considering whether to discharge a patient. The study data tend to support their assertion. The use of patients' assessments of the value of their medical therapy has increased in recent years (Home, P.1989). It may be that a single such measure at clinic visits would give hospital clinicians further insight into their own assessment of the patient. The methods adopted here after the N.H.P. had been considered inappropriate to the study setting at least gave consistent results across the specialties. The shortened version of the Rand Questionnaire i.e.the MOSI (Anderson J. et al 1990) which is now available may prove more useful in future studies.

The definition of a "Continuing Attender" used in this study is just that: an operational definition. The life-tables of numbers of patients who continue to attend for more visits or longer time-periods (figures 35-42) show no clear cut-off points beyond which a patient may be labelled definitely as behaving significantly different from his/her peers. The definition of "four or more visits" for the cohort overall encompasses the upper quintile of visits made. It also means that patients making one to three visits are excluded. This makes good clinical sense as this group of patients include large numbers of patients who are still undergoing investigation or having their treatment planned.

The Reasons for Continuing Attendance given by the Patients were as shown in figure 30 :

consultant supervision;

G. P. request that care be transferred to hospital;

combinations of reasons including hospital staff expertise/equipment



These reasons remained constant throughout the period of attendance. The reasons given by doctors for continuing attendance differed from those of the Patients. Figure 31 shows the reasons given by the General Practitioner as:

consultant supervision;

hospital facilities;

and combinations of these two factors.

The hospital clinicians to be in broad agreement with the General Practitioners overall, perhaps placing greater emphasis upon the consultant supervision rather than hospital facilities (particularly at the first visit). As in the case of reasons for initial referral however, similar discrepancies existed between the patients and the groups of doctors about the reason for continuing attendance in individual cases. This again suggested a failure to communicate significant items of information between the doctors and patients and amongst doctors.

It had been intended to analyse the cohort during the entire period of attendance using multiple regression techniques. This would have given insights into both numbers of weeks of attendance and numbers of visits made. Variables which are stable over the entire period of attendance were the only ones which could be used in this method e.g. age, sex, initial disease severity, visit cost. Unfortunately this simplistic model proved inappropriate when the most powerful predictors of attendance behaviour proved to be the variables which changed at every visit i.e. disease severity at that visit, grade of doctor seeing the patient at that visit.

When all the analyses of clinical and non-clinical variables which explain discharge behaviour are analysed it appears that the grade of doctor seeing the patient at any visit is the strongest predictor of outcome which was expected from earlier work (Olsen

N.D.L. 1978). The relative risk of being retained at the first visit was greater if seen by a junior doctor by a factor of 4.4 (95% C.I. 2.2-9.0), at the second visit it was 9.0 (95% C.I. 3.2-25.6). The finding that even senior registrars have discharge rates close to other junior grades within the same specialty is of great interest. As these doctors have extensive clinical experience within their own specialty, it suggests either that their status confers uncertainty about their discharge behaviour or that a "Clinic Policy" which deters discharge exists. No clinic operated a formal, written policy on discharge. Informal discussion with consultants and junior staff suggested that each perceived that such a policy did exist but that there was imperfect agreement on its nature.

It might be expected that consultants would reserve the more "straightforward" problems for the junior doctors and therefore these patients should merit fewer overall visits. It is interesting to speculate why those seen by junior doctors at their first visit should continue to show lower eventual discharge rates. Perhaps an inadequate initial diagnostic formulation or an ineffective management plan at an early stage continues to exert a negative influence at subsequent visits. Higher default rates among patients seen by the juniors might reflect patient dissatisfaction with the care provided by these doctors. The administrative losses to follow up are more likely to reflect inadequate training in clinic procedure for junior doctors.

The junior doctors seeing patients have also often been shown to be on continuous duty for more than 24 hours in one third of the clinics they are serving (Kiff R.S., Sykes P.A. 1988). This factor would also need to be taken into account when considering any decision support system for these doctors. The numbers of patients seen by consultants in the cohort reported here was higher than that

reported in the Kiff and Sykes study.

With their low rates of discharge and propensity to see the patients making return visits, it may be that clinical assistants are behaving like General Practitioners in a hospital setting. This may provide a good service to individual patients who may value the continuity of care that this can provide. If a consultant service is the aim of the outpatient clinic then this might be questioned.

One other interesting observation was the negative correlation (-0.71) between the proportion of patients seen by a consultant and the time between initial referral and first visit to the clinic. This study did not attempt to evaluate methods of reducing the waiting time for first appointments but this association does indirectly support the current drive to increase consultant to junior staff ratios.

Rereferrals were compared with first referrals in a preliminary analysis (chi-square) but no significant differences were noted between the two groups for duration of attendance, numbers of visits made or attendance status. A different study method or a much larger study sample would be required to investigate this point more fully. Indeed it is not always clear to the hospital clinician seeing a patient whether this is a first or subsequent referral. Confusion arises when the referral letter is unclear (Doelman F. 1987) or notes are missing (Duncan M. et al. 1988). Such information might have influenced the 30-51% of rereferrals found in this study.

Another item of information which is not always available but which might be important is whether the patient is attending another clinic in a different specialty. This was the case for 5-33% of this cohort yet the fact was not always known to the doctor seeing the patient. Subsequent discussions with hospital staff

suggest that this may be important when the doctor in the clinic is uncertain about the skills of that patients' General Practitioner. The basis upon which consultants, let alone their junior staff, incorporate such factors into their decision-making processes is a further large area of study outwith the scope of this discussion (Dowie R. 1983, Hall R. et al. 1988). The move to provide doctors working in outpatient clinics with "workstations" might improve this, and many other aspects of data flow (West Midlands RHA 1990).

In the absence of cost data which is specific for individual clinic visits, it is difficult to discuss the financial aspects of the study. Data for patients is likely to remain relatively stable for the duration of attendance changing only with general economic inflation or change in personal circumstances. For clinic visits the situation is far more complex: many more investigations may be performed at the initial clinic visits and prescribing requirements will vary considerably. It may be that the principal apparent savings from reducing unnecessary visits would be the costs incurred by patients. Releasing skilled medical staff from the burden of long-term follow-up might however produce even greater savings to the NHS.

The observation that it is possible to correctly predict 80.2% of decisions using the probability calculations of the Logistic Regression Analyses (figure 57) might be of further value in reducing unnecessary attendances. Consultants who wish to audit the work of their clinic and use the opportunity to educate their junior staff need only review together those case-notes at the end of the clinic where discharge was predicted but did not occur (and vice versa)(Brady W. J. et al 1988, Ellis B. W. 1989, Ford R.P. et al 1989, Hall R. et al 1988). At its simplest level this would only involve two variables such as diagnosis and disease severity e.g. a

patient in a rheumatology clinic with osteoarthritis who had a low HAQ score. Further refinements are possible e.g. if the review was restricted to patients being booked for the fourth or subsequent visit (i.e. from the third visit onwards), the time taken would be reduced and the return would be correspondingly greater. Further studies within clinical areas might lead to specific predictive tools for particular specialties or even individual consultant clinics.

Emphasis upon retaining only those patients that the consultant wishes to retain would complement that of referring only appropriately investigated patients who need referral (Emmanuel J., Walter N. 1989). Another technique which is likely to improve the decision making of doctors considering clinical problems is the "*Spiegelhalter-Knill-Jones Approach*" (Spiegelhalter D.J. 1986, Knill-Jones R.P. 1987, Seymour D.G. et al. 1990). In this technique clinicians are provided with probabilistic assessments of the problem which confronts them. The method brings together subjective opinion, Bayesian theory and methods of evaluating and criticising predictions. Combining these approaches would lead to more appropriate patterns of decision-making which would be of benefit to all concerned. It is to be hoped that this could be achieved by intraprofessional dialogue rather than crude administrative measures found in other systems e.g. yearly reissuing of referral cards in Holland (Hull F.M., Westerman R.F. 1986).

