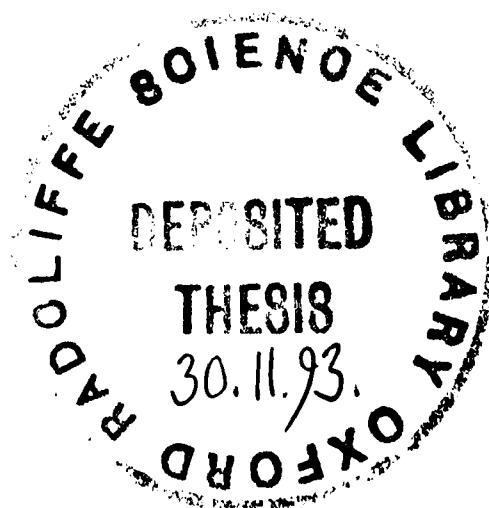


**IMPAIRMENT, DISABILITY AND HANDICAP
IN PATIENTS ON
ORTHOPAEDIC WAITING LISTS**

**D.PHIL THESIS
UNIVERSITY OF OXFORD
FACULTY OF CLINICAL MEDICINE**

VOLUME ONE

**PETER McCREE
ST. CATHERINE'S COLLEGE
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ABSTRACT

Overall, this study is broadly concerned with orthopaedic need and seeks to establish the extent of impairment, disability and handicap in those on orthopaedic waiting lists. By concentrating on the functional consequences of the orthopaedic condition for the individual, the study investigates both the unmet need for professional treatment and the impact of long waiting times on the processes of personal, family, economic and social life. It is suggested that for the majority of patients, both out-patient and in-patient waiting times are unacceptably long and the waiting process involves varying degrees of distress, disability and loss of physical and social independence. As well as identifying the personal, social and material circumstances of those on orthopaedic waiting lists, the study also provides some insight into patients' experiences and difficulties in coping with uncertainty and delay.

The study focuses upon the orthopaedic unit of a District General Hospital in North Oxfordshire, receiving both trauma and elective admissions and serving a population of approximately 120,000. The study population comprises patients referred during specific periods to the orthopaedic unit of this hospital and patients waiting for in-patient treatment at the same hospital. A variety of methodological techniques is employed including detailed analysis of hospital case notes; content analysis of GP referral letters; and the administration of detailed questionnaires, both by post and at attendance to obtain quantitative and qualitative patient data, utilising standard measures of disability, handicap, pain, anxiety and depression.

The study provides increased awareness of one of the major problems in orthopaedics today and introduces the possibility of routinely assessing disability and handicap in orthopaedic patients in order to improve awareness of patient needs, reduce unnecessary referrals and facilitate a more informed ranking of both out-patient and in-patient waiting lists. It is suggested that this study provides greater understanding of the problem of orthopaedic need and that the findings from this detailed study at the micro level are capable of generalisation to orthopaedic surgery as a whole.

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Throughout the study period, I held an honorary appointment in the Department of Trauma and Orthopaedic Surgery at the Horton General Hospital which allowed me access to patients and patient records. My research programme was approved by the North Oxfordshire Ethics Committee and data collection and storage was in accordance with the requirements of the Data Protection Act 1984, research registration being obtained through the University of Oxford Department of Public Health and Primary Care.

I am indebted to the staff of the following libraries for their courtesy and consideration: the Radcliffe Science Library, the Cairns Library (both John Radcliffe Hospital and Radcliffe Infirmary sites), the Girdlestone Library at the Nuffield Orthopaedic Centre and the King's Fund Library in London.

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CHAPTER ONE

INTRODUCTION

CHAPTER ONE

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Concepts of Health and Illness

Any study concerned with the provision of health care resources and with health policy is immediately confronted with certain conceptual and theoretical difficulties:

"There are problems in the definition of the core concepts with which health policies are centrally concerned: the maintenance of health, the treatment of illness, the care of the frail. There is no single satisfactory definition of health, illness or frailty, simply alternative approaches which contain particular ways of seeing, interpreting, giving meaning to these universal aspects of human existence." ¹

Throughout history, different meanings have been ascribed to the concept of health. For Dubos, there are two fundamental conceptions which have been promoted with alternating degrees of emphasis from ancient Greece to the present day:

"The myths of Hygieia and Asclepius symbolise the never-ending oscillation between two different points of view in medicine. For the worshippers of Hygieia, health is the natural order of things, a positive attribute to which men are entitled if they govern their lives wisely. According to them, the most important function of medicine is to discover and teach the natural laws which will ensure a man a healthy mind in a healthy body. More sceptical, or wiser in the ways of the world, the followers of Asclepius believe that the chief role of the

physician is to treat disease, to restore health by correcting any imperfections caused by accidents of birth or life." ²

Although the idea of preventing ill-health through appropriate social and economic arrangements dominated, for example, the actions of the social and public health reformers of the nineteenth century such as Chadwick,^{3,4,5} it is the notion of health as freedom from clinical disease that has been central to the development of modern medicine.

The origins of western scientific medicine are to be found in the scientific revolution of the seventeenth century which swept aside the Aristotelian view of the world which had dominated western thought for the previous 1500 years. The scientists of the Renaissance began for the first time to explore and describe in detail the internal workings of the human body. These investigations followed the general pattern of Renaissance science in analysing living things as sets of parts rather than organically integrated entities. Philosophers such as Hobbes and Descartes provided the philosophical basis for this new mechanistic model of the human body:

"The Cartesian philosophy of the body conceived as a machine and the body controlled as a machine provided an impetus for scientific experiment and a stream of practical outcomes which for an increasing proportion of the population seemed to validate a mechanistic perspective." ⁶

Jewson⁷ has suggested that the development of medicine may be seen in terms of three successive stages. The first, which he terms "Bedside Medicine" was dominant in western Europe from the Middle Ages until the late eighteenth century. It was available only to the relatively wealthy and was characterised by a system of patronage. Patients selected those doctors whom they believed could provide the best service and thus doctors, rather than seeing themselves as members of a single profession, were rivals competing for employment. Medicine was patient-centred with the feelings and symptoms of what Jewson calls the "sick man" forming the focus of medical concern. Not only were doctors wholly reliant upon the patronage of powerful clients for their livelihood, but advances in medical science had little impact upon medical practice. Disease was still largely seen as an imbalance of the total body system, with cure dependent upon dramatic therapies designed to bring about major systemic change.

During the late eighteenth and early nineteenth centuries, however, a new approach to disease developed, characterised by an increasing concentration upon "localized pathology" and medicine entered the phase of what Jewson calls "Hospital Medicine". The development of the factory system and the population shift from the country to the new overcrowded and unhealthy cities was accompanied by the establishment of huge hospitals to house the sick. The growth in the numbers and importance of these hospitals and the large numbers of the poor who entered them made possible significant changes in both medical knowledge and medical

practice. The new "working class" patients were inferior in status to their doctors and were no longer seen as individuals with individual sets of symptoms and problems, but rather as "cases" exhibiting signs of malfunction of one particular part of the body. Doctors became more organised as a profession and were increasingly concerned with diagnosis, classification and with correlating external signs with internal organic lesions.

Jewson's third phase, "Laboratory Medicine" appeared at the beginning of the twentieth century and represented the final triumph of the mechanistic world view. Medicine became fully established as a science and doctors were actively intervening in human physiological processes. Developments in histology and physiology made the laboratory the focus of medical activity with the patient increasingly seen as little more than an object composed of cells:

"...observational anatomy would never explain the causes of disease. Hence the new pathology was built upon the findings of experimental physiology. Since the cell was the fundamental unit of life, then it must also be the locus of disease. Life thus became the process of interaction within and between cells, disease a particular form of these physical and chemical processes." ⁸

Jewson argues that the era of "Laboratory Medicine" widened still further the gap between doctor and patient and reinforced the autonomy and

power of the medical profession. What Jewson terms "the shift from a person-orientated to an object-orientated cosmology" led to the definition of ill-health primarily in terms of mechanical malfunction.

Writers such as McKeown have argued that the mechanistic perspective continues to dominate medical education, medical practice and the structure of the health services:

"Medical education begins with the study of the structure and function of the body, continues with an examination of disease processes, and ends with clinical instruction on selected sick people; medical service is dominated by the image of the acute hospital where the technological resources are concentrated; and medical science reflects the mechanistic concept, for example in the attention given to the chemical basis of inheritance and the immunological response to transplanted organs. These researches are strictly in accord with the physical model, the first being thought to lead ultimately to control of gene structure and the second to replacement of diseased organs by normal ones." ⁹

In terms of health policy, the "medical model" is concerned with the provision of access, for the ill, to treatment by professional healers. Health here is implicitly seen as the absence of disease in individuals and the treatment of illness and disease is seen as more or less the exclusive preserve of the medical profession.

By contrast, the "social model" views the major purpose of health policy as the maintenance of health and the prevention of ill health through social and economic action. The World Health Organisation has embraced the social model in its broad definition of health as *"...a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."* ¹⁰

The two models of health, the "medical" and the "social", however, are neither exhaustive nor mutually exclusive. A key proposition in medical sociology is that definitions and values concerning health and illness are socially determined. Conceptions of health and illness not only vary between different societies, but between different groups within a single society. Moreover, conceptions of health and illness in any given society also vary over time, reflecting the changing values of different groups within that society.

Illness Behaviour

A number of studies have shown that it is normal to experience symptoms of various kinds, but equally, that it is not normal for most of these symptoms to be reported to a doctor. A typical study by Wadsworth, Butterfield and Blaney¹¹ showed that over 90 per cent of respondents experienced one or more symptoms in the two weeks prior to interview, but that only one in five of those experiencing symptoms consulted a

doctor. Other studies^{12,13} have suggested that the likelihood of symptoms leading to a patient-initiated encounter with a general practitioner is not related to the severity of those symptoms. Certainly, from the general practitioner's viewpoint, consultations are unrelated to severity. A study by Dunnell and Cartwright¹⁴ reported that one fifth of general practitioners interviewed felt that half or more of their surgery consultations were for trivial, unnecessary or inappropriate reasons.

It follows that from whatever viewpoint, there is a gulf between need for health care and demand. Writers such as Last¹⁵ have postulated the existence of a "clinical iceberg", with the medical services only treating a small proportion of total ill-health in the population. It is now generally accepted that within any given population, considerable unmet need does exist, with an unknown but significant proportion of that population experiencing various degrees of avoidable pain, discomfort and handicap. The definition of need, however, remains problematic.

Utilisation of medical services is well-documented. Various studies^{16,17,18,19,20} have identified age, sex, marital status, social class, ethnic origin, family size and other factors as important variables in health care utilisation. Such studies, however, have tended to be more descriptive than explanatory. Utilisation of medical services depends not only upon the presence of symptoms or access to medical services, but upon "illness behaviour", the tendency or reluctance to define any symptom as a health

problem and to seek medical assistance.²¹ Mechanic and Volkart have defined illness behaviour as follows:

"...the way in which symptoms are perceived, evaluated and acted upon by a person who recognises some pain, discomfort or other signal organic malfunction." ²²

Like overall perceptions of health and disease, illness behaviour varies between cultural and social groups. In a classic study of ethnic groups in New York, Zborowski²³ reported widely differing cultural attitudes and behaviour in response to pain. He showed that ethnic origin influenced both the experience of pain and the meaning placed upon it. Two other studies, one of wounded soldiers²⁴ and one of postoperative pain,²⁵ demonstrated the importance of the social context in the experience of pain.

Symptoms are subjected to various forms of evaluation or interpretation before any decision or action is taken. Because for most people frequent symptoms are normal, it tends to be the symptom which is unusual or atypical in form or context which is seen as the most serious. Suchman²⁶ found that symptoms which present in a dramatic way (such as sharp abdominal pain) are more likely to trigger a patient-initiated medical consultation. Zola²⁷ found that most people tolerated their symptoms for some time before consulting a doctor and identified five "social triggers" which precipitated a consultation. According to Zola, symptoms which

interfere with normal activities or social interactions will be more likely to be regarded as serious. Equally, some change in personal relationships can change the perception of symptoms or lead to decreased tolerance of chronic pain or disability. Though the symptom may or may not interfere with work or normal social relations, it may still be seen as unusual and some deadline may be set for action if the symptom has not disappeared. Pressure from friends or relatives, "sanctioning", may also be a trigger to seek a medical consultation.

However, while the notion of trigger mechanisms provides a useful classification of patient behaviour and is of value in highlighting the inadequacy of explaining patient behaviour simply in terms of experience of symptoms, it is the patient's underlying belief systems and the social context of his or her illness which ultimately account for illness behaviour. Most people experiencing symptoms discuss them with others before contemplating further action. Suchman²⁸ found that seventy-five per cent of respondents discussed their symptoms with another person, usually a relative, before seeking professional help. Friedson²⁹ has suggested that advice given by friends and relatives constitutes a lay referral system, analogous to the medical system, involving a network of lay consultants with a successively greater claim to knowledge. Friedson has also suggested that an extended lay referral system functioning in a tight-knit community may act as an alternative health care system, resulting in a low level of demand for formal medical services.

Self-care, especially self-medication, whether as an adjunct or an alternative to formal medical care, has been shown to be extremely common. Dunnell and Cartwright³⁰ found that in a two-week period the ratio of non-prescribed to prescribed medicines taken by adults was approximately 2:1. Moreover, 67 per cent of their sample had taken one or more non-prescribed medicines in the same two-week period, most of which had been recommended by members of lay referral systems.

As well as the options of consulting a doctor, self-medication, complete reliance on lay referral systems, or simply ignoring symptoms and taking no action at all, other options include consulting "alternative" practitioners and participating in self-help groups. "Patients" selecting either of these two options, especially those with chronic illness often find the time and understanding that is frequently denied them in the more formal, professionally-dominated health care system.

The overt rules which shape medical consultations are analysed in detail in Strong's classic observational study of paediatric consultations ³¹ which provides a systematic and detailed account of the doctor-patient relationship. While Strong shows that there are special sets of rules which make medical consultations social occasions, nevertheless consultations can still differ according to the doctor, the patient, the medical condition and the particular setting in which the doctor-patient interaction takes place.

Inequalities in Health and Health Care Provision

There is an abundance of evidence to demonstrate social class differences in mortality, morbidity, access to health care resources and utilisation of services. As Stacey has pointed out:

"There is evidence, first, of continuing and perhaps increasing class differentials in death rates; second, of more illness in lower than in higher classes; third, that the health services are more available to the middle classes than to the working classes; fourth, that the middle classes use the health services more than the working classes; and, five, get more out of them when they do use them." ³²

Social class differences in mortality can be demonstrated in both sexes and in all age groups. For example, the standardised mortality ratio (SMR)³³ among economically active males in England and Wales in 1970-72 ranged from 77 in Social Class I to 137 in Social Class V.³⁴

While death rates overall are falling, there is evidence that the relative position of those in the lower social groups is deteriorating. The Working Group on Inequalities in Health, which reported in 1980, found that for men of economically active age there was greater inequality of mortality between Social Classes I and V in 1970-72 than in 1949-53.³⁵ The evidence on morbidity is more problematic due to difficulties in defining and measuring illness. However, studies such as the General Household

Survey have consistently demonstrated a clear class gradient in terms of self-reported sickness.³⁶ Moreover, the Health and Lifestyle Survey,³⁷ a survey of morbidity and fitness in a large representative sample of adults living in private households in England, Wales and Scotland, revealed striking differences between social classes in self-defined health status, the reported incidence of illness, the prevalence of chronic disease and measured physiological fitness. This study demonstrated that disadvantage in health status does not simply relate to a minority in the poorest social circumstances, but appears to be related in a very regular way to the social class structure.³⁸

Social class differences are also apparent in terms of utilisation of health care resources. As Titmuss has pointed out:

"...the higher income groups know how to make better use of the Service; they tend to receive more specialist attention; occupy more of the beds in the better equipped and staffed hospitals; receive more elective surgery; have better maternity care; and are more likely to get psychiatric help and psychotherapy than low income groups - particularly the unskilled." ³⁹

Studies of general practitioner consultations provide further evidence of class differences. Cartwright and O'Brien,⁴⁰ for example, found that average consultation time with middle class patients was 6.2 minutes, compared with 4.7 minutes for working class patients. Moreover, middle

class patients were more likely to discuss more of their problems and their domestic circumstances were more likely to be known to the general practitioner.

Utilisation of health care facilities is, of course, closely related to access. Factors such as distance between home and surgery or hospital have been shown to influence utilisation, especially in the case of the elderly or disabled.⁴¹ Moreover, the geographical distribution of health care facilities has been shown to negatively correlate with various indicators of need.⁴²

Tudor Hart⁴³ has argued that need for health care is inversely related to provision and he has introduced the term "Inverse Care Law". For Tudor Hart, market forces have ensured that the more prosperous areas have attracted the most resources while the less affluent regions (where morbidity is much greater) have attracted the least:

"The availability of good medical care tends to vary inversely with the need for it in the population served. This inverse care law operates more completely where medical care is most exposed to market forces, and less so where such exposure is reduced. The market distribution of medical care is a primitive and historically outdated social form, and any return to it would further exaggerate the maldistribution of medical resources." ⁴⁴

The issue of the geographical maldistribution of resources was not officially recognised until more than twenty years after the establishment of the National Health Service. An internal DHSS review of the distribution of funds to hospital regions led to the introduction in 1971-2 of a new method of allocating revenue, designed to equalise distribution over a ten-year period. This was followed in 1975 by the appointment of an *ad hoc* advisory committee, the Resource Allocation Working Party (RAWP), which had the following brief:

"To reduce progressively, and as far as it is feasible, the disparities between different parts of the country in terms of opportunity for access to health care for people at equal risk; taking into account measures of health needs, and social and environmental factors which may affect the need for health care." ⁴⁵

The Working Party's Report, published in September 1976,⁴⁶ recommended that resources for hospital and community health services should be allocated on the basis of each region's population, weighted for age and sex to take account of the heavier demands made upon services by groups such as children, women and the elderly. The Report also recommended that regional populations should be weighted for morbidity, with standardised mortality ratios being used as a proxy for morbidity. It was suggested that a target revenue allocation should be built up for each region, making allowances for the flow of patients across regional

boundaries and the costs incurred by the NHS in providing facilities in support of medical education. The Report recognised that existing disparities could be reduced only gradually, but recommended that priority in terms of new spending should be given to the most deprived regions.

The Report's recommendations were accepted by the Secretary of State and, in theory, began to be implemented for the first time in 1977-8. In practice, however, limited growth in NHS expenditure has meant that progress towards achieving targets has been very slow.

The RAWP approach has been criticised on various grounds. Some claim that it is inadequate because it is solely concerned with the input of resources rather than with their deployment or output. The use of standardised mortality ratios as indicators of morbidity has been severely criticised as inappropriate and the failure to include any indicators of social deprivation within the RAWP formula has also attracted much criticism.

A number of studies have found statistically significant and consistent relationships between various mortality and morbidity indices and a range of selected social indicators. Typical studies have included that conducted by Brennan and Lancashire⁴⁷ which revealed a significant association between early childhood mortality and lower social class, poor housing status and unemployment in County Boroughs in 1971. Knox *et al* ⁴⁸

demonstrated strong positive correlations between perinatal mortality rates and a wide range of variables indicative of poverty and deprivation and Townsend, Simpson and Tibbs⁴⁹ found a strong statistical association in Bristol between indicators of material deprivation and ill-health indicators.