Referral of a patient is only one way to end the consultation between a patient and his or her General Practitioner. Much work has been carried out on this phenomenon and a good summary is found in a recent book (Sheldon M. et al. 1985). One of the factors influencing the referral behaviour of General Practitioners has been shown to be their different expectations of outcome (Dowie R. 1983). The usual sources of outcome information are letters from hospital clinicians

about patients who either fail to attend or whose attendance has been considered worthy of a letter from the clinic doctor to the General Practitioner. Such a haphazard information feedback system is further hampered by the inability of General Practitioners and hospital doctors to communicate well (Freeling P., Kessel N. 1984) as shown once again in this study. Indeed most studies have shown that often (25-75% of cases) the reason for referral (Hull F.M., Westerman R.F. 1986, Kentish R.1987), nor much of the clinical material that consultants want (Al-Maskati A.H. 1988, Cybulska E., Rucinski J. 1989) is included in the referral letter. No review of referral letters is presented here, but a lack of communication about the reason for referral was evident. In particular the fact that hospital clinicians perceived most referrals to be made for diagnosis (60% of referrals) whereas the most cited reason given by General Practitioners was therapy (32%) followed by diagnosis (28%) then investigation (22%) as the most important reasons for referral. Other studies have shown that communications back from hospital are often late or uninformative (Harding J. 1987). In one recent study (Mageean R.J.1986) no letter was received by the patients' General Practitioner in 11% of cases discharged from hospital. As a result General Practitioners have very little information on groups of patients upon which to base rational decisions about hospital referral. A few pioneering General Practitioners have audited the outcome of their own referrals (Marsh G.N. 1980, Fraser R.C. et al.1974) and there have been a few studies looking at the experience of newly referred patients within individual clinics (Stewart I.C., McHardy G.J.R. 1985, Shaw C.D. 1980) or Health Authority Areas (Trout K., Martindale A. 1974). There is, however, no consensus on how information on referrals to outpatient clinics could be usefully returned to those who use the service.

This study suggests several items of information which might assist G.P.s to make more Rational Referral Choices:

- Patient Satisfaction with Outcome,
- Change in measures of Disease severity,
- Admission rates,
- Discharge rates,
- Default rates,
- Re-referral rates,
- Grades of Hospital Clinicians who see the Patients,
- Cost to hospital service,
- Cost to patient,
- Reasons for Continuing Attendance.

None of this information is usually available to the G.P.s who refer patients to hospital even though much of the above is available from data which is kept as a routine by clinic staff. Other items would require specific measures e.g. patient satisfaction (Wolf M.H. et al.1978) and disease severity which each specialty or individual clinics might wish to design as appropriate to their own needs.

Target thirty of the "Health for All" strategy (WHO 1978) states that " *all member states should have mechanisms by which the services provided by all sectors relating to health are coordinated at the community level.*". This has been accepted in many official pronouncements by those who plan health services e.g. Healthy Cities Project 1989, but at present the necessary steps to allow such coordination have not been put in place. The recent arrival of clinician's workstations in hospitals and the rapid spread of desk-top computers in General Practice may change that. Outcome data from outpatient clinics could, and probably should, be made available to General Practitioners as part of the Information

Technology Revolution which is occurring (HMSO 1989, SCOTMEG 1989). When combined with locally agreed referral standards (Emmanuel J., Walter N. 1989) and decision support systems, such data will help General Practitioners, hospital clinicians and Health Service managers to make informed choices on the most efficient referral and follow-up options for those patients who require hospital referral.

It is rarely possible for anyone to say with any certainty what an necessary outpatient visit is. The hospital doctor and the patient both have a view of the necessity or otherwise of the visit as do the referring doctor and the health service managers who must make the best use of available resources. These views may diverge greatly (Roland M.O. et al 1990, Grace J.F., Armstrong D., 1987). What is indisputable however is that a proportion of these visits are unnecessary. This study is unable to offer clear guidelines for use within individual consultations, but it does offer a framework for the rational appraisal of decisions which have been made. The value of the recommendations will be most keenly appreciated by junior hospital doctors whose hard work will be supported by their consultant colleagues, on whose behalf they see the patients.



## **Recommendations**

1. The importance of "Continuing Attenders" in hospital outpatient clinics (70-90% of total attendances) as a source of inappropriate use of scarce resources should be more widely acknowledged.
2. Communications between patients, General Practitioners and hospital clinicians on the purpose of referral need to be improved. Some of this will be made easier by the advances being made in Health Service Information Technology, but much depends on better interpersonal communication skills.
3. Since one of the principal factors determining the outcome of a clinic attendance is the grade of the doctor who sees the patient, there should be better support available these doctors. This might be in the form of:
  - better training of undergraduate medical students and junior doctors for the outpatient clinic setting;
  - clear guidelines to junior doctors from their consultant;
  - regular monitoring of discharge decisions made by junior staff seeing patients at a third or subsequent visit to the clinic.
4. Intervention studies to assess the effectiveness of this form of "Educational Audit" might begin immediately.

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## **Publications and Presentations**

Aspects of this work have been presented in the following papers which have been published or accepted for publication:

Sullivan F.M., Eagers R.C., Lynch K., Barber J.H.

The Assessment of Disability Caused by Rheumatic Disease in General Practice

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**Presentations have been made at the following meetings:**

**Association of University Teachers in General Practice-Leicester  
July 1986 "Methods of Assessing Disability in General Practice"**

**Association of the Departments of General Practice(Scotland)-  
Stonehaven Jan.1987."Results of a pilot study of the reasons for  
Continuing Attenders at Outpatient Clinics"**

**Association of University Teachers in General Practice-London  
July1987."Methods of studying the follow-up of referrals to  
Outpatient Clinics" (poster)**

**Association of University Teachers in General Practice-Liverpool  
July 1988. "New Referrals to Outpatient Clinics:Why do they keep  
going back?"**

**Scottish Conference "NHS Information Technology for the 1990s-the  
G.P. view "Glasgow Feb.1990.**

**A paper was accepted for presentation at the European Society for  
Medical Decision Making June 24-26th 1990.**

**TEXT  
BOUND INTO THE  
SPINE**

## APPENDIX 1

### DIAGNOSIS FROM REFERRAL LETTERS

#### 1. ARTHRITIS

##### KEY TERMS

Joint swelling

Joint stiffness

Arthritis

Osteophytes, erosions

Rheumatoid factor

Raised ESR

Osteoarthritis

Rheumatoid arthritis

##### DRUGS

Aspirin	Many proprietaries
Allopurinol	(Aloral) (Aluline) (Caplenal) (Cosuric) (Zyloric)
Azapropazone	(Rheumox)
Benorylate	(Benoral)
Choline magnesium trisalicylate	(Trilisate)
Chloroquine	(Avloclor) (Malarivon) (Nivaquine)
Diclofenac sodium	(Volatrol)
Diflunisal	(Dolobid)
Fenbufen	(Lederfen)

Fenoprofen	(Fenopron) (Fenopron D) (Progesic)
Flurbiprofen	(Froben)
Hydroxychloroquine sulphate	(Plaquenil)
Ibuprofen	(Apsifen) (Brufen) (Ebufac) (Fenbid) (Motrin) (Uniprofen)
Indomethacin	(Artracin) (Imbrilon) (Indocid) (Indocid-R) (Indoflex) (Indolar) (Mobilan) (Rheumacin LA)
Ketoprofen	(Alrheumat) (Orudis) (Oruvail)
Mefenamic acid	(Ponstan)
Naproxen sodium	(Naprosyn) (Synflex)
Penicillamine	(Distamine) (Pendramine)
Phenylbutazone	(Butacote) (Butazolidin) (Butazolidin Alka) (Butazone)
Piroxicam	(Feldene)
Salsalate	(Disalcid)
Sodium aurothiomalate	(Myocrisin)
Sulindac	(Clinoril)
Sulphasalazine	(Salazopyrin)
Sulphinpyrazone	(Anturan)
Suprofen	(Suprol)
Tiaprofenic acid	(Surgam)
Tolmetin	(Tolectin)