The Report of the Working Group on Inequalities in Health, universally known as the Black Report,⁵⁰ published in 1980, documented inequalities in the health of different social classes in Britain and aroused widespread controversy. The Government reacted by attempting first to limit its circulation and subsequently by discounting its conclusions.

In his foreword to the Report, the Secretary of State, Patrick Jenkin, commented:

"It will come as a disappointment to many that over long periods since the inception of the NHS there is generally little sign of health inequalities in Britain actually diminishing and, in some cases, they may be increasing. It will be seen that the Group has reached the view that the causes of health inequalities are so deep-rooted that only a major and wide-ranging programme of public expenditure is capable of altering the pattern. I must make it clear that additional expenditure on the scale which could result from the report's recommendations - the amount involved could be upwards of £2 billion a year - is quite unrealistic in present or any foreseeable economic circumstances, quite apart from any judgement that may be formed of the effectiveness of such expenditure in dealing with

the problems identified. I cannot, therefore, endorse the Group's recommendations. I am making the report available for discussion, but without any commitment by the government to its proposals." ⁵¹

As Tudor Hart has observed, the rejection of the Black Report was a political decision and its findings remain difficult to discount:

"The Black Report, though a well-documented and scholarly argument chaired by a President of the Royal College of Physicians, has been rejected on political grounds, with little attempt to marshall any serious scientifically-based argument against it." ⁵²

Following the publication of the Decennial Supplement on mortality in 1986,⁵³ it has been suggested that severe inequalities remain and may indeed be increasing.^{54,55} Tudor Hart argues that recent government policy has served to widen the gulf between the advantaged and the disadvantaged:

"The Black Report is now being implemented in reverse; that is to say, government policies are, virtually without exception, the opposite of those recommended by the Black working party. By every measure of income, education, housing, availability of employment, nutrition, participative sports facilities, nicotine and alcohol dependence, and increasingly by access to sophisticated medical care (curative or preventive), Britain is becoming a more divided and unequal society." ⁵⁶

Health Policies and the National Health Service

The development of health services and health policies in western industrial societies has been part of the growth of modern welfare states and has been justified in terms of both fulfilling individual needs and as necessary for national progress.

In theory at least, good health is seen as a positive benefit to both the individual and to society:

"Good health is the bedrock on which social progress is built. A nation of healthy people can do those things which make life worthwhile and as the level of health increases so does the potential for happiness." ⁵⁷

In the Declaration of Alma Ata in 1978, the World Health Organisation stated its principal objective to be:

"...the attainment by all citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life." ⁵⁸

The Alma Ata Declaration made it clear that "Health for All by the Year 2000" would never be achieved by hospital-based medical services alone and would depend upon the:

"...adoption of health-oriented policies on incomes, housing, transport, nutrition, education and sport, but above all on development of primary health care as the foundation and focus of future health services." 59

But, although the British government endorsed both the Alma Ata Declaration and the 38 regional targets subsequently set by WHO Europe to implement the objectives of the Declaration, as Tudor Hart has pointed out, there has been no sign of any fundamental change in British health policy:

"Despite all the rhetoric no British government has yet made any substantial changes in health policy to translate the slogan Health For All into a reality. Government welcomed the implied de-emphasis on hospital services, because they are expensive; but the emphasis on environmental and social improvement was first ignored, and finally opposed." 60

The National Health Service (NHS) is the dominant vehicle of health policy and the chief provider of health services in Britain. The NHS came into existence on 5th July 1948. The National Health Service Act had been passed in 1946,^{61,62} the culmination of a period of discussion and argument which had begun with the publication of the Beveridge Report⁶³ in 1942. The wartime coalition government had declared its intention to establish a national health service in a White Paper published in 1944:

"The Government...want to ensure that in the future every man and woman and child can rely on getting...the best medical and other facilities available; that their getting them shall not depend on whether they can pay for them or on any other factor irrelevant to real need." 64

It was intended that the NHS should provide a preventive, curing and caring service, free at the point of consumption. However, the administrative structure of the service established by the 1946 Act was shaped by various historical antecedents and was a representation of what was possible rather than what might have been desirable:

"There was an implicit emphasis in the Act on the treatment of illness in the individual and the structure of the services reflected this. The structure itself was, of course, a consequence of an already existing division of labour and distribution of power in health care. These had developed around and centred on the medical profession from the nineteenth century onwards and in many respects the NHS Act consolidated the position of the profession at the centre of a state-financed service." 65

At first, it was naively assumed that the NHS had "solved" the problem of dealing with ill health by providing health services and that, although costs might rise in the early stages, ultimately they would be stabilised through an overall improvement in the general health of the population. Until the mid 1960s, the major objective of governments was to gradually expand the service in order to keep pace with demographic change and technological

advance. Rising expenditures were funded by high rates of growth in the economy as a whole. By the late 1960s, the British economy was giving cause for serious concern and this was reflected in attempts to rationalise government spending through the reorganisation of various sectors of the welfare state. Escalating costs within the NHS made it a key target for "rationalisation" and policies were designed to make the NHS managerially more efficient through reform of its administrative structure. This culminated in the reorganisation of the NHS in 1974.⁶⁶

The 1974 reorganisation had three main aims. The first was unification of the services previously administered by Regional Hospital Boards, hospital management committees, boards of governors, executive councils and local health authorities. The second aim was to establish better co-ordination between health authorities and local government services through realigning the boundaries of the new Area Health Authorities to correspond with those of local authorities providing personal social services. The third aim of the reorganisation was to introduce better management.

Under the new structure, Regional Hospital Boards were replaced by Regional Health Authorities whose main function was the planning of services. Beneath the Regional Health Authorities were the Area Health Authorities with planning and management duties as well as the responsibility for developing services jointly with their corresponding local

authority. General practitioners remained independent contractors and alongside each Area Health Authority was a Family Practitioner Committee which administered their contracts. Most areas were then split into health districts, each of which was administered by a district management team. Community Health Councils were established at district level, designed to represent the views of the public. The reorganised structure came under attack from various quarters and was severely criticised both for the high cost of implementation and for its effect on the morale of health service employees. Against a background of general unrest and industrial action by health workers, a Royal Commission on the NHS was established in 1976 with the following brief:

"To consider in the interests both of patients and of those who work in the National Health Service the best use and management of the financial and manpower resources of the National Health Service." ⁶⁷

In its Report⁶⁸ published in 1979, the Commission advocated a flexible approach to change and pointed out that structural reform was no panacea for all of the administrative problems facing the NHS. The Commission took the view that there was one tier of administration too many and recommended that there should be only one level of authority beneath the region. Among the other recommendations of the Royal Commission were that Family Practitioner Committees should be abolished and that Community Health Councils should be strengthened.

The Government's response was to establish District Health Authorities which combined the functions of the existing areas and districts. These came into operation in April 1982. Community Health Councils remained substantially unchanged while Family Practitioner Committees, far from being abolished, were further separated from the mainstream of NHS administration and by 1985 were granted independent status as employing authorities.

Continuing criticisms of the management of the NHS were addressed by the Griffiths Inquiry into NHS Management, which reported in October 1983.⁶⁹ The Griffiths Report identified significant weaknesses in the management of the Service and recommended that general managers should be appointed at all levels in the NHS to provide leadership, motivate staff and provide a more dynamic management approach. At the same time, the Report recommended that doctors "must accept the management responsibility that goes with clinical freedom"⁷⁰ and should be more closely involved in management. The majority of the Griffiths proposals were accepted by the Secretary of State and in June 1984 health authorities were directed to appoint general managers at all levels by the end of 1985. The complex processes and interactions involved in managing the National Health Service are described in detail in a recent work by Strong and Robinson⁷¹ which utilises ethnographic techniques to analyse and assess the implementation of change from a predominantly managerial perspective.

From the time of the first major reorganisation in 1974 right up to the present day, the National Health Service has been plagued by uncertainty, conflict and crisis:

"The mid-1970s marked an end of the period of consensus in relation to priorities in health policy and within the NHS. Since then, there has been a much greater diversity of views about the proper focus for health policy and the objectives of the service. This diversity, amounting at times and in relation to certain issues to open conflict, has continued into the 1980s...The greater uncertainty and conflict has led to talk of "crisis" in the NHS. This sense of "crisis" is due to a combination of factors which are intrinsic to the provision of health services in modern industrial societies, to factors which relate to the NHS itself and to changes in the context in which it functions. Significantly, it is not only Britain which is said to have a crisis in its health care system, other countries have experienced similar dilemmas and tensions." ⁷²

There is much evidence that health care systems in western industrialised nations face the same problems⁷³ - insatiable demand for health care; wildly escalating costs, limited resources; rapid technological advances; increasing questioning of the efficacy of many high-technology procedures; as well as demographic and epidemiological trends towards a more aged population with a chronic rather than acute disease profile.

It has long been argued that demand for health care is capable of infinite expansion:

"There is ample evidence to demonstrate that demand for health care throughout the world is rising inexorably. England has no immunity from this phenomenon. And because it can also be shown that supply of health care actually fuels further demand, it is inevitable that the supply of health care services can never keep pace with the rising demands placed upon them. Demand will always be one jump ahead." ⁷⁴

If this is the case, then it follows that expenditure on health care is ultimately determined by what a particular country can afford, or at least, by what is regarded as politically acceptable. In Britain, the very existence of the National Health Service creates special problems all of its own:

"...the structure of the NHS is highly centralised and thus the government is the employer of a large and complex labour force. The tensions between the state as employer and the state as the provider of health services, responsible for the well-being of its citizens, are played out in the public arena of the media with all contestants to disputes having a vested interest in generating a sense of crisis." ⁷⁵

As the National Health Service enters the 1990s, it is undergoing a comprehensive programme of reforms more fundamental than any experienced since its inception in 1948. These reforms stem from two

Government White Papers published in 1989 - *Working for Patients*,⁷⁶ the outcome of the ministerial review of the NHS, primarily concerned with funding and structure; and *Caring for People*,⁷⁷ largely concerned with community care reforms. The publication of *Working for Patients* provoked widespread controversy and led to an unprecedented campaign of opposition by organisations representing the interests of the medical profession. In her foreword to this document, the Prime Minister, Mrs Margaret Thatcher, stated:

*"Taken together, the proposals represent the most far-reaching reform of the National Health Service in its forty year history. They offer new opportunities, and pose new challenges, for everyone concerned with the running of the Service."*⁷⁸

The main proposals outlined in the White Paper were as follows:

1. The development of an internal market in health care where patients can be treated in other districts and in the private sector, with exchange payments.
2. The creation of self-governing trusts to allow larger NHS hospitals to "opt-out" and be administered independently of District Health Authorities, employing their own staff and setting their own rates of pay.

3. The facility for general practices with at least 11,000 patients to be able to apply for their own budgets and to purchase hospital services directly.
4. The monitoring of prescriptions with the objective of controlling general practitioners' drug prescribing costs.
5. The reduction in size and reorganisation of NHS management bodies on business lines, with executive and non-executive directors. Overall management to be under the control of a new NHS Policy Board and a new NHS Management Executive.
6. The imposition of audit controls on doctors to ensure "value for money" and the transfer of overall responsibility to the Audit Commission.
7. The appointment of 100 more consultants over three years to help reduce waiting lists and cut junior doctors' hours.
8. The tightening of consultants' contracts and changes in merit pay awards.

9. The provision of tax relief on private health insurance premiums for people in retirement.
10. The encouragement of joint ventures with the private sector.

These changes, together with the community care reforms proposed in *Caring for People* formed the basis of the National Health Service and Community Care Act 1990.⁷⁹ The provisions of the Act are now being implemented at a steady pace, but at the time of writing, the debate on many of the reforms continues unabated. The Government's claims that the reforms are working and benefiting patients contrast with continuing criticism from many of those working within the Health Service and there remains widespread public disquiet.

The Role of Orthopaedic Surgery

The problems facing the National Health Service in Britain today are particularly well demonstrated in the surgical specialty of orthopaedics.

The demand for a more accurate assessment of medical need; the rationing of high technology procedures; the need for a rational basis upon which to allocate scarce resources; the excess of demand over supply manifested in large waiting lists and long waiting times for non-urgent

treatment; the consequences of the changing age structure of the population; the wide regional and local variations in referral rates, resources and throughput of patients, all find clear expression in orthopaedic practice.

Orthopaedics is a major surgical specialty and apart from its own surgeons, specialist nurses, bio-engineers and technicians, orthopaedics accounts for a significant proportion of the workload of general practitioners, accident and emergency departments, radiographers, anaesthetists, theatre staff, nursing staff, physiotherapists, occupational therapists, rehabilitation specialists and community-based support services.

Moreover, because of the nature of many orthopaedic conditions, much orthopaedic need is translated into demand upon the medical services, there being less "hidden" pathology or unperceived need than in other areas of medicine. The notion of the "clinical iceberg" applies less to orthopaedics than to other specialties.

Orthopaedics, dealing as it does with both degenerative disease of the musculoskeletal system and with a wide variety of trauma, straddles the acute and chronic sectors of medicine. As with all branches of medicine, there is uncertainty and controversy about certain orthopaedic treatments, but many procedures such as total hip replacement are unproblematic and uncontroversial with high success rates at low risk, typically effecting

dramatic improvements and transforming patients' lives. Even critics of interventionist medical science such as McKeown, have expressed enthusiasm for total hip replacement:

"Although neither rheumatoid arthritis nor osteoarthritis can be cured, symptomatic relief can be provided and surgical treatment is sometimes remarkably successful, particularly by replacement of the diseased hip, one of the outstanding achievements of contemporary medicine." ⁸⁰

Orthopaedics, then, presents itself as a particularly valuable area of study, both in its own right as a major surgical specialty and as a microcosm of the UK system of health care delivery.

Summary and Focus of Main Study

This introductory chapter seeks to define the core concepts with which health policies are centrally concerned and to introduce some of the broader sociological, epistemological and historical issues.

This chapter has examined the basic concepts of health and illness and explored the evolution of two fundamental models of health, the "medical" and the "social". We have seen how the medical model, where health is seen as freedom from clinically ascertainable disease and where the human

body is viewed from an essentially mechanistic perspective, has come to dominate western scientific medicine. The two models are, of course, neither exhaustive nor mutually exclusive. Definitions and values concerning health and illness are socially determined and vary both between different cultural and social groups and over time. Illness behaviour, the individual response to symptoms, is also socially and culturally determined and this has important implications in terms of utilisation of health services and for establishing unmet need within any given population.

Utilisation of health services is also related to access and we have seen that the geographical distribution of health care facilities is inversely related to need. Moreover, numerous studies, most notably the Black Report ⁸¹ have demonstrated the existence of clear social class inequalities in mortality, morbidity, access to health care resources and utilisation of services.

This chapter has examined the development of health services and health policies in the context of the growth of the modern welfare state and identified the theoretical and historical antecedents for the establishment of the National Health Service. The policies of successive governments have been noted, in their efforts to keep escalating costs in check and to promote "efficiency" within the Service through reform of its administrative structure.

We have seen that there is evidence to suggest that health care systems in western industrialised nations share the same problems - insatiable demand; wildly escalating costs; limited resources; rapid technological advances; and demographic and epidemiological trends towards a more aged population with a chronic rather than an acute disease profile. Health care resources are finite and all health care provision involves some degree of rationing. It has been argued that this is particularly evident in the specialty of orthopaedic surgery, where the outstanding developments of the last thirty years have resulted in a situation where many procedures are capable of effecting dramatic improvements in patients' lives. Access to orthopaedic surgery is strictly limited and the excess of demand over supply is expressed in large waiting lists and long waiting times.

The following chapter will address the key issues in orthopaedic surgery. Orthopaedics is primarily concerned with physical disability and as well as examining patterns of inequality and other issues in disability, this next chapter will seek to establish the specialty's credentials as a microcosm of hospital-based health care.

The chapters which follow will look at these issues in the context of the individual District General Hospital to provide an insight into the processes involved in the delivery of orthopaedic care and a perspective on the stages through which patients pass from initial referral to final discharge.

The rationing of hospital-based resources will be examined, not only in terms of the process itself, but through concentrating upon the implications of the process for patients and their families.

Overall, this study is broadly concerned with orthopaedic need and will attempt to establish the extent of disability and handicap in those on orthopaedic waiting lists, although, naturally, this will not necessarily represent all orthopaedic need.

"Disability" in this context may be defined as any restriction or inability to perform an activity and "handicap" as any limitation on the patient's ability to function and cope with his or her lifestyle.

By concentrating on the functional consequences of the orthopaedic condition for the individual, the objective is to investigate both the unmet need for professional treatment and the impact of long waiting times on the processes of personal, family, economic and social life. As well as identifying the personal, social and material circumstances of those on orthopaedic waiting lists, the study will seek to gain some insight into patients' experiences and difficulties in coping with uncertainty and delay. The study will seek to address the following questions:

1. What is the extent of disability and handicap in those on orthopaedic waiting lists?

2. What are the social characteristics of those on orthopaedic waiting lists and to what extent do orthopaedic waiting lists represent a rational allocation of priorities?
3. To what extent are orthopaedic waiting times regarded as acceptable by patients and what difficulties do patients have in coping with long waiting times?
4. What are the effects of long waiting times upon patients' personal, family, economic and social circumstances?
5. What role does the private sector play in alleviating orthopaedic need?

From these basic questions, the following hypotheses have been developed:

1. That significant orthopaedic need exists within the community and that a substantial proportion of orthopaedic need is not met within a timescale considered reasonable by either patient or clinician.
2. That long orthopaedic waiting times have a significant and detrimental effect upon patients' personal, family, economic and social circumstances.

3. That very little is known of the disabilities and handicaps of those on orthopaedic waiting lists and waiting numbers and waiting times are not reliable measures of need.
4. That disability status is not routinely assessed by the general practitioner, is not recorded on referral documents and is therefore not taken into account in ranking out-patient waiting lists.
5. That the personal, economic and social difficulties of those on in-patient waiting lists are rarely recorded in clinical records and any changes in patient circumstances over the long waiting period are unlikely to come to the attention of the consultant and are thus unlikely to affect the patient's position on the waiting list.
6. That the private sector plays an important role in the treatment of orthopaedic conditions.

These hypotheses will be put to the test in a study population comprising patients referred during specific periods to the orthopaedic unit of a District General Hospital and patients waiting for in-patient treatment at the same hospital.

A variety of methodological techniques will be employed including detailed analysis of hospital case notes; content analysis of GP referral letters; and the administration of questionnaires, both by post and at attendance to obtain quantitative and qualitative patient data, utilising standard measures of disability, handicap, pain, anxiety and depression.

Overall, this study is an attempt to investigate the unmet need for orthopaedic surgery and to identify the personal, family, economic and social consequences for those on orthopaedic waiting lists. It is hoped that this study will provide greater understanding of the problem and that the findings from a detailed study at the micro level will be capable of generalisation to orthopaedic surgery as a whole.

This study aims to provide increased awareness of one of the major problems in orthopaedics today and should lead to the possibility of routinely assessing disability and handicap in orthopaedic patients so as to improve awareness of patient needs; reduce unnecessary referrals; and facilitate a more informed ranking of both out-patient and in-patient waiting lists.