## DIAGNOSIS FROM REFERRAL LETTERS

### 2. PERIPHERAL VASCULAR DISEASE

#### KEY TERMS

Peripheral vascular disease  
Intermittent claudication  
Leg cramps  
Difficulty walking  
Reduced blood flow  
Absent pulses - dorsalis pedis  
                  posterior tibial  
                  popliteal  
                  femoral  
Bruits

#### DRUGS

Bamethan	(Vasculit)
Cinnarizine	(Stugeron)
Nicotinic Acid	(Bradilan)
Hexopal	(Ronicol)
Oxypentifylline	(Trental)
Thymoxamine	(Opilon)
Ritocides	(Paroven)
Cyclandelate	(Cyclospasmol)
Isoxsuprine	(Duvadilan)
Naftidrofuryl	(Praxilene)



## DIAGNOSIS FROM REFERRAL LETTERS

### 3. PSORIASIS

### ECZEMA

#### KEY TERMS

Psoriasis

Dermatitis

Scaling

Scaling

Rash on knees or elbows

Itching

Scaling of the scalp

Excoriation

Lichenification

Scratching

#### DRUGS

Tar

Dithranol

(Dithrocream)

Vaseline

(White/yellow soft paraffin)

Hydrocortisone

(Efcortelan)  
(Cortacream)  
(Alphaderm)  
(Dome-cort)

Beclomethasone

(Propaderm)  
(propaderm forte)

Betamethasone

(Betnovate)  
(Diprosalic)

Clobetasol

(Dermovate)  
(Eumovate)

Diflucortolone

(Nerisone)

Fluocinolone

(Synalar)

Fluocinonide

(Metosyn)

Flurandrenolone

(Haelan)

Hydrocortisone  
butyrate

(Locoid)

Triamcinolone

APPENDIX 2

CONSENT TO PARTICIPATION IN A STUDY OF THE  
REASONS FOR CONTINUING TO ATTEND AN OUTPATIENT CLINIC

I understand that this study will examine the reasons why some patients need to go to the hospital outpatient clinic for a long time. I agree to fill in a short questionnaire at each of my visits to the hospital over the next year. I also agree to the hospital doctor supplying non-confidential information for the purposes of this study.

Yours sincerely,

PATIENT QUESTIONNAIRE

TO BE COMPLETED BY PATIENT

Your help with the following questions would be much appreciated.  
(PLEASE ANSWER QUESTIONS 1 and 2 BEFORE GOING TO SEE THE DOCTOR)

1. Do you expect this to be your last visit to the Out-patient Clinic?  
(Please tick)

Definitely  
Probably  
Don't know  
Probably not  
Definitely not

☐

2. If given a choice by the Consultant today which of the following  
would you prefer? (Please tick)

To be discharged to the care of your G.P.  
To continue hospital attendance  
Don't know

☐

3. Why do you require to attend hospital today?

If there is more than one reason please number 1,2,3  
in order of importance.

- a) You need hospital facilities (machines, tests, etc.)  
b) A Consultant opinion is needed  
c) Your G.P. cannot deal with the situation  
d) Your G.P. has asked for the hospital to take  
control of your case.  
e) You prefer hospital  
f) To help Consultants teach students or young doctors  
g) To take part in your Consultant's research  
h) Other reasons - Please state


☐☐☐☐

4. How did you travel to hospital and back today? (Please tick)

Ambulance  
Walk  
Bicycle  
Car  
Public Transport - Bus  
Train  
Taxi

☐

5. How far did you travel on the entire journey there and back? (Please tick)
- Less than a mile  
1 - 5 miles  
5 - 10 miles  
10 - 20 miles  
More than 20 miles.
6. How far do you live from your G.P.'s surgery? (Please tick)
- Less than a mile  
1 - 5 miles  
5 - 10 miles  
10 - 20 miles  
More than 20 miles
7. Did you have to miss work to attend the outpatient clinic today?
8. Did you travel with a friend/relative? YES / NO
9. Is that person normally in employment? YES / NO
10. If this is your first visit to this clinic, please ignore this question and go on to Question No.11
- a) Have you attended your own Doctor since your last visit? YES / NO
- b) If so, how many times?
- 1  
2 - 3  
4 - 5 (Please tick)  
5 - 10  
More than 10
1. Do you attend any other Hospital clinics? YES / NO
2. Is there a Nurse at your Doctor's Surgery?
- YES / NO / DON'T KNOW

☐☐☐☐☐☐☐☐☐☐

3. Do you receive any of these? (Please tick)

District Nurse  
Physiotherapy  
Chiropody  
Occupational therapy  
Social Worker  
Meals on Wheels  
Other - Please state.

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For Office  
Use only

PATIENT QUESTIONNAIRE - RETURN VISIT

TO BE COMPLETED BY PATIENT

Your help with the following questions would be much appreciated.  
(PLEASE ANSWER QUESTIONS 1 and 2 BEFORE GOING TO SEE THE DOCTOR)

PATIENT SERNO.

--	--	--	--	--

1. Do you expect this to be your last visit to the Out-patient Clinic? (Please tick)

Definitely  
Probably  
Don't know  
Probably not  
Definitely not

☐

2. If given a choice by the Consultant today which of the following would you prefer? (Please tick)

To be discharged to the care of your G.P.

To continue hospital attendance

Don't know

☐

3. Why do you require to attend hospital today?  
(If there is more than one reason please number 1, 2, 3.)

a) You need hospital facilities (machines, tests, etc.)

b) A Consultant opinion is needed

c) Your G.P. cannot deal with the situation

d) Your G.P. has asked for the hospital to take control of your case.

e) You prefer hospital

f) To help Consultants teach students or young doctors

g) To take part in your Consultant's research

h) Other reasons - Please state

☐

i) Don't know

4. How did you travel to hospital and back today? (Please tick)

Ambulance

Walk

Bicycle

Car

Bus

Train

Taxi

☐

5. Did you have to miss work to attend the outpatient clinic today? YES / NO

☐

6. Did you travel with a friend/relative? YES / NO

☐

7. Is that person normally in employment? YES / NO

☐

8. a) Have you attended your own Doctor since your last visit YES / NO

☐

b) If so, how many times? (Please tick)

1

2 - 3

4 - 5

5 - 10

More than 10

☐

9. Do you attend any other Hospital clinics? YES / NO

☐

J. H. BARBER, M.D., F.R.C.G.P.,  
D.R.C.O.G. (Norie-Miller Chair)

lecturers

JURRAY, Ph.D., F.R.C.G.P., F.R.C.P., D.R.C.O.G.

Accident Lecturer)

OD, M.D., F.R.C.G.P.

AY, O.B.E., M.B., F.R.C.G.P.



WOODSIDE HEALTH CENTRE,  
BARR STREET,  
GLASGOW G20 7LR  
TEL: 041-332 8118-9

Dear

You have been attending the \_\_\_\_\_ clinic at \_\_\_\_\_ since \_\_\_\_\_. You may remember agreeing to take part in a research project at that time and filling in some questionnaires. It would be of great value to us if you would kindly complete the enclosed form so that we may finish the study.

Yours sincerely



## PATIENT QUESTIONNAIRE

I would greatly value your opinion on your time  
spent attending the clinic

For office  
use only

1. Are you still attending this clinic ? YES/NO

2. Do you agree with the hospital doctor's decision to  
discharge or retain you ? (please tick)

DEFINITELY  
PROBABLY  
DON'T KNOW  
PROBABLY NOT  
DEFINITELY NOT

3. If you have stopped attending the clinic of your own  
accord, what was the reason you stopped attending?

NOT GIVEN APPOINTMENT  
CLINIC TOO FAR AWAY  
COSTS TOO MUCH TO ATTEND  
(Bus fares, time off work, etc)  
GP ASKED YOU TO STOP GOING TO CLINIC  
FED UP WAITING TO BE SEEN BY DOCTOR  
OTHER REASON - Please state: \_\_\_\_\_

4. In the time you were attending the clinic has your  
been

CURED  
IMPROVED  
UNCHANGED  
WORSENER  
DETERIORATED SEVERELY

5. What was the value of your clinic visits?

VERY WORTHWHILE  
WORTHWHILE  
UNCERTAIN  
NOT HELPFUL  
A WASTE OF TIME

## APPENDIX 5

# GENERAL PRACTITIONER QUESTIONNAIRE - FIRST VISIT

For Office  
Use Only

--	--	--	--

PATIENT SERNO.