FOOTNOTES
CHAPTER ONE

- 1 Allsop J. *Health Policy and the National Health Service*. London: Longman, 1984: 6.
- 2 Dubos R. *Mirage of Health*. London: George Allen and Unwin, 1960: 109.
- 3 Cartwright FF. *A Social History of Medicine*. London: Longman, 1977.
- 4 Wohl AS. *Endangered Lives: Public Health in Victorian Britain*. London: Methuen, 1983.
- 5 Smith FB. *The People's Health 1830-1910*. London: Croom Helm, 1979.
- 6 Townsend P, Davidson N (eds). *Inequalities in Health: The Black Report*. Harmondsworth: Penguin Books, 1982: 41.
- 7 Jewson ND. The Disappearance of the Sick-Man from Medical Cosmology, 1770-1870. *Sociology* 1976; 10: 225-44.
- 8 *ibid*: 230.
- 9 McKeown T. *A Historical Appraisal of the Medical Task*. In McLachlan G, McKeown T (eds). *Medical History and Medical Care*. Oxford: Oxford University Press, 1971: 30.
- 10 World Health Organisation Executive Board. *Formulating Strategies for Health for All by the Year 2000*. Geneva: World Health Organisation, 1979.
- 11 Wadsworth M, Butterfield W, Blaney R. *Health and Sickness: The Choice of Treatment*. London: Tavistock, 1971.
- 12 Robinson D. *The Process of Becoming Ill*. London: Routledge and Kegan Paul, 1971.
- 13 Locker D. *Symptoms and Illness: The Cognitive Organisation of Disorder*. London: Tavistock, 1981.
- 14 Dunnell K, Cartwright A. *Medicine-Takers, Prescribers and Hoarders*. London: Routledge and Kegan Paul, 1972.
- 15 Last JM. The iceberg: completing the clinical picture in general practice. *Lancet* 1963; ii: 28.

- 16 Department of Health and Social Security. *Inequalities in Health*. London: H.M.S.O., 1980.
- 17 Office of Population Censuses and Surveys. *General Household Survey*. London: H.M.S.O., 1976.
- 18 Henley A. *Asian Patients in Hospital and at Home*. London: King's Fund, 1979.
- 19 Chen E, Cobb S. Family structure in relation to health and disease. *J. Chron. Dis* 1960; **12**: 544-67.
- 20 Shanas E. *Old People in Three Industrial Societies*. London: Routledge and Kegan Paul, 1968.
- 21 Mechanic D. *Medical Sociology: A Selective View*. New York: Free Press, 1968.
- 22 Mechanic D, Volkart E. Stress, illness behaviour and the sick role. *Am. Soc. Rev.* 1961; **5**: 51-58.
- 23 Zborowski M. Cultural components in response to pain. *J. Soc. Issues* 1952; **8**: 16-30.
- 24 Beecher HR. *Measurement of subjective responses*. Oxford: Oxford University Press, 1959.
- 25 Egbert LD, Battit EW, Welch CE, Bartless JK. Reduction of post-operative pain by encouragement and instruction of patients. *N. Engl. J. Med* 1964; **270**: 825-27.
- 26 Suchman E. Stages of illness and medical care. *J. Hlth. Soc. Behav* 1965; **6**: 114-28.
- 27 Zola I. Pathways to the doctor: from person to patient. *Soc. Sci. Med.* 1973; **7**: 677-89.
- 28 Suchman E. *op. cit.*
- 29 Friedson E. *Profession of Medicine: A Study of the Sociology of Applied Knowledge*. New York: Dodd, Mead and Company, 1970.
- 30 Dunnell K, Cartwright A. *op. cit.*

- 31 Strong PM. *The Ceremonial Order of the Clinic: Parents, Doctors and Medical Bureaucracies*. London: Routledge and Kegan Paul, 1979.
- 32 Stacey M. People who are affected by the inverse law of care. *Hlth Soc Serv J* 1977; LXXXVII: 898-902.
- 33 The standardised mortality ratio (SMR) is a measure of mortality which compares the number of deaths actually occurring in each social class with those which would be expected if the death rate for the standard population were applicable to that class.
- 34 Office of Population Censuses and Surveys. *Occupational Mortality Decennial Supplement for England and Wales, 1970-72*. London: H.M.S.O., 1978.
- 35 Townsend P, Davidson N. *op. cit.*
- 36 *ibid.*
- 37 Cox BD, Blaxter M, Buckle AJL *et al.* *The Health and Lifestyle Survey: Preliminary Report*. Cambridge: Health Promotion Research Trust, 1987.
- 38 Blaxter M. Evidence on inequality in health from a national survey. *Lancet* 1987; ii: 30-33.
- 39 Titmuss R. *Commitment to Welfare*. London: George Allen and Unwin, 1968.
- 40 Cartwright A, O'Brien M. *Social class variations in health care*. In Stacey M (ed). *The Sociology of the NHS*. Sociological Review Monograph 22. Keele, 1976.
- 41 Parkin D. Distance as an influence on demand in general practice. *J Epidemiol. Commun. Hlth* 1979; 33: 96-99.
- 42 West R, Lowe C. Regional variation in need for and provision and use of child health services in England and Wales. *Br Med J* 1976; 2: 843-46.
- 43 Tudor Hart J. The Inverse Care Law. *Lancet* 1971; i: 405-12.
- 44 *ibid*: 405.

- 45 Department of Health and Social Security. *First Interim Report of the Resource Allocation Working Party*. London: H.M.S.O., 1975.
- 46 Department of Health and Social Security. *Sharing Resources for Health in England. Report of the Resource Allocation Working Party*. London: H.M.S.O., 1976: 7.
- 47 Brennan ME, Lancashire R. Association of childhood mortality with housing status and unemployment. *J Epidemiol. Commun. Hlth* 1978; 32: 28-33.
- 48 Knox EG, Marshall T, Kane S, Green A, Mallett R. Social and health care determinants of area variations in perinatal mortality. *Comm. Med.* 1980; 2: 282-90.
- 49 Townsend P, Simpson D, Tibbs N. *Inequalities in Health in the City of Bristol: A Preliminary Review of Statistical Evidence*. Bristol: University of Bristol Department of Social Administration, 1984.
- 50 Townsend P, Davidson N. *op. cit.*
- 51 *ibid.*
- 52 Tudor Hart J. *A New Kind of Doctor: The General Practitioner's Part in the Health of the Community*. London: Merlin Press, 1988: 233.
- 53 Office of Population Censuses and Surveys. *Occupational mortality, decennial supplement 1978-80, 1982-3*. London: H.M.S.O., 1986.
- 54 Marmot MG, McDowall ME. Mortality decline and widening social inequalities. *Lancet* 1986; ii: 274-6.
- 55 Scott-Samuel A. Social inequalities in health: Back on the agenda. *Lancet* 1986; ii: 1084-85.
- 56 Tudor Hart J. *A New Kind of Doctor. op. cit.*: 35.
- 57 Ministry of National Health and Welfare (Canada). *A New Perspective on the Health of Canadians*. (Chairman: M. Lalonde) Preface. Ottawa: Ministry of National Health and Welfare, 1974. Quoted in Allsop J. *op. cit.*

- 76 Secretaries of State for Health, Wales, Northern Ireland and Scotland. *Working for Patients*. London: H.M.S.O., 1989.
- 77 Secretaries of State for Health, Wales, Northern Ireland and Scotland. *Caring for People*. London: H.M.S.O., 1989.
- 78 Secretaries of State for Health, Wales, Northern Ireland and Scotland. *Working for Patients*. *op.cit.*
- 79 1990 c.19. The National Health Service and Community Care Act, 1990.
- 80 McKeown T. *The Role of Medicine: Dream, Mirage or Nemesis?* Oxford: Basil Blackwell, 1979: 113.
- 81 Townsend P, Davidson N. *op. cit.*

CHAPTER TWO
ISSUES IN ORTHOPAEDICS

CHAPTER TWO

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Introduction

Orthopaedics is primarily concerned with physical disability and it has been estimated that about ten per cent of the world's population (between 450 and 500 million people) have some sort of disability.¹ Of these, some 29 per cent are completely disabled and 60 per cent could be regarded as seriously hindered in the performance of their daily tasks.² Population growth and the increasing proportion of elderly people can only magnify the problem and in the absence of decisive global action, it has been estimated that the number of disabled people could double by the end of the century.³ A substantial proportion of world disability is preventable and much physical disability can be alleviated. Avoidable disability is a prime cause of economic wastage, human deprivation and social disadvantage.

Orthopaedic surgery and its associated disciplines have a major part to play in diminishing world disability, yet in the United Nations Decade of the Disabled Person (1983-1992), other than for private practice and emergencies, access to orthopaedic surgery in developed western nations is strictly limited, while throughout most of the developing nations, the majority of the population have no access at all.

Definitions of disability are problematic and Blaxter⁴ has suggested that, like health and sickness, disability and "normality" form a continuum. The

notion of a continuum of severity of disability can be applied both to individual disabilities and to the concept of overall disability.

The World Health Organisation's International Classification of Impairments, Disabilities and Handicaps (ICIDH)⁵ identifies three different concepts as consequences of disease and incorporates a detailed classification for each. The three concepts are defined as follows:

"Impairment - any loss or abnormality of psychological, physiological or anatomical structure or function.

Disability - any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being.

Handicap - a disadvantage for a given individual, resulting from an impairment or a disability that limits or prevents the fulfilment of a role that is normal (depending on age, sex, and social and cultural factors) for that individual." ⁶

Using the ICIDH definitions, a large-scale survey of disability carried out by the Office of Population Censuses and Surveys (OPCS) and published in 1988⁷ has suggested that there are 6.2 million disabled adults in Great

Britain, a figure that is more than double that indicated by the previous national disability survey in 1969.⁸ Locomotor problems are the most common type of disability and according to the OPCS survey, 4.3 million adults have this type of disability, a rate of 99 per thousand population. The survey showed that, among disabled adults living in private households, musculoskeletal complaints, notably arthritis, were the most commonly cited cause of disability.⁹

Social class inequalities apply as much to disability as to morbidity in general and Blaxter¹⁰ has demonstrated a clear social class gradient in terms of ability to cope with the consequences of disablement. Moreover, the implications of disability extend far beyond the particular individual concerned:

"Disablement is a major social problem. It affects not only the people who are disabled, but also their families and friends, their health and social care providers, and all members of their communities." ¹¹

The OPCS survey also identified regional variations in the prevalence of disability. Comparisons of disability rates for different regions, standardised for differences in their age distributions, showed that the North, Wales, Yorkshire and Humberside had the highest rates, while the southern regions (Greater London, the South East, East Anglia and the South West) had lower than average rates.¹²

Marked regional variations also exist in the availability as well as accessibility of services for disabled people. Regional inequalities in provision were acknowledged in a report prepared by the Royal College of Physicians in 1986.¹³ As well as noting the existence of major problems concerning housing, employment and financial allowances, the report highlighted:

*"...a widespread lack of co-ordination between services which results in fragmented help and advice, omissions or duplications of services, delays in obtaining help, and discontinuity of help, as the disabled person is referred from one service to another...A frequent complaint is the inadequate information given to the disabled person about the nature and expected course of the underlying condition; about the treatment and plan of management of the ensuing disabilities, and about the opportunities, services and help that are available."*¹⁴

The Report made specific recommendations in terms of standards of care, audit, staffing levels, organisation, administration, information services, the establishment of specialist regional units and the provision of generic services, all with the following overall aim:

*"...to enable people with disability to have access to the various medical services they need, so that there is the minimum disruption of their lives and preferred activities."*¹⁵

As has already been stated, much physical disability is avoidable. Over the last thirty years, the specialty of orthopaedic surgery has developed the technical ability to alleviate a substantial proportion of physical disability through effective surgical treatments. The provision of these treatments has been limited by the availability of resources: demand has outstripped supply and in a very real sense, orthopaedics has become a victim of its own technical success.

Beginning first with a brief history of the specialty, this chapter examines the recent developments within orthopaedic surgery and seeks to identify the key issues and their implications for patient care.

A Brief History

The term "orthopaedics" derives from the Greek meaning "a straight child" and was first coined by Nicholas Andry in 1741.¹⁶ As the name suggests, orthopaedics was originally concerned with developmental abnormalities although its scope was later broadened to include physical abnormalities in general.

The science of palaeopathology provides ample evidence of the existence in prehistoric times of many of what would now be termed orthopaedic conditions. Rheumatoid arthritis, osteoarthritis, scoliosis and a variety of

fractures, some united, others not, have been described in palaeolithic and neolithic skeletal remains.¹⁷

The material basis for orthopaedic treatment can be traced back to at least Ancient Egypt. The Edwin Smith Papyrus (circa 1500 BC) contains references to the use of splints in the treatment of fractures as well as descriptions of manipulative techniques for the reduction of dislocations. Other accounts of splinting, bandaging and manipulation occur in the ancient writings of Greece, Rome, India and China.¹⁸

Until the late nineteenth century orthopaedics remained the province of the barber-surgeon and the bone-setter who largely employed non-surgical, mechanical treatment utilising the techniques of immobilisation, traction and manipulation. Like the rest of surgery, orthopaedics had to wait for the dual developments of antisepsis (which lowered the risks of infection to an acceptable level) and anaesthesia (which gave the surgeon time and the patient freedom from pain) before any substantial further progress could be made. The replacement of antisepsis by asepsis, the introduction of powerful antibiotics and the development of x-rays paved the way for an ever-increasing number of surgical solutions to orthopaedic problems.

Between the Middle Ages and the emergence of orthopaedics as a surgical specialty in the latter part of the nineteenth century, a few important contributions were made to what is now orthopaedics. Jean-André Venel

established the first orthopaedic institute in Switzerland in 1780, chiefly concerned with the correction of skeletal deformities.¹⁹ William Hunter (1718-83) contributed to knowledge of the structure of joints and his younger brother John Hunter (1728-93) made significant contributions to the understanding of muscular function, the growth and development of bone and infection in bone.²⁰

Percivall Pott²¹ described "spinal caries" (tuberculosis of the spine) in 1779, although it was Jacques Delpech²² who later gave the more comprehensive account. Delpech was the first exponent of orthopaedics in France and founded an orthopaedic clinic in Montpellier. He was also the first, in 1816, to undertake subcutaneous Achilles tenotomy for talipes (clubfoot), an operation subsequently popularised by Georg Stromeyer²³ in Germany and William Little²⁴ in England. John Hilton (1804-78) exerted great influence with the publication of his treatise "On Rest and Pain"²⁵ and Mathysen,²⁶ in 1854, was the first to advocate plaster of Paris casts and splints.

Medical specialisation developed in Britain in the latter half of the nineteenth century and orthopaedics as a medical specialty can be said to date from the establishment of the British Orthopaedic Society in 1898. The Society, however, did not prosper and it was not until 1918, following the stimulus to surgery provided by the First World War, that the first effective association, the British Orthopaedic Association was formed.²⁷

Many of the fundamental principles of orthopaedics had been propounded just before the turn of the century by Hugh Owen Thomas (1834-91) of Liverpool, who has been called the "Father of Orthopaedic Surgery".²⁸ His name is widely remembered for Thomas's splint used in the treatment of femoral shaft fractures and for Thomas's test for fixed flexion deformity at the hip. Thomas was renowned for his treatment of joint disease by rest - "enforced, uninterrupted and prolonged"²⁹ and he was not primarily concerned with operative surgery. It was left to his pupil and nephew Sir Robert Jones (1857-1933) to set orthopaedic surgery upon the sound foundation it now enjoys.

In 1889 Jones was appointed General Surgeon to the Royal Southern Hospital, Liverpool. From 1905, he restricted his practice to orthopaedics and his association with Dame Agnes Hunt dates from around this time. Their aggressive approach revolutionised the treatment of crippled children and they founded the renowned Robert Jones and Agnes Hunt Orthopaedic Hospital at Oswestry in 1921.³⁰

Robert Jones was Director of Military Orthopaedics in the First World War and among his many achievements he popularised the use of Thomas's splint, reducing the mortality of a compound femoral fracture from 80 per cent in 1916 to 7.3 per cent in 1918.³¹ During and after the First World War, Robert Jones trained many of the British and American surgeons who were among the first to devote their professional lives

entirely to the practice of orthopaedics. Jones helped found the British Orthopaedic Association in 1918, and, together with G.R. Girdlestone (1881-1950), built up the whole organisation of orthopaedic care in Britain. Following the First World War, orthopaedics grew rapidly as a specialty and the establishment in 1937 of the Nuffield Chair of Orthopaedic Surgery at Oxford, with Girdlestone as the first Professor, was a landmark in the development of the discipline.

The most outstanding developments of the twentieth century have centred upon arthroplasty, notably total hip replacement. The German surgeon Thomas Gluck developed replacements for the hip and other joints as early as 1875 but the techniques and materials then available proved unsuitable.³² Further progress was only possible with the development of materials such as high density polyethylene and chrome-cobalt alloys. Total hip replacement, the replacement of the two opposing articular surfaces of the hip joint, perfected by Charnley³³ in 1961, marked the beginning of a new era of unprecedented innovation in orthopaedics.

Orthopaedics Today

The outstanding developments in orthopaedic surgery over the last thirty years have resulted in a situation where many procedures are capable of effecting dramatic improvements in patients' lives. Elective orthopaedic

surgery is never lifesaving, but it can transform an elderly arthritic patient from a housebound depressive into an outgoing individual, freed from continuous pain.³⁴ The replacement of deformed and unstable arthritic joints is now commonplace. Replacements for the hip, knee, shoulder, elbow, wrist and ankle joints as well as for the small joints of the hand and foot are all available, although some, such as shoulder and ankle replacements, are still at the experimental stage. In the majority of cases, the implants are reliable and the operations are highly successful.

For the great majority of patients, total hip replacement provides dramatic relief from pain and disability^{35,36} and 98 per cent of patients are said to be satisfied with the result.³⁷ An efficiently performed primary hip replacement in the older patient has a better than 90 per cent chance of lasting 12 to 15 years.³⁸ The number of total hip replacements performed in the United Kingdom rose by 55 per cent from 29,500 in 1979 to 45,600 in 1989.³⁹

Although hip replacement is a low-risk operation,⁴⁰ postoperative complications can include loosening, infection, dislocation, mechanical failure and cardiovascular complications.⁴¹ All surgical procedures entail some degree of risk and apart from those complications specific to the operation itself, there are the general complications inherent in major surgery in the elderly.⁴² Total hip arthroplasties do eventually fail and 15 per cent of hip prostheses are removed by the tenth year.⁴³ In the younger

patient, hip prostheses are subject to greater stresses and one study has shown that over 50 per cent of total hip replacements in patients less than 30 years old failed before five years.⁴⁴ Revision operations are difficult,⁴⁵ usually treated as urgent⁴⁶ and are beginning to have a major impact on operating lists in orthopaedic surgery. Revision operations are also time-consuming and, according to Jacobs,⁴⁷ the time taken to perform one revision procedure could be used for two primary hip arthroplasties. Moreover, the frequency of early postoperative complications after revision arthroplasty may be twice that after primary intervention.⁴⁸ Dreghorn and Hamblen⁴⁹ have shown that revision hip arthroplasties involve a significantly longer mean duration of in-patient stay and a significantly higher average cost than primary hip arthroplasties. In addition, although the early results of revision surgery can be almost as good as results for the primary operation, the failure rate of the revision replacement is much higher - occasionally as high as 60 per cent in revisions of revisions.⁵⁰

Orthopaedic surgery is primarily concerned with the repair, preservation and restoration of the form and function of the musculoskeletal system. Apart from injuries due to trauma, skeletal system failure characteristically occurs among the elderly, due to the effects of degenerative diseases of the joints.