1. What was the main reason for your referral of this patient to the out-patient clinic?  
(Please tick)
  1. DIAGNOSIS - and, where appropriate, treatment
  2. TREATMENT - of an already diagnosed condition
  3. REASSURANCE OF ONE OF THE PARTIES INITIALLY INVOLVED - patient / relative / or the referring doctor
  4. INVESTIGATION - which the general practitioner is unable to offer except through a consultant
  5. OTHER REASONS : Please state

2. Do you agree with the decision to discharge/retain the patient? (Please tick)

Definitely agree  
Probably  
Uncertain  
Probably not  
Definitely disagree

3. If retained, why do you consider this necessary?  
If there is more than one reason please number 1,2,3 etc  
in order of importance.

- a) Hospital facilities required
- b) Consultant supervision required
- c) You are unable to manage the condition
- d) You prefer that the patient is under hospital supervision
- e) Patient prefers hospital care
- f) Teaching
- g) Research
- h) Other reasons (Please state)


--	--	--	--	--	--	--	--

essor J. H. BARBER, M.D., F.R.C.G.P.,  
P.(G.), D.R.C.O.G. (Noric-Miller Chair)

UNIVERSITY OF GLASGOW  
DEPARTMENT OF GENERAL PRACTICE



Lecturers  
MURRAY, Ph.D., F.R.C.G.P., F.R.C.P., D.R.C.O.G.  
(Accident Lecturer)  
WOOD, M.D., M.R.C.G.P.  
KAY, O.B.E., M.B., F.R.C.G.P.

WOODSIDE HEALTH CENTRE,  
BARR STREET,  
GLASGOW G20 7LR  
TEL: 041-332 9977

NAME \_\_\_\_\_ D.o.b. \_\_\_\_\_

ADDRESS \_\_\_\_\_

The above patient was recently seen at a \_\_\_\_\_ hospital  
outpatient clinic and discharged/retained.

As part of a research project to discover why some patients referred to hospital become chronic attenders, I have asked him/her to take part in a follow-up study for the period he/she is attending the outpatient clinic. Your opinion on the validity of the decisions taken by hospital staff is of great interest to me and I would therefore be grateful if you could complete the enclosed questionnaire and return it to me in the stamped addressed envelope provided.

Thank you for your help.

Yours sincerely,

F.M. SULLIVAN  
LECTURER IN GENERAL PRACTICE.

GENERAL PRACTITIONER QUESTIONNAIRE - RETURN VISIT

For Office  
Use Only

Your patient :

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

D.o.b. \_\_\_\_\_

was recently seen at a Hospital Out-patient Clinic for a follow-up visit and discharged/retained. You may recall completing a similar questionnaire after the patient's first visit.

PATIENT SERNO.

--	--	--	--	--

1. Do you agree with the decision to discharge/retain the patient? (Please tick)

Definitely agree  
Probably  
Uncertain  
Probably not  
Definitely disagree

--

2. If retained, why do you consider this necessary?  
If there is more than one reason please number 1,2,3 etc.  
in order of importance.

- a) Hospital facilities required  
b) Consultant supervision required  
c) You are unable to manage the condition  
d) You prefer that the patient is under hospital supervision  
e) Patient prefers hospital care  
f) Teaching  
g) Research  
h) Other reasons (Please state)


--

--

--

--

HOSPITAL CLINICIAN QUESTIONNAIRE - RETURN VISIT

For Office  
Use only

PATIENT SERNO.

--	--	--	--

1. How has this patient's clinical status changed since his/her last Outpatient visit?  
(Please tick)

CURED  
IMPROVED  
UNCHANGED  
WORSENER  
SEVERE DETERIORATION

☐

2. Is this patient to be:

a) discharged to G.P.  
b) referred to another specialty  
c) retained  
d) depends on results

☐

3. If not discharged on this occasion, what is the most important reason(s) for continued attendance?

If there is more than one reason please number 1,2,3 in order of importance.

a) Hospital facilities  
b) Consultant supervision required  
c) G.P. unable to manage condition adequately  
d) G.P. requests continued hospital attendance  
e) Patient requests continued hospital attendance  
f) Teaching  
g) Research  
h) Other (Please state)


☐☐☐☐

Please initial \_\_\_\_\_

APPENDIX 6

HOSPITAL CLINICIAN QUESTIONNAIRE - FIRST VISIT

For Office  
Use only

PATIENT SERNO.

--	--	--	--

1. In your opinion does this patient have :  
(Please tick)

Yes  
Probably  
Possibly  
No

--	--

2. The reason for this patient attending the clinic today is:

1. DIAGNOSIS - and, where appropriate, treatment
2. TREATMENT - of an already diagnosed condition
3. REASSURANCE OF ONE OF THE PARTIES INITIALLY INVOLVED  
- patient / relative / or the referring doctor
4. INVESTIGATION - which the general practitioner  
is unable to offer except through a consultant
5. OTHER REASONS : Please state

--

3. Is this patient to be:

- a) discharged to G.P.
- b) referred to another specialty
- c) retained
- d) depends on results

--

4. If not discharged on this occasion, what is the most important reason(s) for continued attendance?

If there is more than one reason please number 1,2,3 etc.  
in order of importance.

- a) Hospital facilities
- b) Consultant supervision required
- c) G.P. unable to manage condition adequately
- d) G.P. requests continued hospital attendance
- e) Patient requests continued hospital attendance
- f) Teaching
- g) Research
- h) Other (Please state)


--

--

--

Please initial \_\_\_\_\_

CLINIC/NOTE AUDIT QUESTIONNAIRE - FIRST VISIT

1. PATIENT SERNO

--	--	--	--

2. HOSPITAL

--	--

3. SPECIALTY

--

4. AGE

--	--

5. SEX

--

6. OCCUPATION

--	--	--	--

OTHER MAJOR PROBLEMS IN G.P. REFERRAL NOTE

• (1)

--	--	--	--

• (2)

--	--	--	--

WEEKS SINCE G.P. REFERRAL

--	--

### CLINIC ASSESSMENT

## OF CONSULTANTS

## SENIOR REGISTRARS

## REGISTRARS

SENIOR HOUSE OFFICERS

### JUNIOR HOUSE OFFICERS

**NURSING SISTERS**

S.R.N.

**S.E.N.**

**SECRETARIES**

## FILING CLERKESSES

[illegible]



CLINIC/NOTE AUDIT QUESTIONNAIRE - RETURN VISIT

- |   |   |  |  |  |  |
|---|---|--|--|--|--|
| 1. PATIENT SERNO                                      | <table border="1"><tr><td></td><td></td><td></td><td></td></tr></table> |  |  |  |  |
|   |   |  |  |  |  |
| 2. WEEKS SINCE LAST ATTENDANCE                        | <table border="1"><tr><td></td><td></td></tr></table>                   |  |  |  |  |
|   |   |  |  |  |  |
| 3. VISIT NUMBER                                       | <table border="1"><tr><td></td><td></td></tr></table>                   |  |  |  |  |
|   |   |  |  |  |  |
| 4. TESTS DONE AT HOSPITAL                             |   |  |  |  |  |
| 1. Haematology  |   |  |  |  |  |
| 2. Biochemistry                                       |   |  |  |  |  |
| 3. X-ray  | <table border="1"><tr><td></td></tr></table>                            |  |  |  |  |
|   |   |  |  |  |  |
| 4. Pathology  |   |  |  |  |  |
| 5. ADMISSION DAYS FOR STUDY DIAGNOSIS SINCE LAST SEEN | <table border="1"><tr><td></td><td></td></tr></table>                   |  |  |  |  |
|   |   |  |  |  |  |
| 6. ADMISSION DAYS FOR OTHER REASONS                   | <table border="1"><tr><td></td><td></td></tr></table>                   |  |  |  |  |
|   |   |  |  |  |  |
| 7. WHICH CLINICIAN SEEN                               | <table border="1"><tr><td></td><td></td></tr></table>                   |  |  |  |  |
|   |   |  |  |  |  |
| 8. GRADE OF CLINICIAN SEEN TODAY                      | <table border="1"><tr><td></td></tr></table>                            |  |  |  |  |
|   |   |  |  |  |  |
| 9. DISCHARGED OR RETAINED                             | <table border="1"><tr><td></td></tr></table>                            |  |  |  |  |
|   |   |  |  |  |  |
| 10. WEEKS UNTIL NEXT VISIT                            | <table border="1"><tr><td></td><td></td></tr></table>                   |  |  |  |  |
|   |   |  |  |  |  |

# HEALTH ASSESSMENT QUESTIONNAIRE

Date .....

interested in learning how your illness affects your ability to function in daily life.  
feel free to add any comments at the end of this form.

E TICK THE ONE RESPONSE WHICH BEST DESCRIBES YOUR USUAL ABILITIES  
THE PAST WEEK:

Without ANY difficulty	With SOME difficulty	With MUCH difficulty	Unable to do
---------------------------	-------------------------	-------------------------	-----------------

SSING AND GROOMING

ou able to:

ess yourself, including tying shoelaces  
d doing buttons?

.....	.....	.....	.....
-------	-------	-------	-------

ampoo your hair?

.....	.....	.....	.....
-------	-------	-------	-------

NG

ou able to:

nd up from an armless straight chair?

.....	.....	.....	.....
-------	-------	-------	-------

t in and out of bed?

.....	.....	.....	.....
-------	-------	-------	-------

NG

ou able to:

your meat?

.....	.....	.....	.....
-------	-------	-------	-------

a full cup or glass to your mouth?

.....	.....	.....	.....
-------	-------	-------	-------

n a new carton of milk (or soap  
er)?

.....	.....	.....	.....
-------	-------	-------	-------

ING

u able to:

outdoors on flat ground?

.....	.....	.....	.....
-------	-------	-------	-------

b up five steps?

.....	.....	.....	.....
-------	-------	-------	-------

TICK ANY AIDS OR DEVICES THAT YOU USUALLY USE FOR ANY OF THESE ACTIVITIES:

..... Cane	..... Devices used for dressing (button hook, zipper pull, long handled
..... Walking frame	shoe horn, etc.)
..... Crutches	..... Built-up or special utensils
..... Wheelchair	..... Special or built-up chair
..... Other (specify) .....	

TICK ANY CATEGORIES FOR WHICH YOU USUALLY NEED HELP FROM ANOTHER PERSON:

..... Dressing and	..... Eating
..... Grooming	
..... Rising	..... Walking

TICK THE ONE RESPONSE WHICH BEST DESCRIBES YOUR USUAL ABILITIES  
THE PAST WEEK

	Without ANY difficulty	With SOME difficulty	With MUCH difficulty	Unable to do
ENE ou able to:				
sh and dry your entire body?	.....	.....	.....	.....
≥ a bath?	.....	.....	.....	.....
on and off the toilet?	.....	.....	.....	.....
H u able to:				
sh and get down a 5lb object (e.g. a bag atoes) from just above your head?	.....	.....	.....	.....
l down to pick up clothing from the	.....	.....	.....	.....
J able to:				
car doors?	.....	.....	.....	.....
jars which have been previously ed?	.....	.....	.....	.....
aps on and off?	.....	.....	.....	.....
TIES able to:				
rands and shop?	.....	.....	.....	.....
and out of a car?	.....	.....	.....	.....
res such as vacuuming, housework gardening?	.....	.....	.....	.....

CK ANY AIDS OR DEVICES THAT YOU USUALLY USE FOR ANY OF THESE ACTIVITIES:

..... Raised toilet seat	..... Bath rail
..... Bath seat	..... Long handled appliances for reach
..... Jar opener (for jars previously opened)	Other (specify) .....

CK ANY CATEGORIES FOR WHICH YOU USUALLY NEED HELP FROM ANOTHER PERSON:

..... Hygiene	..... Gripping and opening things
..... Reach	..... Errands and housework

## ADMINISTRATION OF THE QUESTIONNAIRE

The HAQ is self-administered. Patients are given the questionnaire and asked to complete it without additional instructions.

## SCORING OF QUESTIONNAIRE

### DAILY FUNCTION (Disability Index)

This section is composed of eight categories each of which has at least two component questions. These categories each contribute a score from 0 to 3 which are then collapsed into a 0 to 3 Disability Index.

Possible responses for the component questions are:

Without ANY difficulty = 0

With SOME difficulty = 1

With MUCH difficulty = 2

UNABLE to do = 3

The highest score for any component question determines the score for that category. If a component question is left blank or the response is too ambiguous to assign a score, then the score for that category is determined by the remaining completed question(s).

If either devices and/or help from another person is checked for a category the score = 2. This may determine the score unless a score on any other component question = 3. For example, the response to "Dress yourself..." is with SOME difficulty (score =

The patient has checked the use of a device for dressing, thereby increasing the score to 2. The response to "Shampoo your hair is UNABLE to do (score = 3). Therefore, the score for the DRESSING category is 3.

Devices associated with each category::

- |                     |  |
|---------------------|--|
| DRESSING & GROOMING | - Devices used for dressing (button hook, zipper pull, long handled shower horn, etc.)     |
| ARISING             | - built up or special chair  |
| EATING              | - built up or special utensils   |
| WALKING             | - cane, walker, crutches   |
| HYGIENE             | - raised toilet seat<br>bathtub seat<br>bathtub bar<br>long handled appliances in bathroom |
| REACH               | - long handled appliances for reach  |
| GRIP                | - jar opener (for jars previously opened)  |

Devices written in the "Other" sections are considered only if they can be used for any of the stated categories.

### Disability Index Calculation:

The index is calculated by adding the scores for each of the categories and dividing by the number of categories answered. This gives a score in the 0 to 3 range.

### PAIN AND DISCOMFORT

Pain is measured on a visual analog scale, 15 cm. long, with "no pain" or 0 at one end and "very severe pain" or 100 at the other. A score from 0 to 3 is determined based on the location of the respondent's

Using a metric rule, measure the distance from the left side of the line to the mark (0 to 15 cm.) and multiply by .2 to obtain a value from 0 to 3.

(Kirwan & Reeback after Fries et al.)