Over the last three decades, the age structure of the population of the United Kingdom has shown a progressive shift towards an increasingly

elderly component. Both the numbers of the elderly and the proportion of the population they comprise have been steadily increasing. Moreover, this trend is likely to continue, at least until the end of the century. The number of persons aged over 80 years increased by more than 50 per cent from 1 to 1.6 million between 1961 and 1981 and by the year 2001, the 1961 figure will have more than doubled. The size of this group is projected to increase steadily to 2.9 million in 2025. (See Table 1).

Table 1.
HISTORICAL AND PROJECTED AGE STRUCTURE OF THE
POPULATION: UNITED KINGDOM 1961-2001. (MILLIONS)

AGE GROUP	1961	1971	1981	1991	2001
Under 16	13.1	14.3	12.5	11.7	12.8
16-39	16.6	17.5	19.7	20.2	19.2
40-64	16.9	16.7	15.7	16.5	18.0
65-79	5.2	6.1	6.9	6.9	6.7
80 +	1.0	1.3	1.6	2.2	2.5
All Ages	52.8	55.9	56.4	57.5	59.2

Sources: Central Statistical Office. *Social Trends No.21*. London: H.M.S.O., 1991.

 Office of Population Censuses and Surveys. *Population Projections 1978-2018*. Series PP2 No.12. London: H.M.S.O., 1980.

The rise in the numbers of those most prone to degenerative joint disease has been accompanied by an increased technical ability on the part of the orthopaedic services to provide effective surgical treatments. These two crucial factors, together with increased patient expectations, have placed a heavy burden upon orthopaedic resources and the specialty has seen considerable expansion over the last twenty years in an attempt to keep pace with increasing demand.

Over a period when surgical bed availability as a whole decreased by 15.4 per cent, average daily bed availability in orthopaedic surgery in England increased by 6.5 per cent from 17,000 in 1965 to 18,100 in 1988. Over the same period, the number of orthopaedic beds as a percentage of total surgical beds increased from 25.1 per cent to 31.6 per cent. (See Table 2).

Table 2.
NHS HOSPITAL BEDS. AVERAGE DAILY BED AVAILABILITY BY SPECIALTY. ENGLAND. (THOUSANDS)

YEAR	TOTAL SURGICAL	ORTHOPAEDIC SURGERY	
		NUMBER	% OF TOTAL
1965	67.7	17.0	25.1
1975	69.9	20.4	29.2
1985	62.4	19.8	31.7
1988	57.3	18.1	31.6

Sources: Office of Health Economics. *Compendium of Health Statistics*. 6th Edition. London: OHE, 1987.

 Office of Health Economics. *Compendium of Health Statistics*. 7th Edition. London: OHE, 1989.

There has also been a significant increase in patient throughput. Discharges and deaths per orthopaedic bed in England increased from 18 in 1965 to 30 in 1988 and average length of stay fell steadily from 18.1 days in 1965 to 10.5 days in 1988. (See Table 3).

Table 3.
NHS HOSPITAL IN-PATIENTS: ORTHOPAEDIC SURGERY:
DISCHARGES AND DEATHS PER AVAILABLE BED AND AVERAGE
LENGTH OF STAY. ENGLAND.

YEAR	DISCHARGES AND DEATHS PER BED (NUMBER)	AVERAGE LENGTH OF STAY (DAYS)
1965	18	18.1
1975	20	14.6
1985	27	10.9
1988	30	10.5

Source: Office of Health Economics. *Compendium of Health Statistics*. 6th Edition. London: OHE, 1987.

Office of Health Economics. *Compendium of Health Statistics*. 7th Edition. London: OHE, 1989.

The number of hospital medical staff in orthopaedic departments in England rose from 1,546 to 2,386 between 1975 and 1989 and over the same period, the number of consultants in orthopaedic surgery rose from 556 to 717.⁵¹ These figures, however, mask a continuing shortage of orthopaedic Senior House Officers (SHOs). A survey in the West Midlands

in 1987 showed that out of 80 posts for orthopaedic SHOs, many were filled by transient locums and 11 were not filled at all.⁵² This is partly due to a widespread lack of interest in orthopaedics among young doctors. A survey of British doctors qualifying in 1983 revealed that only 1.6 per cent put orthopaedics as their first choice of career.⁵³ Changes in legislation which have reduced the period of limited registration for overseas doctors have also been cited as a major cause of the shortage of orthopaedic SHOs.⁵⁴

Since 1987, additional consultant posts have been created in the specialty over and above the planned rate of growth. Twenty were created from the "pump priming" allocation of 100 identified in the original consultative document, *Achieving a Balance*,⁵⁵ and 21 from the 100 new posts announced in the White Paper, *Working for Patients*.⁵⁶

Despite the considerable expansion that has occurred within the specialty of orthopaedic surgery over the last twenty years, however, it is clear that the speciality has failed to expand rapidly enough and the resulting excess of demand over supply has been translated into large waiting lists and long waiting times. Although there was a 56 per cent increase in the number of operations performed between 1970 and 1984, the numbers of patients on in-patient waiting lists in orthopaedic surgery increased by 93 per cent over the same period.⁵⁷

Waiting Lists

The number of patients on waiting lists for hospital treatment in orthopaedic surgery in England increased from 35,000 in 1955 to a peak of 145,000 in 1983, decreasing to 130,000 at 31 March 1991.^{58,59} Orthopaedic surgery is second only to general surgery in terms of the number of patients waiting for treatment and waiting lists in orthopaedic surgery have increased at a greater rate than any other major surgical specialty. Between 1976 and 1991 waiting lists in the United Kingdom for orthopaedic surgery increased by 38 per cent. This contrasts with increases of only 3 per cent in ear, nose and throat, 6 per cent in gynaecology and a fall of 16 per cent in general surgery over the same period. (See Table 4).

Table 4.
NHS HOSPITALS: NUMBERS ON WAITING LISTS FOR IN-PATIENT TREATMENT BY MAJOR SURGICAL SPECIALTY. UNITED KINGDOM. (THOUSANDS)

SPECIALTY	1976 ¹	1981 ¹	1986 ¹	1991 ¹
General Surgery	200.5 ²	169.1 ²	180.3 ²	169.0
Orthopaedic Surgery	109.8	145.1	160.5	151.5
Ear, Nose and Throat	121.7	115.4	132.2	125.3
Gynaecology	91.8	105.6	106.6	97.8
All Specialties	700.8	736.6	830.6	830.1

1 At 30 September each year, except 1991, at 31 March.

2 Includes the Northern Ireland figures for Urology.

Source: Central Statistical Office. *Social Trends No.22*. London: H.M.S.O., 1992.

Although the number of patients on in-patient waiting lists for orthopaedic surgery in England in 1991 was only 7 per cent fewer than the total on waiting lists for general surgery, the number of scheduled operating sessions in trauma and orthopaedics was approximately 34 per cent fewer than in general surgery.⁶⁰ At 31st March 1991, 23.8 per cent of non-urgent cases had been waiting over 12 months for treatment and 6.2 per cent had been waiting over 24 months.⁶¹ Waiting numbers and waiting times in orthopaedic surgery are subject to considerable variation by region (see Table 5), by district (see Table 6), by unit and by individual consultant.⁶²

Table 5.
MEDIAN WAITING TIME (WEEKS) SPENT ON NHS IN-PATIENT WAITING LISTS BY REGIONAL HEALTH AUTHORITY. PATIENTS TREATED IN ORTHOPAEDIC SURGERY, ENGLAND, 1989-90.

REGIONAL HEALTH AUTHORITY	WEEKS
Northern RHA	8.0
Yorkshire RHA	5.6
Trent RHA	8.4
East Anglian RHA	10.7
North West Thames RHA	7.6
North East Thames RHA	9.2
South East Thames RHA	11.3
South West Thames RHA	11.1
Wessex RHA	12.2
Oxford RHA	8.9
South Western RHA	10.6
West Midlands RHA	7.8
Mersey RHA	6.7
North Western RHA	7.5
Special Health Authorities	7.4
ENGLAND TOTAL	8.6

Source: Central Statistical Office. *Social Trends No.22*. London: H.M.S.O., 1992.

Table 6.
ORTHOPAEDIC IN-PATIENT WAITING LISTS AT 31ST MARCH 1989.
NHS HOSPITALS, OXFORD REGIONAL HEALTH AUTHORITY.
NUMBERS OF NON-URGENT CASES AND PERCENTAGE ON THE
LIST FOR MORE THAN ONE YEAR BY DISTRICT.

DISTRICT	NUMBER	PERCENTAGE WAITING LONGER THAN ONE YEAR
East Berkshire	862	19
West Berkshire	598	34
Aylesbury Vale	327	8
Wycombe	261	4
Milton Keynes	267	37
Kettering	1313	33
Northamptonshire	906	20
Oxfordshire	1813	18
OXFORD RHA TOTAL	6347	23

Source: Rigge M. *Guide to Hospital Waiting Lists 1989*. London: College of Health, 1990.

There have always been waiting lists for non-urgent surgery and there probably always will be, but as Fordham⁶³ has pointed out, it is the undesirability of the wait that gives rise to concern. Whilst health authorities tend to be preoccupied with the number of patients waiting for treatment, it is the waiting time that matters to the patient and, if the condition is likely to deteriorate, to the surgeon as well.

There are two kinds of waiting lists, comprising those waiting for out-patient appointments and those waiting for in-patient treatment:

"A waiting list is a selected group of patients who have already been seen by at least one doctor (normally their General Practitioner or another hospital specialist). In the case of those waiting for an initial hospital out-patient appointment, the wait is for another more specialised doctor to assess and initiate treatment for their condition. In the case of those on an in-patient waiting list, the wait is for further treatment (generally surgery involving hospitalisation) by the same specialist. The key element in both cases distinguishing waiting list patients from follow-up patients and patients who have booked or planned future hospital admission is that both clinician and patient face a likely date for treatment which is further off than either party would have preferred." ⁶⁴

All in-patient waiting lists have their origin in out-patient waiting lists and there is therefore a two stage waiting process. Of course, many patients can be treated without admission to hospital, but for those who do require hospital treatment, particularly if such treatment is classified as non-urgent, the waiting process is a cumulation of two successive queues.

The Duthie Report

Waiting lists are a politically sensitive issue and the individual hardships highlighted by the popular press in the middle 1970s led to an increased number of questions in Parliament which in turn led the Secretary of State for Social Services in 1979 to appoint a Working Party to enquire into the problem. The Working Party, chaired by Professor Robert Duthie, the

Nuffield Professor of Orthopaedic Surgery at the University of Oxford, had the following terms of reference:

"Having regard to waiting lists, to consider the organization of orthopaedic services and their interaction with related services; and to recommend measures designed to eliminate excessive waiting time for out-patient appointments and in-patient treatment in the specialty." ⁶⁵

The Working Party published its recommendations in 1981 in a document which became universally known as the "Duthie Report" and which remains the definitive document on the structure and organisation of orthopaedic services in the United Kingdom. In his Chairman's Foreword, Duthie identified the human consequences of ever-increasing waiting lists:

"...waiting lists and waiting times over the country as a whole have become longer and unacceptable. This is not now just a logistic problem: it is one of human suffering, including loss of physical and social independence, with degradation of the quality of life." ⁶⁶

Moreover, he admitted that orthopaedic surgery had become a victim of its own technical success:

"We recognise that changes and advances in orthopaedic practice, such as total hip replacement for arthritis and internal fixation for fractures, have probably contributed considerably

to the specialty's recent difficulties. But we do not believe that any attempt to restrain such advances will help the patients nor relieve the pressure on the National Health Service as a whole. Indeed the adoption of such a policy would obscure the primary purpose of medicine, which is to prevent and relieve human suffering." ⁶⁷

The Report highlighted the need for additional resources *per se* but stressed that existing resources could be employed more efficiently:

"In view of the increasing demand for orthopaedic treatment we believe that the problem of long waiting times can be solved only partially within the resources at present allocated to the specialty. When economic constraints are less and there can be a more rapid expansion of National Health Service acute sector services, then, in our view, priority must be given to the allocation of additional resources to the orthopaedic services. In the meantime however we are of the firm opinion that some reduction in waiting times can still be achieved. This must be the immediate objective, since it is neither reasonable nor equitable that additional facilities should be provided for any orthopaedic unit until it has demonstrated that the facilities it already has are being used with the maximum possible efficiency." ⁶⁸

The Duthie Report drew attention to the regional variations in waiting times, practices and performance and called for the routine collection and evaluation of various data on the availability and use of resources and for these to be disseminated between health districts. The Report

recommended the development of a rating system for different types of operation in terms of operating time required and suggested that this classification should be used to analyse the performance of individual surgeons and to classify waiting list cases for admission planning purposes. These data should then be used to make regular predictions of the time it would take each unit to clear its backlog of cases and to establish its ability to keep pace with additions to the list. The Report continued:

"Where any of these predictions shows that present performance cannot keep pace with additions to the waiting lists or cannot clear the backlog of cases on them, assessments should be made of any changes in practice or working patterns which, if adopted, would make this possible. These should include bed utilisation, theatre time and staffing, operation list mix, nurse staffing, discharge policies, the reallocation of beds, the transfer of patients between waiting lists etc; ... Should these assessments then reveal that the throughput of cases cannot be increased to the level at which additions to the waiting list numbers can be accommodated and the backlog cleared, further assessments should be made of exactly what minimum additional resources are needed to rectify this situation. If at all possible these should be provided promptly; if they cannot be, consideration should be given, in consultation with those units, to whether other orthopaedic units can take over part of the burden of the waiting cases." ⁶⁹

One of the fundamental stumbling blocks in the efficient planning, organisation and management of a typical orthopaedic unit has always

been the impact of trauma cases on orthopaedic beds. The Duthie Report recognised that many of its recommendations could only be applied to wholly elective orthopaedic units, whereas the majority of units cater for both trauma and elective cases.

The dominance of trauma over routine elective surgery is a central issue in the provision of orthopaedic care. By definition, trauma necessarily assumes priority over elective surgery and the characteristic unpredictability of accident and emergency requirements is a major constraint on the planning of elective admissions. Theatre time and beds booked for elective cases frequently have to be allocated at short notice to trauma cases.

The Duthie Report saw the conflict between trauma and elective surgery as a major issue:

"Evidence presented to us by individual orthopaedic surgeons, Regional Orthopaedic Committees, nursing bodies and our own membership was overwhelmingly consistent in expressing the view that the elective orthopaedic services are suffering drastically from the demands of trauma cases...many see as the only solution of the waiting time problem the strict separation of facilities for traumatic and elective treatment." 70

The Report went on to recommend that all orthopaedic units, however small, should have a number of beds designated as "elective-only":

"Admission planning must be based on the assumption that a given number of beds, not necessarily rigidly separated in different wards in smaller orthopaedic units, will always be available for elective surgery cases after the normal demands of trauma cases have been met. By the creation of surgical admissions units and by the pooling of emergency beds between specialties, hospitals should devise ways in which periodic increases in the demand for trauma beds can be accommodated without the disruption of elective surgery admissions." ⁷¹

One way of reducing pressure on existing beds is to substitute day case surgery for in-patient admission. Procedures such as arthroscopy, removal of ganglion, release of trigger finger, carpal tunnel decompression and manipulation under anaesthesia are already carried out in some units on a day case basis.⁷² Although some orthopaedic surgeons are opposed to day surgery in principle, Burn⁷³ has proposed that day surgery should become the normal method of dealing with all minor surgical conditions and the Royal College of Surgeons has estimated that 40 per cent of all elective operations could eventually be undertaken as day cases.⁷⁴ A survey conducted by the Audit Commission in 54 district health authorities in 1991 sought to compare the frequencies for 20 procedures performed as day cases with possible targets for the future prepared from material on current practice in the United Kingdom and overseas. The 20 procedures selected by the Audit Commission as offering the greatest potential for improved value for money included four in orthopaedics: fasciectomy in

Dupuytren's contracture, carpal tunnel decompression, diagnostic and operative arthroscopy and excision of ganglion. For Dupuytren's contracture, the median number of operations performed as day cases in the 54 health districts was 5 per cent compared to the Commission's optimistic projection of 70 per cent. For carpal tunnel decompression, the median was 60 per cent and the optimistic projection 95 per cent; for arthroscopy, the median was 42 per cent and the optimistic projection 65 per cent; and for excision of ganglion, the median was 74 per cent and the optimistic projection 95 per cent.⁷⁵ An alternative to day surgery is short-stay surgery involving one night of hospitalisation and Haines and Thompson in 1982 reported on 220 such orthopaedic operations over a twelve month period with no major complications.⁷⁶

Following the publication of the Duthie Report, various attempts were made to implement a number of its recommendations. Comprehensive guides on appraising workload⁷⁷ and managing waiting lists⁷⁸ were published; a system for auditing in-patient admissions was developed in Australia;⁷⁹ an orthopaedic bed manager was appointed at the Royal United Hospital, Bath⁸⁰ reducing the waiting list by 28 per cent; some health authorities took action to clear the backlog of waiting cases by allocating additional non-recurring funds⁸¹ and by creating temporary hip replacement units;⁸² and there were various initiatives to predict and plan emergency admissions.⁸³

In July 1986, the Secretary of State launched the "Waiting List Initiative", a three-year drive to reduce NHS waiting numbers and waiting times. Regional Health Authorities were asked to report on the nature, extent and cause of waiting list problems in every district. Their reports led to the announcement on 17th February 1987 of the allocation of an additional £25 million to enable health authorities to treat an extra 100,000 patients including 20,000 on orthopaedic in-patient waiting lists.⁸⁴

In February 1988, the Health Minister, Mr Tony Newton announced that the Waiting List Fund would be increased to £30 million for 1988/89.⁸⁵ From February 1987 to March 1990, £119 million was allocated to the Waiting List Fund and the Department of Health has claimed that over this period more than 300,000 additional in-patients and day cases and over 200,000 extra out-patients have been treated as a result.⁸⁶ From December 1989 to March 1991, the task of investigating and reducing waiting lists in the worst districts and specialties was contracted to the Inter-Authority Comparisons and Consultancy (IACC), under a management team headed by John Yates. Between December 1989 and March 1991, the IACC team achieved a 43 per cent reduction in the number of patients waiting over 1 year, a 5 per cent reduction in the number of patients waiting less than one year, a 12 per cent increase in the number of admissions, all with no overall increase in out-patient waiting time.⁸⁷ Particular success was achieved in the specialty of orthopaedic surgery, where the number of patients waiting more than one year was

almost halved. The results achieved by the IACC team were superior to those achieved by Waiting List Fund projects developed by the Regional Health Authorities and, moreover, were achieved with less resources.⁸⁸ Differences of opinion between the IACC and the Department of Health, particularly over the Government's target outlined in *The Patient's Charter*⁸⁹ that no one should wait longer than two years by 1992, led to the withdrawal of the IACC team from the 1991-92 waiting list programme.⁹⁰ On 27 February 1991, the Secretary of State announced that Qa Business Services would replace the IACC team and would scrutinise 79 waiting lists in 57 districts in 1991-92.⁹¹

Private Practice

Long waiting times do not, of course, apply to private patients. The relationship between waiting lists and private practice is not easy to quantify because of the lack of reliable statistics on private treatment in NHS hospitals and because of the difficulty of obtaining data on surgical rates in the private sector. The Duthie Report took the view that private practice had little influence on waiting lists:

"We have been presented with no evidence to support the view that long waiting lists exist to bolster private practice or that private practice materially affects the time which National Health Service patients have to wait for treatment; but a spill-over effect in areas where waiting lists are long is probably

inevitable. Such evidence as exists on the extent of private practice in National Health Service hospitals shows that private patients occupy fewer than 2 per cent of the beds in national terms and that the number of private operations requiring the use of National Health Service beds is very small compared with the total number of such operations." ⁹²

Replying to a question in the House of Commons in June 1985, Mr Kenneth Clarke, Minister of State, estimated that out of a total of 34,780 hip replacement operations carried out in NHS hospitals in 1981, approximately 8 per cent were private.⁹³

The proportion of the population covered by private medical insurance has increased, particularly over the last two decades. Persons insured per thousand population in the United Kingdom increased from 11.5 in 1955, to 41.2 in 1975 and to 79.5 in 1985.⁹⁴ In 1989, 7.2 million people were insured privately. Exactly comparable figures for previous years are not available. However, between 1971 and 1989, the number of people insured by the largest medical insurers British United Provident Association (BUPA), Private Patients Plan (PPP) and Western Provident Association (WPA) rose from 2.1 million to 5.2 million, an increase of 147.6 per cent.⁹⁵ According to a special market report by consultants Laing and Buisson,⁹⁶ subscriptions from private medical insurance in the United Kingdom totalled £1069 million in 1990, representing a 15 per cent increase over 1989. 12,000 consultants did at least some private work, sharing a total fee

revenue from insured and non-insured work of £455 million in 1990. The Laing and Buisson report predicts that the proportion of the population covered by private medical insurance will rise from 11.7 per cent in 1990 to 18 per cent by 2000.