## APPENDIX 1

### DIAGNOSIS FROM REFERRAL LETTERS

#### 1. ARTHRITIS

##### KEY TERMS

Joint swelling

Joint stiffness

Arthritis

Osteophytes, erosions

Rheumatoid factor

Raised ESR

Osteoarthritis

Rheumatoid arthritis

##### DRUGS

Aspirin	Many proprietaries
Allopurinol	(Aloral) (Aluline) (Caplenal) (Cosuric) (Zyloric)
Azapropazone	(Rheumox)
Benorylate	(Benoral)
Choline magnesium trisalicylate	(Trilisate)
Chloroquine	(Avloclor) (Malarivon) (Nivaquine)
Diclofenac sodium	(Volatrol)
Diflunisal	(Dolobid)
Fenbufen	(Lederfen)

Fenoprofen	(Fenopron) (Fenopron D) (Progesic)
Flurbiprofen	(Froben)
Hydroxychloroquine sulphate	(Plaquenil)
Ibuprofen	(Apsifen) (Brufen) (Ebufac) (Fenbid) (Motrin) (Uniprofen)
Indomethacin	(Artracin) (Imbrilon) (Indocid) (Indocid-R) (Indoflex) (Indolar) (Mobilan) (Rheumacin LA)
Ketoprofen	(Alrheumat) (Orudis) (Oruvail)
Mefenamic acid	(Ponstan)
Naproxen sodium	(Naprosyn) (Synflex)
Penicillamine	(Distamine) (Pendramine)
Phenylbutazone	(Butacote) (Butazolidin) (Butazolidin Alka) (Butazone)
Piroxicam	(Feldene)
Salsalate	(Disalcid)
Sodium aurothiomalate	(Myocrisin)
Sulindac	(Clinoril)
Sulphasalazine	(Salazopyrin)
Sulphinpyrazone	(Anturan)
Suprofen	(Suprol)
Tiaprofenic acid	(Surgam)
Tolmetin	(Tolectin)

## DIAGNOSIS FROM REFERRAL LETTERS

### 2. PERIPHERAL VASCULAR DISEASE

#### KEY TERMS

Peripheral vascular disease

Intermittent claudication

leg cramps

Difficulty walking

Reduced blood flow

Absent pulses - dorsalis pedis  
posterior tibial  
popliteal  
femoral

fruits

#### DRUGS

Bamethan	(Vasculit)
Cinnarizine	(Stugeron)
Nicotinic Acid	(Bradilan)
Hexopal	(Ronicol)
Oxypentifylline	(Trental)
Thymoxamine	(Opilon)
Ritocides	(Paroven)
Cyclandelate	(Cyclospasmol)
Isoxsuprine	(Duvadilan)
Naftidrofuryl	(Praxilene)

DIAGNOSIS FROM REFERRAL LETTERS

3. PSORIASIS

KEY TERMS

Psoriasis

Scaling

Rash on knees or elbows

Scaling of the scalp

ECZEMA

Dermatitis

Scaling

Itching

Excoriation

Lichenification

Scratching

DRUGS

Tar

Dithranol

(Dithrocream)

Vaseline

(White/yellow soft paraffin)

Hydrocortisone

(Efcortelan)  
(Cortacream)  
(Alphaderm)  
(Dome-cort)

Beclomethasone

(Propaderm)  
(propaderm forte)

Betamethasone

(Betnovate)  
(Diprosalic)

Clobetasol

(Dermovate)  
(Eumovate)

Difflocortolone

(Nerisone)

Fluocinolone

(Synalar)

Fluocinonide

(Metosyn)

Flurandrenolone

(Haelan)

Hydrocortisone  
butyrate

(Locoid)

Triamcinolone



APPENDIX 2

CONSENT TO PARTICIPATION IN A STUDY OF THE  
REASONS FOR CONTINUING TO ATTEND AN OUTPATIENT CLINIC

I understand that this study will examine the reasons why some patients need to go to the hospital outpatient clinic for a long time. I agree to fill in a short questionnaire at each of my visits to the hospital over the next year. I also agree to the hospital doctor supplying non-confidential information for the purposes of this study.

Yours sincerely,

PATIENT QUESTIONNAIRE

TO BE COMPLETED BY PATIENT

Your help with the following questions would be much appreciated.

(PLEASE ANSWER QUESTIONS 1 and 2 BEFORE GOING TO SEE THE DOCTOR)

1. Do you expect this to be your last visit to the Out-patient Clinic?  
(Please tick)

Definitely  
Probably  
Don't know  
Probably not  
Definitely not

☐

2. If given a choice by the Consultant today which of the following  
would you prefer? (Please tick)

To be discharged to the care of your G.P.  
To continue hospital attendance  
Don't know

☐

3. Why do you require to attend hospital today?

If there is more than one reason please number 1,2,3  
in order of importance.

- a) You need hospital facilities (machines, tests, etc.)  
b) A Consultant opinion is needed  
c) Your G.P. cannot deal with the situation  
d) Your G.P. has asked for the hospital to take  
control of your case.  
e) You prefer hospital  
f) To help Consultants teach students or young doctors  
g) To take part in your Consultant's research  
h) Other reasons - Please state


☐☐☐☐

4. How did you travel to hospital and back today? (Please tick)

Ambulance  
Walk  
Bicycle  
Car  
Public Transport - Bus  
Train  
Taxi

☐

5. How far did you travel on the entire journey there and back? (Please tick)
- Less than a mile  
1 - 5 miles  
5 - 10 miles  
10 - 20 miles  
More than 20 miles.
6. How far do you live from your G.P.'s surgery? (Please tick)
- Less than a mile  
1 - 5 miles  
5 - 10 miles  
10 - 20 miles  
More than 20 miles
7. Did you have to miss work to attend the outpatient clinic today?
8. Did you travel with a friend/relative? YES / NO
9. Is that person normally in employment? YES / NO
10. If this is your first visit to this clinic, please ignore this question and go on to Question No.11
- a) Have you attended your own Doctor since your last visit? YES / NO
- b) If so, how many times?
- 1  
2 - 3  
4 - 5 (Please tick)  
5 - 10  
More than 10
11. Do you attend any other Hospital clinics? YES / NO
12. Is there a Nurse at your Doctor's Surgery?
- YES / NO / DON'T KNOW

☐☐☐☐☐☐☐☐☐☐

13. Do you receive any of these? (Please tick)

District Nurse

Physiotherapy

Chiropody

Occupational therapy

Social Worker

Meals on Wheels

Other - Please state.

--	--	--

PATIENT QUESTIONNAIRE - RETURN VISIT

TO BE COMPLETED BY PATIENT

For Office  
Use only

Your help with the following questions would be much appreciated.  
(PLEASE ANSWER QUESTIONS 1 and 2 BEFORE GOING TO SEE THE DOCTOR)

PATIENT SERNO.

--	--	--	--	--

1. Do you expect this to be your last visit to the Out-patient Clinic? (Please tick)

Definitely  
Probably  
Don't know  
Probably not  
Definitely not

☐

2. If given a choice by the Consultant today which of the following would you prefer? (Please tick)

To be discharged to the care of your G.P.

To continue hospital attendance

Don't know

☐

3. Why do you require to attend hospital today?  
(If there is more than one reason please number 1, 2, 3.)

a) You need hospital facilities (machines, tests, etc.)

b) A Consultant opinion is needed

c) Your G.P. cannot deal with the situation

d) Your G.P. has asked for the hospital to take control of your case.

e) You prefer hospital

f) To help Consultants teach students or young doctors

g) To take part in your Consultant's research

h) Other reasons - Please state

☐

i) Don't know

4. How did you travel to hospital and back today? (Please tick)

Ambulance

Walk

Bicycle

Car

Bus

Train

Taxi

☐

5. Did you have to miss work to attend the outpatient clinic today? YES / NO

☐

6. Did you travel with a friend/relative? YES / NO

☐

7. Is that person normally in employment? YES / NO

☐

8. a) Have you attended your own Doctor since your last visit YES / NO

☐

b) If so, how many times? (Please tick)

1

2 - 3

4 - 5

5 -10

More than 10

☐

9. Do you attend any other Hospital clinics? YES / NO

☐

APPENDIX 4

Dr J. H. BARBER, M.D., F.R.C.G.P.,  
(G.), D.R.C.O.G. (Norie-Miller Chair)

Yours sincerely

PATIENT QUESTIONNAIRE

I would greatly value your opinion on your time  
spent attending the clinic

For office  
use only

1. Are you still attending this clinic ? YES/NO

☐

2. Do you agree with the hospital doctor's decision to  
discharge or retain you ? (please tick)

DEFINITELY  
PROBABLY  
DON'T KNOW  
PROBABLY NOT  
DEFINITELY NOT

☐

3. If you have stopped attending the clinic of your own  
accord, what was the reason you stopped attending?

NOT GIVEN APPOINTMENT  
CLINIC TOO FAR AWAY  
COSTS TOO MUCH TO ATTEND  
(Bus fares, time off work, etc)  
GP ASKED YOU TO STOP GOING TO CLINIC  
FED UP WAITING TO BE SEEN BY DOCTOR  
OTHER REASON - Please state: :  
-----

☐

4. In the time you were attending the clinic has your  
been

CURED  
IMPROVED  
UNCHANGED  
WORSENER  
DETERIORATED SEVERELY

☐

5. What was the value of your clinic visits?

VERY WORTHWHILE  
WORTHWHILE  
UNCERTAIN  
NOT HELPFUL  
A WASTE OF TIME

☐



APPENDIX 5

GENERAL PRACTITIONER QUESTIONNAIRE - FIRST VISIT

For Office  
Use Only

PATIENT SERNO.