Private operations are also increasing. McPherson *et al* found that the proportion of private operations was growing to the extent that in 1985 elective surgery was five times more likely to be performed privately than it was when the National Health Service was created.⁹⁷

A study by Nicholl *et al*,⁹⁸ published in 1989, estimated that, excluding psychiatric and maternity care, the private sector accounted for about 7 per cent of all in-patient admissions in England and Wales in 1986. Moreover, admissions in the private sector increased by 57 per cent from 1981 to 1986. Most admissions were for conditions for which there were waiting lists in the NHS. In terms of elective surgery, the authors estimated that 17 per cent of all in-patients and 11 per cent of day cases in 1986 were treated in the private sector. Overall, compared with the NHS, the private sector treated proportionately fewer children and patients aged 65 years and over. There was also wide geographical variation in the proportion of elective surgical conditions treated in the private sector - from 6.3 per cent in the Northern region to 31.2 per cent in the North West Thames region.⁹⁹ As Goldacre¹⁰⁰ has observed, the study by Nicholl *et al* shows that, although the private sector has grown considerably, it still provides

treatment for only a limited range of conditions and a limited group of people in limited areas.

The role of the private sector in orthopaedic surgery is substantial. The private sector accounted for 27.7 per cent of all total hip arthroplasties in 1986, a significantly higher proportion than for all other elective surgery excluding abortions.¹⁰¹ Total hip replacement was the most common major operation in the private sector in 1986.¹⁰²

Hip Fractures

While the demand for trauma surgery, though unpredictable, has in general remained fairly constant, the number of trauma admissions among the elderly has increased significantly. In particular, admissions for fractures of the proximal femur in the older age groups have increased over recent years at a rate that is only partly attributable to an increase in the vulnerable population.

The likelihood of a fracture of the proximal femur increases with age and is much more common in women than in men.¹⁰³ In Caucasians over 50 years of age, there is a female to male incidence ratio of approximately two to one¹⁰⁴ and among Caucasian women, the risk of sustaining a hip fracture before the age of 90 years has been estimated as one in three.¹⁰⁵

Hip fracture incidence, however, varies markedly with ethnic group. Studies of Negroid populations such as Solomon's study of the South African Bantu,¹⁰⁶ have found that hip fracture is infrequent and rates among men and women are remarkably similar.

Hip fractures represent an important health problem in the western world and are associated with a 5-20 per cent excess mortality within the first year.¹⁰⁷ In the United States, hip fracture accounts for 250,000 hospital admissions each year, where the costs of treatment have been conservatively estimated at US\$ 6 billion a year.¹⁰⁸ Moreover, in some western countries, more hospital beds are occupied by patients with hip fractures than by patients with acute myocardial infarction.¹⁰⁹ Almost a quarter of patients with fractures admitted to hospital in England in 1985 had a fractured neck of femur and about 60 per cent of the 43,230 fractured femur cases were women aged 75 years and over.¹¹⁰ A working party set up by the Royal College of Physicians in 1989 found that patients with hip fractures occupied 20 per cent of orthopaedic beds incurring direct hospital costs of £160 million at 1987-88 prices.¹¹¹ Dixon has estimated that the annual cost of hip fractures including the increased need for care by others and the increased morbidity after fracture is likely to be around £600 million at 1992 prices.¹¹²

The last three decades have witnessed an increase in the age-specific incidence of hip fracture in western countries. In the United Kingdom,

Fenton Lewis showed that the number of hospital admissions for fracture of the neck of the femur increased by a factor of 2.7 between 1959 and 1977 and that the incidence in older age groups increased by 60.6 per cent during the period 1968-1977.¹¹³

This study reinforced earlier work in Newcastle¹¹⁴ and was confirmed by Rees¹¹⁵ who found a 75 per cent increase in incidence between 1966 and 1977 among those aged over 60 in Oxfordshire. Wallace,¹¹⁶ in Nottingham, found an even greater increase in the age-specific incidence of proximal femoral fractures which he described as an "orthopaedic epidemic". A more recent study by Boyce and Vessey¹¹⁷ showed that the incidence doubled in both sexes between 1954 and 1983 and they concluded:

*"...the often-noted rise in numbers of fractures of the proximal femur is more than just a consequence of demographic change. The increases in the age-specific incidence must be due to changes in the aetiology of the fracture."*¹¹⁸

The Royal College of Physicians working party suggested that if the current upward trends in the age-specific and sex-specific rates of hip fractures continue, the number of cases in 1996 could be 50 per cent greater and may even double by the year 2006.¹¹⁹ There is recent evidence, however, that the rates are beginning to level out.¹²⁰

The raised incidence of proximal femoral fracture among the elderly has not yet been satisfactorily explained. Osteoporosis, a disorder characterised by a reduced amount of bony tissue per unit volume of bone, is the major but not the sole cause of fractures in post-menopausal women¹²¹ and in the elderly.¹²² These fractures can occur with minimal trauma and an osteoporotic woman may fracture any bone more easily than her non-osteoporotic counterpart.¹²³ Various explanations have been put forward to account for the increase in the incidence of osteoporosis and hip fracture including poor diet during the First World War;¹²⁴ poor diet and reduced intake of milk as a consequence of living on a fixed low income during periods of high inflation;¹²⁵ accelerated bone loss due to lack of mobility;¹²⁶ and loss of bone strength due to Vitamin D deficiency through lack of exposure to sunlight.¹²⁷

Further explanations for the rising incidence of hip fracture include increased general health among the elderly population leading to increased physical mobility and thus increased risk of falling;¹²⁸ falls due to increased alcohol consumption and the use of psychotropic drugs;¹²⁹ and the failure of neuromuscular protective responses to trauma.¹³⁰ A recent study by Vetter *et al* found that a health visitor visiting a group of people aged 70 and over, and using simple preventive measures over a period of four years had no effect on the incidence of fractures.¹³¹

Considerable controversy surrounds the relationship between low dietary calcium intake and risk of hip fracture. Two studies, one in Hong Kong¹³² and one in California,¹³³ reported a statistically significant increase in fracture risk associated with declining calcium intake. Two other studies in the United Kingdom,^{134,135} however, have found that dietary calcium does not seem to be a risk factor for hip fracture. Moreover, these two UK studies have suggested that physical activity in the elderly is an important component in protecting against hip fracture.

The alarming increase in the number of trauma admissions among the elderly in itself exerts a significant effect upon facilities for elective cases. In addition, these patients present medical and social difficulties quite different from those of other trauma cases.¹³⁶ These have been eloquently summarised by Sikorski, Davis and Senior:

"In addition to the mechanical problems of the hip fracture, these patients commonly suffer from other disorders, and often very serious chronic diseases coexist. Once the fracture has occurred then the resulting immobility causes further problems with a risk of urinary retention, incontinence, hypostatic pneumonia, and pressure sores. To this already serious picture are added the more or less inevitable consequences of treatment. Analgesics, hypnotics, and anaesthetic agents may sedate and confuse... There is a real risk that while the patients are being processed by the medical mill the social fabric of their home existence is disintegrating. Their friends forget them and their families decide to put them in an institution. If they

are already in a nursing home then their bed may be reallocated. If they have pets these may be destroyed. Within a few days there may be nothing of their former lives for them to return to." ¹³⁷

Despite improvements in anaesthesia and surgical techniques, the morbidity and mortality following fractures of the femoral neck remain substantially unchanged.¹³⁸ Approximately 30 per cent of elderly women with fractures of the proximal femur die within one year.¹³⁹ Of the survivors at one year, up to 25 per cent remain appreciably more disabled than before the fracture¹⁴⁰ and many require expensive long term nursing care. Poor general nutrition before the fracture has been suggested as a factor in prolonged morbidity and significant mortality.^{141,142} It has also been shown that protein requirements after surgery are not met by standard hospital diet.^{143,144}

Whilst surgical intervention aims, through early mobilisation, to maximise the chance of a return to normal function and to forestall loss of independence, some of the factors which prolong the hospital stays of elderly patients with fractured neck of femur are not directly related, as Robbins and Donaldson¹⁴⁵ have shown, to medical or surgical care. In a prospective study in New Zealand, Stott and Gray found that admissions for femoral neck fracture contained a disproportionately high number of patients in the disabled, less mobile and not married categories, factors which tend to preclude rapid rehabilitation.¹⁴⁶

One partial solution to the problem, pioneered in Australia, is the so-called "rapid transit system" where treatment consists of immediate internal fixation or replacement of the fractured bone under spinal anaesthesia without any sedation. Patients are mobilised within hours of surgery, sent home as soon as they can walk and supervised at home by skilled staff. The results, although based on a small sample of 50 patients, have been encouraging, with 90 per cent of patients discharged within five days and with a lower morbidity.¹⁴⁷ This system relies, however, upon careful selection of suitable patients and significantly increased levels of support in the home and community. A similar scheme in Peterborough, the hospital-at-home project, reduced average length of stay for patients with hip fractures from 22 days to 14.6 days and found that the cost of the home nursing service was less than the cost of nursing patients in hospital.¹⁴⁸

Another system designed to shorten the hospital stay of elderly orthopaedic patients, particularly those with fractured neck of femur, is that of joint orthopaedic-geriatric management. The Duthie Report's recommendations were unequivocal:

"The development of close working relationships between orthopaedic surgeons and geriatric physicians is highly desirable and resources should be allocated for the establishment of combined orthopaedic-geriatric admission and progressive care units." ¹⁴⁹

Joint orthopaedic-geriatric management has been advocated for many years¹⁵⁰ and has been put to the test in a number of areas with varying results. Boyd *et al* reported on 1,000 admissions to an orthogeriatric unit in Nottingham over a four year period and demonstrated a reduction in average length of hospital stay from 66 days in 1977 to 48 days in 1979 with a rate of discharge to home or relatives of 69 per cent.¹⁵¹ Other studies by Burley *et al*,¹⁵² Hempsall *et al*¹⁵³ and Kennie *et al*¹⁵⁴ also reported a reduction in average length of hospital stay, but a randomised controlled trial by Fordham *et al* found that joint management made no difference to length of hospital stay, had no effect on outcomes and was more expensive than ordinary orthopaedic management.¹⁵⁵ By contrast, Harrington, Brennan and Hodkinson reported on a geriatric-orthopaedic liaison service centred upon a cross-specialty multidisciplinary ward round which improved the quality of care of orthopaedic patients without requiring expenditure on equipment, facilities or staff.¹⁵⁶

General Practitioner Referrals

Whereas trauma cases are generally admitted into orthopaedic wards directly from the Accident and Emergency Department, most other orthopaedic patients are admitted into hospital following the classical out-patient route, a system which has its origins in the first dispensaries for the poor, established to provide medical care for those unable to pay even the smallest fee. This system, however, was open to abuse and by the late

nineteenth century posed a major threat to the income of general practitioners:

"In 1879 at St. Bartholomew's Hospital, London 120 patients were seen by the physician and dismissed in an hour and ten minutes...In another London hospital three casualty officers dealt with 500 patients in a morning...The crowds, however, consisted not only of the "deserving poor", but also of large numbers of the middle classes (who would even come in their servants' clothes as a disguise), who could well afford to pay. Thus in 1870 of 641 outpatients who attended the Royal Free Hospital 231 were well enough off to pay and 103 gave false addresses." ¹⁵⁷

As a result, general practitioners insisted that no patient should be seen as a hospital out-patient without a referral letter from a general practitioner, an arrangement that was carried over into the National Health and continues, albeit for sound clinical reasons, to this day.

Musculoskeletal problems form a significant part of the workload of general practitioners, accounting for approximately one in three of all general practice attendances.¹⁵⁸ In addition, orthopaedic problems account for 15 per cent of all general practitioner referrals to out-patient departments.^{159,160}

Total orthopaedic out-patient clinic attendances in England in 1985 numbered 4.6 million, substantially more than any other specialty.¹⁶¹ Before the introduction of self-certification, disorders of the musculoskeletal system accounted for almost 60 million days of certified incapacity in Britain in 1981.¹⁶²

General practitioners are often blamed by hospital specialists for unnecessary referrals:

*"...a high proportion of patients on these long waiting lists do not really require a specialist opinion...referral stems from general practice and perhaps it is there rather than in the hospital that the solution to the problem should be sought...Perhaps the waiting time could be reduced most effectively by subjecting the referral letters from GPs with the highest rates to close scrutiny at the time they are received."*¹⁶³

*"There are nevertheless some clinical conditions which are referred more frequently for consultant opinion by some general practitioners than by others; this may be taken as a lack of skill or confidence on the part of those general practitioners to cope with the problems of their patients unaided or a deferral to the wishes of some insistent patients to "have a second opinion" on their ailment."*¹⁶⁴

A number of studies have demonstrated considerable variation in general practitioner referral rates. Dowie¹⁶⁵ found a fifteen-fold range among 65 GPs over a 13 week period and Kerr¹⁶⁶ found that the rate of referral

varied by a factor of 24 between general practitioners in similar practices in the Forth Valley area of Scotland. Other studies by Ross *et al* ¹⁶⁷ and Forsyth and Logan¹⁶⁸ could find no correlation between referral rates and any of the doctor variables including practice list size, place and length of medical training, length of time since qualifying and previous hospital-based experience. Moreover, Morrell and his colleagues¹⁶⁹ showed that referral rates could not be explained in terms of patient variables such as age, sex, social class and diagnostic characteristics.

Many of these studies of GP referral rates, however, have been criticised on methodological grounds. Moore and Roland¹⁷⁰ have suggested that a significant part of the variation in referral rates may have been due to the relatively small numbers of referrals in most of these studies and that random fluctuations arising by chance may have accounted for much of the observed variation. Noone *et al* ¹⁷¹ have also criticised previous studies on the grounds of small sample size and have suggested that variations in rates are also dependent upon whether crude or age-standardised rates are calculated, whether the comparisons are made between general practices or individual practitioners and whether referrals are expressed as a proportion of consultations or list size. Using standardised practice referral rates per practice list size, Noone *et al* found only a three-fold variation in the Oxford region and conclude by arguing that general practitioners' referral rates may be rather less variable than is often assumed.¹⁷²

Clearly, general practitioner referral habits and preferences can have a significant effect upon out-patient waiting time:

"Patterns of GP referral may contribute to the length of the wait for out-patient appointment. This may occur in districts where particular practices or individual GPs have a higher than average rate of referral or where GPs refer to particular consultants, thus distorting some surgeons' lists at the expense of others." ¹⁷³

Some general practitioners, however, would argue that the length of the waiting list itself encourages referral:

"If a patient comes to see me with a condition which may or may not resolve spontaneously, my threshold for referral is lowered by knowing that the wait is so long. I cannot afford, on the patient's behalf, to wait three months to find out that the condition is not resolving before adding him to a list six months long. I refer early in case the condition does not settle, in a way that would be unnecessary if the delay were only one month. The fact that some of these patients improve and do not need referral should surprise no-one, especially since the term "trivial" can only be applied retrospectively." ¹⁷⁴

Spontaneous resolution of the condition for which the patient has been referred is a major factor in the high rate of non-attendance at orthopaedic out-patient clinics and is just one example of the inadequacy of certain waiting list data.

Problems with Waiting List Data

Waiting list statistics can be both unreliable and misleading and are not necessarily reliable measures of need. Various studies have shown that substantial numbers of patients on out-patient waiting lists fail to attend their clinic appointments. Non-attendance, without prior notification, can result in under-utilisation of clinic capacity and contribute to increasing out-patient waiting times. A survey of non-attenders in 1983 revealed that 56 per cent failed to attend because the condition had resolved.¹⁷⁵ Some commentators have cited figures such as these as evidence of serious problems with waiting list data:

"Many orthopaedic surgeons think that the present state of affairs, although undoubtedly serious, is not really quite so alarming as the waiting list statistics alone would suggest. These views are nurtured by experience of such factors as high non-attendance rates at clinics and the many patients who, when ultimately seen, do not require orthopaedic treatment or cannot actually be helped by it." ¹⁷⁶

A study in South Glamorgan showed that at least 20 per cent of all those named as waiting for out-patient appointments could be regarded as no longer seeking consultations, the most common reason given being that the condition had resolved. The authors suggested that up to 40 per cent might be classified as no longer seeking appointments and estimated that in addition 46 per cent of those waiting were suffering from chronic

orthopaedic conditions.¹⁷⁷ Another survey found that of those offered out-patient appointments one quarter failed to attend and, of those who did attend, 27 per cent received physiotherapy or a simple appliance, or both, while 16 per cent received treatment already available from their general practitioner.¹⁷⁸

Open general practitioner access to the physiotherapy department of a District General Hospital has been found to reduce waiting time and save consultant time^{179,180} and such access was strongly recommended in the Duthie Report:

*"...we welcome the recent trend towards the practice, whereby, with the agreement of hospital consultants, general practitioners can refer their patients directly to hospital physiotherapy and occupational therapy departments both for treatment and for the supply, where necessary and without consultant prescription, of such non-bespoke appliances as lumbo-sacral supports and cervical collars held in stock by hospitals and fitted by trained and qualified staff."*¹⁸¹

One factor contributing to long waiting times for new out-patient appointments is the sheer volume of follow-up appointments given to existing out-patients. The necessity for many of these follow-up consultations has been much questioned.^{182,183,184} It has been suggested that review is an almost automatic tradition at many out-patient clinics, often perpetuated by junior doctors who do not feel able to discharge the

patient.¹⁸⁵ Fordham found that the average review rate in orthopaedic departments was approximately five times, generating a substantial total number of out-patient attendances.¹⁸⁶

Surveys of patients listed as waiting to be admitted for hospital treatment have also highlighted wide discrepancies in waiting list data. Lourie¹⁸⁷ found that as few as 30 per cent of patients positively wished to remain on the waiting list. Donaldson *et al* reviewed 950 patients who had been waiting for more than one year for in-patient treatment at a large District General Hospital in Leicestershire and reported the following:

"Searches of medical records eliminated 193 patients who had already had operations, but whose names had not been removed from the list. Of the remaining 757 patients... 363 (48%) replied indicating that they still wanted to have the operation; 65 (9%) stated that they had already had the operation; 70 (9%) had moved away from their listed address; and replies from relatives or searches of death returns showed that 34 (5%) had died. There was no response from 97 (12% of patients)." ¹⁸⁸

Another study by Porter¹⁸⁹ found that only 45 per cent of patients wished to remain on the list. In addition, he reported that 40 per cent of the remaining waiting list patients were found at a pre-operative assessment clinic to be unfit for surgery, supporting earlier findings by Williams *et al*.¹⁹⁰

Bulstrode¹⁹¹ has estimated that between one in four and one in three of major surgical procedures in orthopaedics are cancelled due to the patient being found unfit for surgery at pre-operative anaesthetic assessment. Not only does this cause the patient considerable distress and contribute to longer waiting lists, but, Bulstrode argues, most of the common causes of cancelled surgery could have been identified and dealt with by the general practitioner prior to admission. Common and avoidable causes of cancelled surgery include uncontrolled or undiagnosed hypertension, uncontrolled cardiac arrhythmias, incipient cardiac failure and heart block, chronic obstructive airways disease, anaemia, electrolyte imbalance, maturity-onset diabetes, silent urinary tract infections and other miscellaneous infections such as leg ulcers.¹⁹²

Failure to attend when offered admission, resulting in empty beds and unused theatre time is clearly wasteful of resources and makes the task of reducing waiting lists more difficult. It is widely believed that failed admissions constitute a serious problem, but a study in 1989 by Frankel *et al*¹⁹³ found that non-admission without prior notification to the hospital occurred in only 1-3 per cent of all booked admissions. The authors concluded that despite a common tendency to blame patients for non-admission, factors due to patients, as opposed to hospital factors, are fairly unimportant.

Disability in Waiting List Patients

The selection of patients for in-patient treatment is a complex process involving a variety of factors including the urgency of the condition, the patient's fitness for operation and the availability of resources. According to Fordham:

"By this stage all patients have been seen and assessed by the specialist. The many facets of their condition - how it affects them personally, socially, psychologically, economically - should be known to him thus making selection for admission dependent on factors other than solely the amount of time already waited." ¹⁹⁴

This somewhat optimistic view of the consultation process is not shared by West and Jenkins:

"Orthopaedic surgeons can assess the relative urgency of their patients on clinical grounds after examinations at out-patient clinics and consequently they can rank their in-patient waiting lists. Orthopaedic surgeons may also have a feel for the problems or disabilities (physical, social or economic) of those on in-patient waiting lists since they have been seen and assessed at out-patient clinics; although the majority of clinical records would suggest that normally very little in the way of social history is taken." ¹⁹⁵

Virtually nothing is known about patients on out-patient waiting lists, even clinically. In the great majority of cases, the only information available to the consultant is the referral document which varies according to local practice and general practitioner inclination and may be anything from a pre-printed referral proforma completed in detail to a vague handwritten letter. Problems that the patient may have at work or in carrying out basic activities of daily living will rarely be recorded.

West and Jenkins, in their South Glamorgan study, attempted to measure the prevalence of disability amongst those on orthopaedic out-patient waiting lists. They found that almost one fifth of working age men and women (excluding students, early retirements and housewives) were unemployed, a figure substantially in excess of the unemployment rate of 7.4 per cent for the population at that time. Half of the unemployed men and three quarters of the women attributed their unemployment to their orthopaedic problems. Almost 50 per cent of those who were in paid employment reported some restriction of their activity at work because of their orthopaedic problems.¹⁹⁶

On the basis of these results, West and Jenkins put forward a plea for "disability status" to be included on referral documents:

"Orthopaedic surgeons will be aware that some of those waiting for out-patient clinic appointments will be out of work and some will be suffering moderate impairment in daily living

activities. However unless orthopaedic surgeons are informed about individual patients...it is unlikely that they can know which patients are economically or socially in greater need of early appointments. Although most general practitioners probably bear in mind such "non-medical" factors when assessing the urgency rating to ask for when referring patients for specialist consultations, it would seem highly desirable that this information when relevant is included explicitly." ¹⁹⁷

Measures of Disability

Orthopaedic conditions can be classified according to the functional consequences of diagnosis - in terms of the World Health Organisation's International Classification of Impairments, Disabilities and Handicaps (ICIDH).¹⁹⁸ There have been numerous attempts to apply the ICIDH to various categories of patient, none of which has been entirely satisfactory.^{199,200,201,202,203,204} The coding of Impairment is relatively straightforward and, although time-consuming, the coding of Disability has been found to be of great value in assessing the needs of disabled patients. Last²⁰⁵ has estimated that an experienced nurse can code Impairment and Disability in less than one hour. The greatest difficulty, however, has been encountered with the classification of Handicap, the patient's capacity to function and cope with his or her lifestyle, and Last, for example, has abandoned the concept altogether.²⁰⁶

The WHO International Classification of Impairments, Disabilities and Handicaps is not a rating system - it is simply a system for coding, rather than ranking, the functional consequences of disease. Most of the numerous other measures of disability do involve rating or scoring and these include the Functional Life Scale,²⁰⁷ the Frenchay Activities Index,²⁰⁸ the Health Assessment Questionnaire (HAQ),²⁰⁹ the Barthel Index²¹⁰ and a variety of scales of Activities of Daily Living which are primarily concerned with capacity for self-care.

In orthopaedics, scientists have applied themselves to the physical measurement of disability which has resulted in devices such as the Leeds Knee Analyser²¹¹ and the Jamar Dynamometer²¹² which is used to measure hand strength.

Many of these scales are of great value, for instance to a skilled physiotherapist or occupational therapist in assessing rehabilitation outcomes, but the vast majority are extremely complex and time-consuming, and as such, will never be acceptable for routine clinical use. A simple, universal system for routinely recording disability status would clearly be of great value in orthopaedics for assessing need, for ranking out-patient and in-patient waiting lists, for measuring the outcome of surgical intervention and possibly for monitoring progress in rehabilitation.

There has been much recent work by health economists on the Quality Adjusted Life Year, or QALY.^{213,214} This controversial measure involves amongst other things an assessment of "quality of life" which comprises the following dimensions - physical mobility; freedom from pain and distress; capacity for self-care; and ability to engage in normal social interactions.

There is a demonstrable need for exactly this kind of information to be routinely and systematically available for all orthopaedic patients at all stages of the therapeutic process. This would necessarily involve some degree of subjective assessment, and while there are a number of well-established mechanisms for measuring perceived health status such as the Nottingham Health Profile,^{215,216} these again are too complex for routine clinical use and would need to be simplified for use in an orthopaedic context.

Some kind of subjective assessment would certainly seem to be highly desirable in view of the findings of Patrick *et al* who reported that in a study conducted in Kingston-upon-Thames, general practitioners knew only 50 per cent of their disabled patients' difficulties with daily living and even less of the aids, appliances and services used.²¹⁷

There is evidence that doctors consistently miss or underestimate the difficulties their patients have with activities of daily living and basic social routines.^{218,219,220} Calkins *et al*²²¹ asked a group of physicians in the United

States to complete questionnaires about the degree of physical or social functional impairment in a random sample of their patients. The responses were compared with those obtained from the patients themselves and the researchers found that the physicians underestimated or failed to recognise 66 per cent of the disabilities reported by the patients. There is, however, also evidence that patients are inclined to under-report their disabilities in face-to-face interviews.²²² They may be more willing to divulge details of their functional difficulties through the medium of a questionnaire or other measuring instrument designed for self-completion rather than directly to a doctor.

Summary

The specialty of orthopaedic surgery currently faces many problems and challenges, some of which are shared by other specialties, some of which are unique.

Limited health care resources make rationing a key issue in all hospital-based medicine and this is particularly well-demonstrated in orthopaedics, where elective surgery, though never lifesaving, can dramatically transform patients' lives. Within the NHS, access to orthopaedic surgery is strictly limited and the excess of demand over supply is expressed in large waiting lists and long waiting times.

This chapter has sought to identify the key issues in orthopaedics. Beginning first with an overview of the whole issue of disability (for it is with avoidable physical disability that orthopaedics is primarily concerned), this chapter has chronicled the development of the specialty and highlighted the principal technical advances of the last thirty years.

We have seen that these technical advances have created difficulties within the specialty which has failed to expand rapidly enough to meet the greatly increased demand which has resulted from a combination of demographic change and increased patient expectations.

We have seen that orthopaedics straddles both the acute and the chronic sectors of medicine and that orthopaedic trauma, compounded by the rising incidence of trauma in the elderly, exerts a major influence upon the specialty's ability to handle elective cases efficiently.

The influential Duthie Report and its recommendations have been analysed and other political responses to the problem of waiting lists have been examined. The waiting process and related factors such as GP referral practices, the out-patient system itself and the problem of non-attendance have all been examined in detail.

Whilst the private sector plays a major role in orthopaedic surgery (at least one in four hip replacements are now carried out privately),²²³ for the

majority of patients, both out-patient and in-patient waiting times in the NHS are unacceptably long and for those out-patients who ultimately require in-hospital treatment, the waiting process is a cumulation of two successive queues. It has been suggested that for the individuals on waiting lists, the waiting process involves varying degrees of distress, disability and loss of physical and social independence. Little is known of the extent of pain and disability in patients on orthopaedic waiting lists, or of the problems these patients may have in carrying out basic activities of daily living. Still less is known of the impact of their orthopaedic problem on their personal, family, social or economic circumstances.

The following chapter will look at the issues in orthopaedics in the context of the individual District General Hospital. Successive chapters will seek to establish the extent of disability and handicap in patients waiting for both out-patient and in-patient treatment at this same hospital.

FOOTNOTES

CHAPTER TWO

- 1 Wilson J (ed). *Disability prevention: the global challenge*. Oxford: Oxford University Press for the Leeds Castle Foundation, 1983.
- 2 Hernmanova HM. Need for a data base on consequences of diseases. *Int Rehabil Med* 1985; 7: 61-63.
- 3 Wilson J (ed). *op. cit.*
- 4 Blaxter M. *The Meaning of Disability: A Sociological Study of Impairment*. London: Heinemann, 1976.
- 5 World Health Organisation. *International Classification of Impairments, Disabilities, and Handicaps: a manual of classification relating to the consequences of disease*. Geneva: WHO, 1980.
- 6 *ibid.*
- 7 Office of Population Censuses and Surveys. *The prevalence of disability among adults*. OPCS surveys of disability in Great Britain. Report 1. London: H.M.S.O., 1988.
- 8 Harris AI. *Handicapped and Impaired in Great Britain*. London: H.M.S.O., 1971.
- 9 Office of Population Censuses and Surveys. *op. cit.*
- 10 Blaxter M. *op. cit.*
- 11 Patrick DL. *A socio-medical approach to disablement*. In: Patrick DL, Peach H (eds). *Disablement in the Community*. Oxford: Oxford University Press, 1989.
- 12 Office of Population Censuses and Surveys. *op. cit.*
- 13 Royal College of Physicians of London. Physical disability in 1986 and beyond. *J R Coll Physicians Lond* 1986; 20(3): 160-94.
- 14 *ibid.*
- 15 *ibid.*
- 16 Ackerknecht EH. *A Short History of Medicine*. Baltimore and London: Johns Hopkins University Press, 1982.

- 17 Sigerist HE. *A History of Medicine*. Vol 1. New York: Oxford University Press, 1951.
- 18 Le Vay D. *The History of Orthopaedics: An Account of the Study and Practice of Orthopaedics from the Earliest Times to the Modern Era*. Carnforth: The Parthenon Publishing Group, 1990.
- 19 Walton J, Beeson PB, Bodley Scott R (eds). *The Oxford Companion to Medicine*. Oxford: Oxford University Press, 1986.
- 20 Qvist G. *John Hunter 1728-1793*. London: William Heinemann Medical Books, 1981.
- 21 Guthrie D. *A History of Medicine*. London: Thomas Nelson and Sons, 1945.
- 22 Walton J, Beeson PB, Bodley Scott R (eds). *op. cit.*
- 23 *ibid.*
- 24 *ibid.*
- 25 Guthrie D. *op. cit.*
- 26 Walton J, Beeson PB, Bodley Scott R (eds). *op. cit.*
- 27 Guthrie D. *op. cit.*
- 28 Lourie JA. *Medical Eponyms: Who Was Coudé?* London: Pitman, 1982.
- 29 *ibid.*
- 30 Walton J, Beeson PB, Bodley Scott R (eds). *op. cit.*
- 31 Lourie JA. 1982. *op. cit.*
- 32 Lettin AWF. Total joint replacement. *Br J Hosp Med* 1980; **24**: 328-45.
- 33 Charnley J. Arthroplasty of the hip: a new operation. *Lancet* 1961; **i**: 1129-32.
- 34 Bulstrode CJK. Fit for joint replacement? *Update* 1989; **39(5)**: 347-50.

- 35 Harrold AJ. Outlook for hip replacement. *Br Med J* 1982; **284**: 139.
- 36 Wilcock GK. Benefits of total hip replacement to older patients and the community. *Br Med J* 1978; **2**: 37-39.
- 37 Villar RN. Failed hip replacements. *Br Med J* 1992; **304**: 3-4.
- 38 Harrold AJ. *op.cit.*
- 39 Hansard. 3 July 1990. *Written Answers*, col 544.
- 40 *ibid.*
- 41 Lettin AWF. *op. cit.*
- 42 Nixon JE. Failure patterns after total hip replacement. *Br Med J* 1983; **286**: 166-70.
- 43 Lettin AWF. *op. cit.*
- 44 Chandler HP, Reineck FT, Wixson RL. A five year review of total hip replacements in patients under the age of 30 - with emphasis on loosening. *Orthopaedic Transactions* 1979; **3**: 303.
- 45 Harrold AJ. *op. cit.*
- 46 Jessop J. Exchanging new joints for old. *Health and Social Service Journal* 1985; **XCIV(4961)**: 1021.
- 47 Jacobs L. The changing face of orthopaedic practice. *Refer* 1989; **I(10)**: 14-16.
- 48 Kavanagh BF, Ilstrup DM, Fitzgerald RH Jr. Revision total hip arthroplasty. *J Bone Joint Surg (Am)* 1985; **67**: 517-26.
- 49 Dreghorn CR, Hamblen DL. Revision arthroplasty: a high price to pay. *Br Med J* 1989; **298**: 648-49.
- 50 Villar RN. *op. cit.*
- 51 Department of Health. *Health and Personal Social Services Statistics for England*. 1991 Edition. London: H.M.S.O., 1991.
- 52 Woodyard JE. The elusive orthopaedic senior house officer. *Br Med J* 1987; **294**: 257-58.

- 53 Ellin DJ, Parkhouse HF, Parkhouse J. Career preferences of doctors qualifying in the United Kingdom in 1983. *Health Trends* 1986; 18: 59-63.
- 54 Woodyard JE. *op. cit.*
- 55 United Kingdom Health Departments, Joint Consultants Committee and Chairmen of Regional Health Authorities. *Hospital medical staffing. Achieving a balance.* London: DHSS, 1986.
- 56 Secretaries of State for Health, Wales, Northern Ireland and Scotland. *Working for Patients. op.cit.*
- 57 Office of Health Economics. *Compendium of Health Statistics.* 6th Edition. London: OHE, 1987.
- 58 *ibid.*
- 59 Department of Health. *NHS Hospital Activity Statistics for England 1979-1990/91.* Statistical bulletin 2 (1) 92. London: DoH, 1992.
- 60 *ibid.*
- 61 *ibid.*
- 62 Yates J. *Why are we Waiting?: An Analysis of Hospital Waiting Lists.* Oxford: Oxford University Press, 1987.
- 63 Fordham R. *Options in orthopaedics: Managing orthopaedic waiting lists.* Discussion Paper. York: University of York Centre for Health Economics, 1987.
- 64 *ibid:* 1.
- 65 Department of Health and Social Security. *Orthopaedic Services: Waiting time for out-patient appointments and in-patient treatment.* Report of a Working Party to the Secretary of State for Social Services. London: H.M.S.O., 1981: 1.
- 66 *ibid:* iv.
- 67 *ibid:* iv.
- 68 *ibid:* 78.

- 69 *ibid*: 80.
- 70 *ibid*: 21.
- 71 *ibid*: 82.
- 72 Burn JMB. Responsible use of resources: day surgery. *Br Med J* 1983; 286: 492-93.
- 73 *ibid*.
- 74 Royal College of Surgeons of England. Commission on the Provision of Surgical Services. *Guidelines for day case surgery*. London: Royal College of Surgeons, 1985.
- 75 Audit Commission. *A short cut to better services: day surgery in England and Wales*. London: H.M.S.O., 1990.
- 76 Haines JF, Thompson H. Short stay surgery in orthopaedics. *Health Trends* 1982; 14: 73-74.
- 77 Fordham R. *Options in orthopaedics: Appraising workload and the scope for change*. Discussion Paper. York: University of York Centre for Health Economics, 1987.
- 78 Fordham R. *Options in orthopaedics: Managing orthopaedic waiting lists*. 1987. *op. cit*.
- 79 Sikorski JM, Mander JM. Orthopaedic audit: a comprehensive system for in-patients. *Health Trends* 1984; 16: 30-33.
- 80 Pearce A. New post for an old problem. *Health and Social Service Journal* 1985; XCIV(4942): 420-22.
- 81 Heppenstall I. Entering the twilight zone. *Health and Social Service Journal* 1985; XCIV(4960): 982.
- 82 Mulvey B, Uren C. Cutting the waiting time for hip replacement. *Health and Social Service Journal* 1985; XCIV(4948): 614-15.
- 83 Pickering M. Emergency Planning. *Health and Social Service Journal* 1983; XCIII(4852): 755.
- 84 Department of Health and Social Security. *Press Release* 17th February 1987.