--	--	--	--	--

1. What was the main reason for your referral of this patient to the out-patient clinic?  
(Please tick)

☐

1. DIAGNOSIS - and, where appropriate, treatment

2. TREATMENT - of an already diagnosed condition

3. REASSURANCE OF ONE OF THE PARTIES INITIALLY INVOLVED - patient / relative / or the referring doctor

4. INVESTIGATION - which the general practitioner is unable to offer except through a consultant

5. OTHER REASONS : Please state

---

---

2. Do you agree with the decision to discharge/retain the patient? (Please tick)

Definitely agree  
Probably  
Uncertain  
Probably not  
Definitely disagree

☐

3. If retained, why do you consider this necessary?  
If there is more than one reason please number 1,2,3 etc in order of importance.

- a) Hospital facilities required  
b) Consultant supervision required  
c) You are unable to manage the condition  
d) You prefer that the patient is under hospital supervision  
e) Patient prefers hospital care  
f) Teaching  
g) Research  
h) Other reasons (Please state)

--	--	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--

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Professor J. H. BARBER, M.D., F.R.C.G.P.,  
F.P.(G), D.R.C.O.G. (Norie-Miller Chair)

UNIVERSITY OF GLASGOW  
DEPARTMENT OF GENERAL PRACTICE

For Lecturers

MURRAY, Ph.D., F.R.C.G.P., F.R.C.P., D.R.C.O.G.

Accident Lecturer)

WOOD, M.D., M.R.C.G.P.

For

McKAY, O.B.E., M.B., F.R.C.G.P.



WOODSIDE HEALTH CENTRE,  
BARR STREET,  
GLASGOW G20 7LR  
TEL: 041-332 9977

NAME \_\_\_\_\_ D.o.b. \_\_\_\_\_

ADDRESS \_\_\_\_\_

The above patient was recently seen at a \_\_\_\_\_ hospital  
outpatient clinic and discharged/retained.

As part of a research project to discover why some patients referred to hospital become chronic attenders, I have asked him/her to take part in a follow-up study for the period he/she is attending the outpatient clinic. Your opinion on the validity of the decisions taken by hospital staff is of great interest to me and I would therefore be grateful if you could complete the enclosed questionnaire and return it to me in the stamped addressed envelope provided.

Thank you for your help.

Yours sincerely,

F.M. SULLIVAN  
LECTURER IN GENERAL PRACTICE.

GENERAL PRACTITIONER QUESTIONNAIRE - RETURN VISIT

For Office  
Use Only

Your patient :

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

D.o.b. \_\_\_\_\_

was recently seen at a Hospital Out-patient Clinic for a follow-up visit and discharged/retained. You may recall completing a similar questionnaire after the patient's first visit.

PATIENT SERNO.

--	--	--	--

1. Do you agree with the decision to discharge/retain the patient? (Please tick)

Definitely agree  
Probably  
Uncertain  
Probably not  
Definitely disagree

☐

2. If retained, why do you consider this necessary?  
If there is more than one reason please number 1,2,3 etc.  
in order of importance.

- a) Hospital facilities required  
b) Consultant supervision required  
c) You are unable to manage the condition  
d) You prefer that the patient is under hospital supervision  
e) Patient prefers hospital care  
f) Teaching  
g) Research  
h) Other reasons (Please state)


☐☐☐☐

HOSPITAL CLINICIAN QUESTIONNAIRE - RETURN VISIT

For Office  
Use only

PATIENT SERNO.

--	--	--	--

1. How has this patient's clinical status changed since his/her last Outpatient visit?  
(Please tick)

CURED  
IMPROVED  
UNCHANGED  
WORSENER  
SEVERE DETERIORATION

☐

2. Is this patient to be:

a) discharged to G.P.  
b) referred to another specialty  
c) retained  
d) depends on results

☐

3. If not discharged on this occasion, what is the most important reason(s) for continued attendance?

If there is more than one reason please number 1,2,3 in order of importance.

a) Hospital facilities  
b) Consultant supervision required  
c) G.P. unable to manage condition adequately  
d) G.P. requests continued hospital attendance  
e) Patient requests continued hospital attendance  
f) Teaching  
g) Research  
h) Other (Please state)


☐☐☐☐

Please initial \_\_\_\_\_

HOSPITAL CLINICIAN QUESTIONNAIRE - FIRST VISITFor Office  
Use only

PATIENT SERNO.

--	--	--	--

1. In your opinion does this patient have :  
(Please tick)

Yes  
Probably  
Possibly  
No

--	--

2. The reason for this patient attending the clinic today is:

1. DIAGNOSIS - and, where appropriate, treatment
2. TREATMENT - of an already diagnosed condition
3. REASSURANCE OF ONE OF THE PARTIES INITIALLY INVOLVED  
- patient / relative / or the referring doctor
4. INVESTIGATION - which the general practitioner is unable to offer except through a consultant
5. OTHER REASONS : Please state

--

3. Is this patient to be:

- a) discharged to G.P.
- b) referred to another specialty
- c) retained
- d) depends on results

--

4. If not discharged on this occasion, what is the most important reason(s) for continued attendance?

If there is more than one reason please number 1,2,3 etc. in order of importance.

- a) Hospital facilities
- b) Consultant supervision required
- c) G.P. unable to manage condition adequately
- d) G.P. requests continued hospital attendance
- e) Patient requests continued hospital attendance
- f) Teaching
- g) Research
- h) Other (Please state)


--

--

--

Please initial \_\_\_\_\_

CLINIC/NOTE AUDIT QUESTIONNAIRE - FIRST VISIT

1. PATIENT SERNO

--	--	--	--	--

2. HOSPITAL

--	--

3. SPECIALTY

--

4. AGE

--	--

5. SEX

--

6. OCCUPATION

--	--	--	--

OTHER MAJOR PROBLEMS IN G.P. REFERRAL NOTE

7. (1)

--	--	--	--

8. (2)

--	--	--	--

9. WEEKS SINCE G.P. REFERRAL

--	--



CLINIC/NOTE AUDIT QUESTIONNAIRE - RETURN VISIT

1. PATIENT SERNO	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2. WEEKS SINCE LAST ATTENDANCE	<input type="text"/>	<input type="text"/>		
3. VISIT NUMBER	<input type="text"/>	<input type="text"/>		
4. TESTS DONE AT HOSPITAL	1. Haematology			
	2. Biochemistry			
	3. X-ray	<input type="text"/>		
	4. Pathology			
5. ADMISSION DAYS FOR STUDY DIAGNOSIS SINCE LAST SEEN	<input type="text"/>	<input type="text"/>		
6. ADMISSION DAYS FOR OTHER REASONS	<input type="text"/>	<input type="text"/>		
7. WHICH CLINICIAN SEEN	<input type="text"/>	<input type="text"/>		
8. GRADE OF CLINICIAN SEEN TODAY	<input type="text"/>			
9. DISCHARGED OR RETAINED	<input type="text"/>			
10. WEEKS UNTIL NEXT VISIT	<input type="text"/>	<input type="text"/>		



# HEALTH ASSESSMENT QUESTIONNAIRE

..... Date .....

Are interested in learning how your illness affects your ability to function in daily life.  
 Feel free to add any comments at the end of this form.