- 85 Weekly Hansard No. 1438. 15-19 February 1988. *Written Answers 15 February 1988*, col 491.
- 86 House of Commons. Health Committee First Report. *Public Expenditure on Health Services: Waiting Lists. Volume I. Report together with the Proceedings of the Committee*. London: H.M.S.O., 1991.
- 87 Inter-Authority Comparisons and Consultancy. *Full Year Report for 1990/91*. Birmingham: IACC/Health Services Management Centre, 1991.
- 88 House of Commons. Health Committee First Report. *op. cit.*
- 89 Department of Health. *The Patient's Charter*. London: H.M.S.O., 1992.
- 90 House of Commons. Health Committee First Report. *op. cit.*
- 91 *ibid.*
- 92 DHSS. *Orthopaedic Services. op. cit:* 28.
- 93 Hansard. 28 June 1985. *Written Answers*, col 532.
- 94 Office of Health Economics. 1987. *op. cit.*
- 95 Central Statistical Office. *Social Trends No. 21*. London: H.M.S.O., 1991.
- 96 Laing & Buisson. *Private Healthcare Insurance and the Future of Private Healthcare in the UK*. London: Laing & Buisson, 1991.
- 97 McPherson K, Coulter A, Stratton I. Increasing use of private practice by patients in Oxford requiring common elective surgical operations. *Br Med J* 1985; **291**: 797-99.
- 98 Nicholl JP, Beeby NR, Williams BT. Role of the private sector in elective surgery in England and Wales, 1986. *Br Med J* 1989; **298**: 243-47.
- 99 *ibid.*
- 100 Goldacre M. The rise in private hospital care: unpredictable implications. *Br Med J* 1989; **298**: 202-3.
- 101 Nicholl JP, Beeby NR, Williams BT. *op. cit.*

- 102 Williams BT. *Personal communication*. October 1988. Cited in Jacobs L. *op. cit.*
- 103 Gallannaugh SC, Martin A, Millard PH. Regional survey of femoral neck fractures. *Br Med J* 1976; 2: 1496-97.
- 104 Cooper C. Osteoporosis - an epidemiological perspective: a review. *J R Soc Med* 1989; 82: 753-57.
- 105 Melton LJ, Riggs BL. *Epidemiology of age-related fractures*. In Alvioli LV (ed). *The osteoporotic syndrome*. New York: Grune and Stratton, 1983: 45-72.
- 106 Solomon L. Osteoporosis and fracture of the femoral neck in the South African Bantu. *J Bone Joint Surg* 1969; 50B: 2-13.
- 107 Anonymous. Consensus development conference: prophylaxis and treatment of osteoporosis. Conference Report. *Br Med J* 1987; 295: 914-15.
- 108 *ibid.*
- 109 *ibid.*
- 110 Department of Health and Social Security and Office of Population Censuses and Surveys. *Hospital in-patient enquiry 1985. Summary tables. Series MB4 no.26*. London: H.M.S.O., 1987.
- 111 Royal College of Physicians of London. *Fractured neck of femur: prevention and management*. London: Royal College of Physicians of London, 1989.
- 112 Dixon A St J. Health of the nation and osteoporosis. *Annals Rheumatic Diseases* 1992; 51: 914-18.
- 113 Lewis AF. Fracture of the neck of the femur: changing incidence. *Br Med J* 1981; 283: 1217-20.
- 114 Evans JG. Fractured proximal femur in Newcastle upon Tyne. *Age and Ageing* 1979; 8: 16-24.
- 115 Rees JL. Secular changes in the incidence of proximal femoral fracture in Oxfordshire: a preliminary report. *Community Medicine* 1982; 4: 100-03.

- 116 Wallace WA. The increasing incidence of fractures of the proximal femur: an orthopaedic epidemic. *Lancet* 1983; i: 1413-14.
- 117 Boyce WJ, Vessey MP. Rising incidence of fracture of the proximal femur. *Lancet* 1985; i: 150-51.
- 118 *ibid.*
- 119 Royal College of Physicians of London. *Fractured neck of femur: prevention and management. op. cit.*
- 120 Spector TD, Cooper C, Fenton Lewis A. Trends in admissions for hip fracture in England and Wales, 1968-85. *Br Med J* 1990; 300: 1173-74.
- 121 Stevenson JC, Whitehead MI. Post menopausal osteoporosis. *Br Med J* 1982; 285: 585-88.
- 122 Anonymous. Consensus development conference: prophylaxis and treatment of osteoporosis. *op. cit.*
- 123 *ibid.*
- 124 Nilsson BE, Obrant KJ. Secular tendencies of the incidence of fracture of the upper end of the femur. *Acta Orthop Scand* 1978; 49: 389-91.
- 125 Wallace WA. *op. cit.*
- 126 Stott S. Gray DH. A prospective study of hip fractures. *New Zealand Medical Journal* 1980; 91(665): 165-69.
- 127 DHSS. *Orthopaedic Services. op. cit:* 31.
- 128 Finsen V. Improvements in general health among the elderly: a factor in the rising incidence of hip fractures? *J Epidemiol Community Health* 1988; 42: 200-03.
- 129 Lewis AF. *op. cit.*
- 130 Cooper C, Barker DJP, Morris J, Briggs RSJ. Osteoporosis, falls and age in fracture of the proximal femur. *Br Med J* 1987; 295: 13-15.
- 131 Vetter NJ, Lewis PA, Ford D. Can health visitors prevent fractures in elderly people? *Br Med J* 1992; 304: 888-90.

- 132 Lau E, Donnan S, Barker DJP, Cooper C. Physical activity and calcium intake in fracture of the proximal femur in Hong Kong. *Br Med J* 1988; **297**: 1441-43.
- 133 Holbrook TL, Barrett-Connor E, Wingard DL. Dietary calcium and risk of hip fracture: 14-year prospective population study. *Lancet* 1988; **ii**: 1046-49.
- 134 Cooper C, Barker DJP, Wickham C. Physical activity, muscle strength, and calcium intake in fracture of the proximal femur in Britain. *Br Med J* 1988; **297**: 1443-46.
- 135 Wickham CAC, Walsh K, Cooper C, Barker DJP, Margetts BM, Morris J, Bruce SA. Dietary calcium, physical activity, and risk of hip fracture: a prospective study. *Br Med J* 1989; **299**: 889-92.
- 136 Anonymous. The old woman with a broken hip. *Lancet* 1982; **ii**: 419-20.
- 137 Sikorski JM, Davis NJ, Senior J. The rapid transit system for patients with fractures of proximal femur. *Br Med J* 1985; **290**: 439-43.
- 138 Twiston Davies CW, Moody Jones D, Shearer R. Hand grip - a simple test for morbidity after fracture of the neck of femur. *J R Soc Med* 1984; **77**(10): 833-36.
- 139 Wild W, Nayak USL, Isaacs B. How dangerous are falls in old people at home? *Br Med J* 1981; **282**: 266-68.
- 140 Thomas TG, Stevens RS. Social effects of fractures of the neck of the femur. *Br Med J* 1974; **iii**: 456-58.
- 141 Anonymous. Operating on the elderly. *Br Med J* 1972; **ii**: 480.
- 142 Hackett AF, Yeung CK, Hill GL. Eating patterns in patients recovering from major surgery - a study of voluntary food intake and energy balance. *Br J Surg* 1979; **66**: 515-18.
- 143 Older MJW, Edwards D, Dickerson JWT. A nutrient survey in elderly women with femoral neck fractures. *Br J Surg* 1980; **67**: 884-86.

- 144 Hill GL, Pickford I, Young GA, Schorah CJ, Blackett RL, Burkinshaw L, Warren JV, Morgan DB. Malnutrition in surgical patients: an unrecognised problem. *Lancet* 1977; i: 689-92.
- 145 Robbins JA, Donaldson LJ. Analysing stages of care in hospital stay for fractured neck of femur. *Lancet* 1984; ii: 1028-29.
- 146 Stott S, Gray DH. *op. cit.*
- 147 Sikorski JM, Davis NJ, Senior J. *op. cit.*
- 148 Pryor GA, Myles JW, Williams DRR, Anand JK. Team management of the elderly patient with hip fracture. *Lancet* 1988; i: 401-3.
- 149 DHSS. *Orthopaedic Services. op. cit:* 82.
- 150 Clark ANG, Wainwright D. The management of the fractured neck of femur in the elderly female. A joint approach of orthopaedic surgery and geriatric medicine. *Gerontologia Clinica* 1966; 8: 321-26.
- 151 Boyd RV, Hawthorne J, Wallace WA, Worlock PH, Compton EH. The Nottingham orthogeriatric unit after 1000 admissions. *Injury* 1983; 15: 193-96.
- 152 Burley LE, Scorgie RE, Currie CT, Smith RG, Williamson J. The joint geriatric orthopaedic service in South Edinburgh: November 1979 - October 1980. *Health Bulletin* 1984; 42: 133-40.
- 153 Hemsall VJ, Robertson DRC, Campbell MJ, Briggs RS. Orthopaedic geriatric care - is it effective? *J R Coll Phys Lond* 1990; 24: 47-50.
- 154 Kennie DC, Reid J, Richardson IR, Kiamari AA, Kelt C. Effectiveness of geriatric rehabilitative care after fractures of the proximal femur in elderly women: a randomised clinical trial. *Br Med J* 1988; 297: 1083-86.
- 155 Fordham R, Thompson R, Holmes J, Hodkinson C. *A cost-benefit study of geriatric-orthopaedic management of patients with fractured neck of femur*. Discussion Paper 14. York: University of York Centre for Health Economics, 1986.

- 156 Harrington MG, Brennan M, Hodkinson HM. The First Year of a Geriatric-Orthopaedic Liaison Service: an alternative to "orthogeriatric" units? *Age and Ageing* 1988; 17: 129-33.
- 157 Anonymous. Outpatient follow-up. *J R Coll Gen Pract* 1976; 26: 792-93.
- 158 Bulstrode CJK. Fit for joint replacement? *op. cit.*
- 159 Burrowes WL. The general practitioner and the hospital. *The Practitioner* 1971; 206: 810-14.
- 160 Anonymous. Practice activity analysis. 5: referrals to specialists. *J R Coll Gen Pract* 1978; 28(189): 251-52.
- 161 Office of Health Economics. 1987. *op. cit.*
- 162 Office of Health Economics. *Compendium of Health Statistics*. 5th Edition. London: OHE, 1984.
- 163 Kerr TS. Shortening waiting lists in orthopaedic surgery outpatient clinics. Letter. *Br Med J* 1982; 284: 980.
- 164 DHSS. *Orthopaedic Services. op. cit.*: 62.
- 165 Dowie R. *General practitioners and consultants: a study of outpatient referrals*. London: King Edward's Hospital Fund for London, 1984.
- 166 Kerr TS. *op. cit.*
- 167 Ross AK, Davis WA, Horn G, Williams R. General practice orthopaedic referrals in North Staffordshire. *Br Med J* 1983; 287: 1439-41.
- 168 Forsyth G, Logan RFL. *Gateway or dividing line? A study of hospital out-patients in the 1960s*. London: Oxford University Press for the Nuffield Provincial Hospitals Trust, 1968.
- 169 Morrell DG, Gage HG, Robinson NA. Referral to hospital by general practitioners. *J R Coll Gen Pract* 1971; 21: 77-85.
- 170 Moore AT, Roland MO. How much variation in referral rates among general practitioners is due to chance? *Br Med J* 1989; 298: 500-02.

- 171 Noone A, Goldacre M, Coulter A, Seagroatt V. Do referral rates vary widely between practices and does supply of services affect demand? A study in Milton Keynes and the Oxford region. *J R Coll Gen Pract* 1989; **39**: 404-07.
- 172 *ibid.*
- 173 Fordham R. *Options in orthopaedics: Managing orthopaedic waiting lists. op. cit.*: 4.
- 174 Oswald NTA. Shortening waiting lists in orthopaedic surgery outpatient clinics. Letter. *Br Med J* 1982; **284**: 979-80.
- 175 Ross AK *et al. op. cit.*
- 176 West RR, McKibbin B. Shortening waiting lists in orthopaedic surgery outpatient clinics. *Br Med J* 1982; **284**: 728-30.
- 177 *ibid.*
- 178 Ross AK *et al. op. cit.*
- 179 Ellman R, Adams SM, Reardon JA, Curwen IHM. Making physiotherapy more accessible: open access for general practitioners to a physiotherapy department. *Br Med J* 1982; **284**: 1173-75.
- 180 Norman P, Clifton H, Williams E, Nichols PJR. Access by general practitioners to the physiotherapy department of a district general hospital. *Br Med J* 1975; **4**: 220-21.
- 181 DHSS. *Orthopaedic Services. op. cit.*: 65.
- 182 Loudon IS. A question of numbers. *Lancet* 1976; **i**: 736-7.
- 183 Anonymous. "To come again, 3 months". *Lancet* 1976; **i**: 1168-69.
- 184 Marsh GN. Are follow-up consultations at medical outpatient departments futile? *Br Med J* 1982; **284**: 1176-77.
- 185 Anonymous. Outpatient follow-up. *op. cit.*
- 186 Fordham R. *Options in orthopaedics: Appraising workload and the scope for change. op. cit.*

- 187 Lourie JA. Notes on an orthopaedic waiting list. *Br J Clin Pract* 1978; **32**: 224-25.
- 188 Donaldson LJ, Maratos JI, Richardson RA. Review of an orthopaedic in-patient waiting list. *Health Trends* 1984; **16(1)**: 14-15.
- 189 Porter KM. Orthopaedic audit - review of inpatient waiting lists. *Br Med J* 1985; **291**: 1216-17.
- 190 Williams PL, Withrington PH, Mitchell TH. Pre-operative medical complications in patients admitted to hospital for elective surgery. *Health Trends* 1984; **16**: 66-67.
- 191 Bulstrode CJK. Fit for joint replacement? *op. cit.*
- 192 *ibid.*
- 193 Frankel S, Farrow A, West R. Non-admission or non-invitation? A case-control study of failed admissions. *Br Med J* 1989; **299**: 598-600.
- 194 Fordham R. *Options in orthopaedics: Managing orthopaedic waiting lists. op. cit.*: 7.
- 195 West RR, Jenkins RM. Problems of patients waiting for orthopaedic out-patient appointments. *Hospital and Health Services Review* 1984; **80(3)**: 126-30.
- 196 *ibid.*
- 197 *ibid.*
- 198 World Health Organisation. *International Classification of Impairments, Disabilities, and Handicaps. op. cit.*
- 199 Wagstaff S. The use of the "International Classification of Impairments, Disabilities and Handicaps" in rehabilitation. *Physiotherapy* 1982; **68(7)**: 233-34.
- 200 Last PM. First experiences with ICIDH in Australia's largest nursing home. *Int Rehabil Med* 1985; **7**: 63-66.
- 201 Barrs I, Dowell AM. Trial use of ICIDH, October 1983. *Int Rehabil Med* 1985; **7**: 67-70.

- 202 Lankhorst GJ, Hoppener MGWC, van der Kaaij JE. Preliminary experiences with WHO's ICIDH: a user's report. *Int Rehabil Med* 1985; 7: 70-72.
- 203 Seidel CH, Tscherner U. Application of the Classification of Disabilities to children from 12 to under 16 years of age. *Int Rehabil Med* 1985; 7: 73-75.
- 204 Ford B. International Classification of Impairments, Disabilities and Handicaps: exercises in its application in a hospital medical record. *Int Rehabil Med* 1984; 6: 191-93.
- 205 Last PM. Assessment of disability. Letter. *Lancet* 1986; i: 1037.
- 206 Last PM. *Personal communication*. February 1987.
- 207 Sarno JE, Sarno MT, Levita E. The Functional Life Scale. *Arch Phys Med Rehabil* 1973; 54: 214-20.
- 208 Holbrook M, Skilbeck CE. An activities index for use with stroke patients. *Age and Ageing* 1983; 12: 166-170.
- 209 Fries JF, Spitz PW, Young DY. The dimensions of health outcome: the Health Assessment Questionnaire. Disability and Pain Scales. *J Rheum* 1982; 9: 789-93.
- 210 Mahoney FI, Barthel DW. Functional evaluation: the Barthel Index. *Maryland State Med J* 1965; 14: 61-65.
- 211 Wright V. Measurement of outcome in rheumatic diseases. *J R Soc Med* 1985; 78: 985-94.
- 212 Dent JA, Smith M, Caspers J. Assessment of hand function: a review of some tests in common use. *Br J Occup Ther* 1985; 48: 360-62.
- 213 Williams A. Economics of coronary artery bypass grafting. *Br Med J* 1985; 291: 326-29.
- 214 Gudex C. *QALYS and their use by the Health Service*. York: University of York Centre for Health Economics, 1986.
- 215 Hunt SM, McKenna SP, McEwan J, Backett EM, Williams J, Papp E. A quantitative approach to perceived health status: a validation study. *J Epidemiol Community Health* 1980; 34: 281-86.

- 216 Sackett DL, Torrance GW. The utility of different health states as perceived by the general public. *J Chron Dis* 1978; 31: 697-704.
- 217 Patrick DL, Peach H, Gregg I. Disablement and care: a comparison of patient views and general practitioner knowledge. *J R Coll Gen Pract* 1982; 32: 429-34.
- 218 Anon. Recognising disability. *Lancet* 1991; 338: 154-55.
- 219 Williamson J, Stokoe IH, Gray S, et al. Old people at home: their unreported needs. *Lancet* 1964; i: 1117-20.
- 220 Stewart MA, Buck CW. Physicians' knowledge of and response to patients' problems. *Med Care* 1977; 15: 578-85.
- 221 Calkins DR, Rubenstein LV, Clearly PD, et al. Failure of physicians to recognize functional disability in ambulatory patients. *Ann Intern Med* 1991; 114: 541-53.
- 222 Spiegel JS, Hirshfield MS, Spiegel TM. Evaluating self-care activities: comparison of a self-reported questionnaire with an occupational therapy review. *Br J Rheumatol* 1985; 24: 357-61.
- 223 House of Commons. Health Committee First Report. *op. cit.*

CHAPTER THREE
ORTHOPAEDICS IN BANBURY
- A RETROSPECTIVE STUDY

CHAPTER THREE

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Introduction

This retrospective study was designed to provide an insight into the main issues in orthopaedic surgery at the level of the District General Hospital. The key objectives were to provide an overview of the processes involved in the delivery of orthopaedic care and a perspective on the stages through which patients pass from initial referral to final discharge. As well as collecting basic data on hospital workload, the study was designed to yield quantitative and qualitative data on the individual patients included in the sample.

The study, carried out in May 1988, covers a three month period from 1st October to 31st December 1986. Whilst in many respects, a longitudinal study would have been preferable, this was considered impractical at the time because of the extended timescales involved.

Basic data were collected on the number of out-patient clinics, throughput of patients, staffing levels and surgical procedures in order to provide an overview of hospital and individual consultant workload. A patient sample was obtained by collecting data on all patients given a first orthopaedic out-patient appointment during the study period including those who did not attend. This sample of 299 patients was small enough to allow detailed analysis of individual case notes yet large enough to include a broad spectrum of orthopaedic conditions, referral practices, treatment options

and outcomes. Cases notes contain all the relevant clinical data including the referral letter from the general practitioner. The majority of the data in this study was obtained from a detailed analysis of case notes.

Fracture clinics were excluded from the study. Almost without exception, patients attending these clinics had already been treated in the Accident and Emergency Department and were being routinely followed-up prior to discharge. Neither general practitioner referral nor significant additional treatment was involved.

Methodological Considerations

The identification of "new" patients ("new" in the sense that they had been given a first out-patient appointment for the orthopaedic problem for which they had been referred) involved reference to the attendance sheets for each clinic. These clinic sheets are prepared by the Hospital's Appointments Clerks and are sometimes handwritten, sometimes typed, sometimes a combination of the two.

Every patient attending the hospital at any time, for any reason, is given a Unit Number. "New" patients may or may not have a Unit Number at the time of referral and even if they have, this will not always be recorded on the clinic sheet against their name. Where the Unit Number is recorded, the fact that the patient is new is identified by the initials "NP".