PLEASE TICK THE ONE RESPONSE WHICH BEST DESCRIBES YOUR USUAL ABILITIES  
 IN THE PAST WEEK:

	Without ANY difficulty	With SOME difficulty	With MUCH difficulty	Unable to do
<b>DRESSING AND GROOMING</b>				
Are you able to:				
Dress yourself, including tying shoelaces and doing buttons?	.....	.....	.....	.....
Shampoo your hair?	.....	.....	.....	.....
<b>ARISING</b>				
Are you able to:				
Stand up from an armless straight chair?	.....	.....	.....	.....
Get in and out of bed?	.....	.....	.....	.....
<b>EATING</b>				
Are you able to:				
Cut your meat?	.....	.....	.....	.....
Lift a full cup or glass to your mouth?	.....	.....	.....	.....
Open a new carton of milk (or soap powder)?	.....	.....	.....	.....
<b>WALKING</b>				
Are you able to:				
Walk outdoors on flat ground?	.....	.....	.....	.....
Climb up five steps?	.....	.....	.....	.....

PLEASE TICK ANY AIDS OR DEVICES THAT YOU USUALLY USE FOR ANY OF THESE ACTIVITIES:

..... Cane	..... Devices used for dressing (button hook, zipper pull, long handled shoe horn, etc.)
..... Walking frame	..... Built-up or special utensils
..... Crutches	..... Special or built-up chair
..... Wheelchair	.....
Other (specify) .....	.....

PLEASE TICK ANY CATEGORIES FOR WHICH YOU USUALLY NEED HELP FROM ANOTHER PERSON:

..... Dressing and Grooming	..... Eating
..... Rising	..... Walking

TICK THE ONE RESPONSE WHICH BEST DESCRIBES YOUR USUAL ABILITIES  
THE PAST WEEK

	Without ANY difficulty	With SOME difficulty	With MUCH difficulty	Unable to do
<b>HYGIENE</b>				
Are you able to:				
Wash and dry your entire body?	.....	.....	.....	.....
Take a bath?	.....	.....	.....	.....
Get on and off the toilet?	.....	.....	.....	.....
<b>REACH</b>				
Are you able to:				
Reach and get down a 5lb object (e.g. a bag of potatoes) from just above your head?	.....	.....	.....	.....
Bend down to pick up clothing from the floor?	.....	.....	.....	.....
<b>MOBILITY</b>				
Are you able to:				
Open car doors?	.....	.....	.....	.....
Open jars which have been previously opened?	.....	.....	.....	.....
Turn taps on and off?	.....	.....	.....	.....
<b>ACTIVITIES</b>				
Are you able to:				
Run errands and shop?	.....	.....	.....	.....
Get in and out of a car?	.....	.....	.....	.....
Do chores such as vacuuming, housework or light gardening?	.....	.....	.....	.....

TICK ANY AIDS OR DEVICES THAT YOU USUALLY USE FOR ANY OF THESE ACTIVITIES:

..... Raised toilet seat	..... Bath rail
..... Bath seat	..... Long handled appliances for reach
..... Jar opener (for jars previously opened)	Other (specify) .....

TICK ANY CATEGORIES FOR WHICH YOU USUALLY NEED HELP FROM ANOTHER PERSON:

..... Hygiene	..... Gripping and opening things
..... Reach	..... Errands and housework

## ADMINISTRATION OF THE QUESTIONNAIRE

The HAQ is self-administered. Patients are given the questionnaire and asked to complete it without additional instructions.

## SCORING OF QUESTIONNAIRE

### DAILY FUNCTION (Disability Index)

This section is composed of eight categories each of which has at least two component questions. These categories each contribute a score from 0 to 3 which are then collapsed into a 0 to 3 Disability Index.

Possible responses for the component questions are:

- Without ANY difficulty = 0
- With SOME difficulty = 1
- With MUCH difficulty = 2
- UNABLE to do = 3

The highest score for any component question determines the score for that category. If a component question is left blank or the response is too ambiguous to assign a score, then the score for that category is determined by the remaining completed question(s).

If either devices and/or help from another person is checked for a category the score = 2. This may determine the score unless the score on any other component question = 3. For example, the response to "Dress yourself..." is with SOME difficulty (score = 1). The patient has checked the use of a device for dressing, thereby increasing the score to 2. The response to "Shampoo your hair is UNABLE to do (score = 3). Therefore, the score for the DRESSING category is 3.

Devices associated with each category::

- DRESSING & GROOMING - Devices used for dressing(button hook, zipper pull, long handled shoe horn, etc.
- ARISING - built up or special chair
- EATING - built up or special utensils
- WALKING - cane, walker, crutches
- HYGIENE - raised toilet seat  
bathtub seat  
bathtub bar  
long handled appliances in bathroom
- REACH - long handled appliances for reach
- GRIP - jar opener (for jars previously opened)

Devices written in the "Other" sections are considered only if they could be used for any of the stated categories.

### Disability Index Calculation:

The index is calculated by adding the scores for each of the categories and dividing by the number of categories answered. This gives a score on the 0 to 3 range.

### PAIN AND DISCOMFORT

Pain is measured on a visual analog scale, 15 cm. long, with "no pain" or 0 at one end and "very severe pain" or 100 at the other. A score from 0 to 3 is determined based on the location of the respondent's mark. Using a metric rule, measure the distance from the left end and side of the line to the mark (0 to 15 cm.) and multiply by .2 to obtain a value from 0 to 3.

( Kirwan & Reeback after Fries et al.)

APPENDIX 9

Reported Walking Distance

How far can you walk before pain in your leg stops you if you are on the flat and there is no strong wind?

(Please tick)

1. Unable to walk
2. 10 yards or less
3. 10-50 yards
4. 50-100 yards
5. 100 yards -  $\frac{1}{2}$  mile
6.  $\frac{1}{2}$  -  $\frac{1}{2}$  mile
7. more than  $\frac{1}{2}$  mile
8. no difficulty walking

APPENDIX 10

PSORIASIS DISABILITY INDEX

I WONDER IF YOU COULD MARK WITH AN X THE POINT ON THE LINE WHICH MOST CLOSELY MATCHES HOW YOU HAVE FELT OVER THE PAST 4 WEEKS.

1. How much has your psoriasis interfered with you carrying out work around the house or garden?

1	2	3	4	5	6	7
least						most

2. How often have you worn different types or colours of clothes because of your psoriasis?

1	2	3	4	5	6	7
least						most

3. How much more do you have to change or wash your clothes?

1	2	3	4	5	6	7
least						most

4. Has your psoriasis been much of a problem at the hairdressers?

1	2	3	4	5	6	7
least						most

5. Has your psoriasis resulted in you having to take more baths than usual?

1	2	3	4	5	6	7
least						most

6. Has your career been affected by your psoriasis? (e.g. promotion refused, lost a job, asked to change a job).

1	2	3	4	5	6	7
least						most

7. Is your psoriasis making it difficult for you to do any sport?

1	2	3	4	5	6	7
least						most

8. Have you been unable to use or criticised or stopped from using communal bathing or changing facilities?

1	2	3	4	5	6	7
least						most

9. Has your psoriasis resulted in you smoking or drinking alcohol more than you would do normally?

1	2	3	4	5	6	7
least						most

SERNO				
PATIENT'S NAME				
ADDRESS				
DOB				
HOSPITAL				
HOSPITAL NO				
GP NAME & ADDRESS				
REFERRAL DATE				
OTHER PROBLEMS				
GP LETTER SENT				
RECEIVED				
DATE SEEN				
RETURN APPTMT				
DIAGNOSIS				
COMMENTS				

APPENDIX 12

STUDY SUMMARY

WEEK BEGINNING \_\_\_\_\_

THERESA

IRENE

Total clinic attendances

New patient attendances

Study entrants { new  
referrals from other clinics

Reasons for exclusion { not a study diagnosis  
non co-operation  
Other - please state

Expected return visits

Actual return visits

Discharged

Defaulted

Died

Uncertain