If there is no Unit Number, or it is not known, then the GP's name, the patient's address and occasionally the patient's date of birth are recorded on the clinic sheet.

In advance of a clinic session, usually the day before, Medical Records staff search for the case notes of the individual patients involved. In those cases where a patient has never attended hospital before, a new Unit Number is allocated and a new set of case notes prepared. Unfortunately, the new Unit Number is not recorded on the clinic sheet at this stage. If the patient does not attend, this is subsequently recorded on the consultant's secretary's copy of the clinic sheet.

Usually, the numbers of new, old and total patients seen are recorded on the clinic sheets and these totals are routinely included in the hospital's statistical data collection. Patients who do not attend are not included in these figures.

Sometimes, a patient will be referred by a general practitioner for a consultant opinion on a condition for which the patient has previously attended hospital. This may be because the condition has recurred or because hospital treatment has been unsuccessful, but it is usually because the patient was originally discharged by the consultant with a letter to the GP suggesting that the patient be referred at a later date if the patient failed to improve or if the condition deteriorated. These patients are

regarded as new patients for the hospital's statistical purposes. Such patients, however, are not "new" in the sense that they are attending their first out-patient appointment for a specific orthopaedic condition. Patients in this category did not, therefore, meet the criteria for the study and were excluded. Unfortunately, these patients could only be identified from the information contained in the case notes and therefore the case notes had to be located before they could be excluded. 27 patients were excluded from the study on this basis.

If no Unit Number is recorded on the clinic sheet, then a manual search of the card index files in Medical Records is required. These are filed in alphabetical order by patient surname. Complications arise when patient names are misspelled on clinic sheets or if the patient has moved or changed name. If the patient was subsequently admitted as an in-patient after May 1987, then a new computer-generated Unit Number will have been allocated. Although this new number should have been recorded on the index card, in practice, this will not always be the case. These patients can be identified by computer search.

Having obtained the correct Unit Number for the patient, case notes can, in theory, be located. Case notes are filed numerically by the last two digits of the Unit Number unless the patient has died in hospital in which case they are filed alphabetically by year of death. Case notes are stored in two locations in the hospital. Complications include misfiled notes, two or

multiple sets of notes in different locations for the same patient and notes that have simply gone missing, usually borrowed for a clinic without this fact being recorded.

All 299 case notes were eventually located, in some cases with considerable difficulty. Data extracted from the case notes were recorded on a Patient Data Form, a sample of which appears in Appendix A. These data form the basis of this retrospective study.

Study Population and Sample Size

The Horton General Hospital (HGH) is a District General Hospital located in Banbury in the northern part of the area covered by Oxfordshire District Health Authority. Originally known as the Horton Infirmary, the hospital owes its existence to Mary Horton of Middleton Cheney who died in 1869. In accordance with her wishes, her nephew John Henry Horton made the necessary financial arrangements and the hospital was opened in 1872.¹

Designed by Charles Driver of London, the original red brick Gothic building was built by Franklin of Deddington at a cost of just over £9,000. A Provident Dispensary enabled the poor to obtain medical treatment by paying a small weekly sum and the two original wards provided beds for 6 male and 6 female patients.² The hospital's subsequent extension and

development were funded by a succession of substantial gifts and legacies and by 1933 there were 60 beds, 4 private wards and 5 huts for tuberculosis patients.³

Following its absorption into the National Health Service, the hospital continued to expand and in 1986 (the study year) there was an average daily bed availability of 239.9 beds. In-patient discharges and deaths for the year numbered 9,320. There were 2,896 out-patient clinic sessions in 1986 involving 44,267 attendances, of which 12,255 were new attendances. In addition, there were 20,111 Accident and Emergency attendances.⁴

The origins of the town of Banbury are obscure, but its location at the junction of several important prehistoric routes probably accounted for its early development. Evidence of both prehistoric and Roman settlement has been found in the town.⁵ During the early mediaeval period, Banbury became the property of the Bishop of Lincoln and by 1086 was one of the administrative centres of the Bishop's estate. Throughout the Middle Ages, Banbury developed as a market town serving a rich agricultural area and by the eighteenth century had achieved some importance as a collecting centre for the growing wool trade of the south Midlands.⁶

The opening of the Coventry-Banbury section of the Oxford Canal in 1778 and the coming of the railway in 1850 increased the town's importance as a market centre. Industries such as agricultural implement manufacture

were established in the nineteenth century, but Banbury's prosperity was still very much dependent upon the agricultural wealth of the surrounding countryside. The agricultural depression of the late nineteenth century led to a period of stagnation in the economic life of the town which continued until the 1920s. The opening of a large aluminium factory in 1931 was a major stimulus to immigration and during the middle years of the twentieth century, the population increased at a rate well in excess of the national average. Not only was this new industry large-scale, but, importantly, it was independent of Banbury's traditional agricultural base.⁷

Banbury has continued to attract industries of many kinds and although its cattle market remains one of the largest in England, the town's traditional dependence upon the agricultural community has considerably diminished.⁸

Banbury was the focus for one of the classic studies in sociology - Margaret Stacey's "Tradition and Change" ⁹ - which described and analysed the changing social life of the town shortly after the Second World War. A second, follow-up study was published by the same author in 1975.¹⁰

As well as the town of Banbury (population approximately 38,000),¹¹ the Horton General Hospital serves the predominantly rural population of North Oxfordshire, together with parts of Warwickshire and Northamptonshire. The total population served is approximately 120,000.¹²

The Department of Trauma and Orthopaedic Surgery has 30 beds and receives both trauma and elective admissions. Trauma predominates and, although its inherent unpredictability causes fluctuations in the figures, on average approximately 70 per cent of in-patients are trauma cases.¹³ Average bed occupancy in 1986 was 86.2 per cent. (See Table 7). For paediatric cases, especially paediatric trauma, there is an additional bed allocation in the Paediatric Ward, averaging two beds. In addition, informal emergency arrangements allow for the accommodation of further acute trauma patients as "lodgers" in other wards within the hospital. At the time the study was undertaken (May 1988), there were two principal consultant orthopaedic surgeons (Consultant A and Consultant B) on maximum part-time contracts. As well as individual responsibility for their own out-patient clinics and operating lists, these consultants share responsibility for the Accident and Emergency Department on an alternate daily basis. Both consultants have well-established working relationships with local general practitioners. One consultant was appointed in 1974, the other in 1982.

There is in addition a third consultant surgeon, Consultant C, based at the Nuffield Orthopaedic Centre (NOC) in Oxford who specialises in, but is by no means exclusively concerned with, paediatric cases. Consultant C has two clinic sessions per month at the HGH, but has no responsibility for Accident and Emergency work or orthopaedic trauma. This visiting consultant does not utilise any HGH surgical facilities, preferring instead

to perform all his surgical operations at the NOC. Those of his HGH out-patients who require in-patient treatment are placed on the NOC waiting list, but subsequent postoperative out-patient follow-up usually takes place at the HGH.

The Department is unusual in that there is no Orthopaedic Registrar. The national average ratio of registrars to consultants in orthopaedic surgery is 1:1.8.¹⁴ There are three Senior House Officers in Orthopaedics (two during the study period) and three in Accident and Emergency, together with a part-time Clinical Assistant.

The daytime nursing establishment on the Orthopaedic Ward is seven, typically comprising one Sister, two Staff Nurses, two Enrolled Nurses and two Nursing Auxiliaries. Nursing staff levels are reduced to four in the early evening and three, sometimes even two at night. Both principal consultants have full-time medical secretaries, while the visiting consultant has a part-time secretary. Like all orthopaedic departments, the HGH Department of Orthopaedic Surgery draws heavily upon the resources of the X-Ray, Physiotherapy and Occupational Therapy Departments.

In 1986, there were 297 orthopaedic out-patient clinic sessions, involving 6,187 attendances of which 2,050 (33.1%) were new attendances. In-patient discharges and deaths numbered 1,430 with a mean length of stay of 6.5 days. Orthopaedic operations accounted for 19.8 per cent of all operations

and comprised 837 separate procedures.¹⁵ 35 orthopaedic surgical procedures were performed as day cases. (See Table 7).

Table 7.
HGH DEPARTMENT OF TRAUMA AND ORTHOPAEDIC SURGERY.
ANNUAL PATIENT THROUGHPUT 1986.

PATIENT THROUGHPUT	
In-Patients	
Average beds available	29.70
Discharges and deaths	1430
Total on waiting list at 31.12.86	188
Average bed occupancy	86.2%
Mean length of stay	6.5 days
Surgical procedures	837
Day cases	35
Out-Patients	
Clinic sessions	297
New attendances	2050
Total attendances	6187

Source: Oxfordshire Health Authority. *Statistical Returns, Horton Unit, 1986.*

During the study period, there were 79 clinic sessions involving a total of 1498 out-patient attendances of which 449 (29.9%) were classified as new attendances. (See Table 8). Fracture clinics (25 during the study period involving 636 attendances) were excluded from the study for the reasons already stated.

Table 8.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.

TYPE OF CLINIC	NO. OF CLINICS	NEW PATIENTS	OLD PATIENTS	TOTAL PATIENTS	DID NOT ATTEND
Orthopaedic	30	184	453	637	58
Hand	14	65	86	151	14
Sports	7	18	30	48	10
Brackley*	3	13	13	26	2
Sub Total	54	280	582	862	84
Fracture	25	169	467	636	48
TOTAL	79	449	1049	1498	132

* Orthopaedic Clinic at Brackley Cottage Hospital.

The remaining 54 clinic sessions involved 862 attendances, of which 280 (32.5%) were classified as new attendances. (See Table 8). It is with these 280 new patients plus the 19 additional patients who did not attend that this retrospective study is concerned.

Table 9.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986 BY
CONSULTANT. (EXCLUDING FRACTURE CLINICS).

TYPE OF CLINIC	NO. OF CLINICS	NEW PATIENTS	OLD PATIENTS	TOTAL PATIENTS	DID NOT ATTEND
CONSULTANT A					
Orthopaedic	13	80	198	278	31
Hand	8	51	60	111	11
Sports	7	18	30	48	10
Sub Total	28	149	288	437	52
CONSULTANT B					
Orthopaedic	12	69	139	208	22
Hand	6	14	26	40	3
Brackley*	3	13	13	26	2
Sub Total	21	96	178	274	27
CONSULTANT C					
Orthopaedic	5	35	116	151	5
Sub Total	5	35	116	151	5
TOTAL	54	280	582	862	84

* Orthopaedic Clinic at Brackley Cottage Hospital.

The Referral Process

All general practitioners (GPs) within the HGH catchment area are supplied with a blue pre-printed referral form. 224 (89.2%) of GP referrals utilised this form, the remainder being typed or hand-written on personal or practice stationery. 54 GPs submitted 251 referrals, all to named consultants.¹⁶ Referrals by individual GPs during the study period ranged from 1 to 16, but given the size of the sample, it would be unwise to draw any conclusions from these data. Other studies, however, have demonstrated considerable variation in general practitioner referral rates.¹⁷ A study of 813 orthopaedic referrals by 134 general practitioners in North Staffordshire, for example, reported considerable variation in referral practices and could find no correlation between referral rates and any of the general practitioner variables including practice list size and previous orthopaedic experience.¹⁸

Long-established relationships between consultants and general practitioners are reflected in the pattern of referrals, some GPs referring exclusively to a particular consultant. Others spread the load more evenly or refer according to the particular consultant's area of specialisation. For example, one GP referred all infants to Consultant C, but referred all other cases to Consultant A. During the study period, Consultant A received the highest number of referrals and also the highest number of exclusive referrals.

Content of GP Referral Letters

Content analysis was carried out on all 251 referral letters in order to describe the amount of information provided by the GP, both clinically and in terms of the patient's disability status.

Generally, the clinical content of referral letters was regarded by the consultants as being of a fairly high standard, but few referral letters made mention of the patient's disability or handicap. Where information on the patient's personal, family, social or economic circumstances was provided which supplemented rather than replaced detailed clinical information, the consultant would often make a point of referring to the GP's "helpful" letter in the notes.¹⁹

Only 69 referral letters (27.5%) contained detailed clinical information including details of pain or disability, some mention of the functional consequences of the orthopaedic condition and the patient's social, economic or family circumstances. 124 (49.4%) gave relevant clinical information, some mention of pain or disability, but no mention of the patient's economic, social or family circumstances. The remaining 58 (23.1%) contained little clinical information and made no mention of pain, disability nor the patient's economic, social or family circumstances. (See Table 10).

Table 10.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
CONTENT OF GP REFERRAL LETTERS.

CONTENT	n	% OF TOTAL
Poor*	58	23.1
Fair**	124	49.4
Good***	69	27.5
TOTAL	251	100.0

- * Poor Little clinical information. No mention of pain or disability. No mention of the patient’s economic, social or family circumstances.
- ** Fair More detailed clinical information. Some mention of pain or disability. No mention of the patient’s economic, social or financial circumstances.
- *** Good Detailed clinical information including details of pain or disability. Some mention of the functional consequences of the orthopaedic condition and the patient’s social, economic or family circumstances.

163 referral letters (64.9%) gave some details of the patient’s previous medical history, but only 80 (31.9%) included any reference to current or previous drug therapy.

The referral form provides an area for the GP to indicate the urgency with which a consultation is sought, but in only 72 instances (28.7%) did GPs avail themselves of this facility. (See Table 11).

Table 11.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
CONTENT OF GP REFERRAL LETTERS.

CONTENT	n	% OF TOTAL REFERRALS
Previous history	163	64.9
Current/previous drug therapy	80	31.9
Graded by GP: When Convenient	29	
Graded by GP: Semi-Urgent	24	
Graded by GP: Urgent	18	
Graded by GP: Appliance Only	1	
Graded by GP: Sub Total	72	28.7

All referrals during the study period were to named consultants. Once the referral letter is received in the hospital, practice differs depending upon the particular consultant concerned. Consultant A and Consultant B both read the letters themselves and grade them "Routine", "Soon" or "Urgent" based upon the information available.

The content of GP referral letters, categorised as detailed above, was compared with the grades allocated by the consultants. The majority of GP letters were ranked "Routine" both overall (56.6%) and within each content category. However, the more detailed the content, the less likely the letter was to be graded "Routine". Consultants allocated routine grades to 73.3% of referral letters rated "Poor" in terms of content; 54.2% of those rated "Fair" and 48.3% of those rated "Good". (See Table 12).

Table 12.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
CONTENT OF GP REFERRAL LETTERS AND CONSULTANT
RANKING. CONSULTANTS A AND B ONLY. (REFERRAL LETTERS
NOT GRADED BY CONSULTANT C).

CONSULTANT RANKING	POOR*	FAIR**	GOOD***	TOTAL REFERRALS
Routine	34	58	28	120
Soon	11	40	23	74
Urgent	2	9	7	18
TOTAL	47	107	58	212

- * Poor Little clinical information. No mention of pain or disability. No mention of the patient’s economic, social or family circumstances.
- ** Fair More detailed clinical information. Some mention of pain or disability. No mention of the patient’s economic, social or financial circumstances.
- *** Good Detailed clinical information including details of pain or disability. Some mention of the functional consequences of the orthopaedic condition and the patient’s social, economic or family circumstances.

In the 61 cases where GPs took the opportunity to grade the letters themselves, the GP grade was compared with the grade subsequently allocated by the consultant.

20 of the 25 referral letters graded "When Convenient" by the GP were ranked "Routine" by the consultant, the remaining five being upgraded to "Soon". 11 of the 20 patients graded "Semi-Urgent" by the GP were ranked

"Soon" by the consultant, seven being downgraded to "Routine" and two upgraded to "Urgent". Only 8 of the 15 patients graded "Urgent" by the GP received the same grade from the consultant, three being downgraded to "Soon" and four to "Routine". (See Table 13).

Table 13.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
GP GRADING OF REFERRAL LETTERS AND SUBSEQUENT
CONSULTANT RANKING. CONSULTANTS A AND B ONLY.
(REFERRAL LETTERS NOT GRADED BY CONSULTANT C).

GP GRADING	CONSULTANT RANKING			NO. OF GP GRADED REFERRALS
	ROUTINE	SOON	URGENT	
When Convenient	20	5	-	25
Semi-Urgent	7	11	2	20
Urgent	4	3	8	15
Appliance Only	1	-	-	1
TOTAL	32	19	10	61

A good referral letter containing detailed clinical data together with relevant information on the patient’s personal, family, social or economic circumstances, gives the consultant a good "picture" of the patient and gives him some idea of the context of the orthopaedic problem. However,

as we have seen, only 27.5 per cent of GP referral letters fall into this category. (See Table 10). In the majority of cases, the consultant has insufficient information upon which to make a sound judgement, and it is here that a variety of other factors come into play.

The fact that the consultants are well-established in their posts gives some degree of stability to the referral process, but at the same time, makes it more difficult to analyse.

The consultant's knowledge and experience of the referring GP will have an important influence on the consultant's decision-making. It is likely that he will know from experience which are the highest and lowest referring GPs, which tend to over-estimate and which tend to under-estimate the severity of their patients' conditions.

The consultant will have developed an ability to compensate to some extent for the deficiencies of referral letters and have learned to "read between the lines". It is of course the case that where the consultant and the GP know each other well, much can remain unstated in the referral letter.

The experienced consultant will be able to identify many of the orthopaedic conditions from the clinical information provided and in ranking these referral letters, he will consciously or unconsciously take into

account factors such as likely outcomes and probable workload implications. Again, consciously or unconsciously, the consultant's own interests will play a part. He may, for example, be conducting his own research which might involve, as it often does, "collecting" a certain number of patients with a specific condition. Those patients apparently having that condition might therefore tend to be given earlier appointments.

It is therefore clear that while content analysis of referral letters provides some useful information, it by no means gives a comprehensive picture of the referral process.

There is an additional process of negotiation which sometimes takes place between the consultant and the general practitioner independently of the referral letter. The GP may contact the consultant where, for example, the patient is pressing the GP for an early appointment or where the patient's condition has deteriorated. Such negotiations are invariably conducted by telephone or in person and the outcome is rarely recorded. In some cases, the patient may contact the consultant directly, usually with a view to securing an earlier appointment. Again, the consultant's experience will determine his response to these pressures.

Once graded, the referral letters are sent to the hospital's Appointments Office, where the Appointments Clerks give the patient an appointment

according to the grade assigned by the consultant. Intermediate grades such as "Routine to Soon" or "Soon to Urgent", which the consultants sometimes use, are invariably interpreted as "Soon".

Consultant C does not read referral letters at the appointment stage. Instead, the Appointments Clerks allocate appointments according to pre-determined guidelines. Neonates and infants are always given an appointment for the very next clinic, reflecting this consultant's area of specialist interest. Virtually all other referrals are treated as "Routine" and appointments given on a "first come, first served" basis.

The grade allocated by the consultant has important consequences for the patient in terms of the amount of time he or she has to wait for an appointment. Patients graded "Routine" during the study period had to wait up to 11 weeks for an appointment with Consultant A and up to 30 weeks with Consultant B. "Soon" grades involved waiting times of up to 10 weeks and 12 weeks respectively. Those given "Urgent" grades had to wait a maximum of 2 weeks for an appointment with Consultant A and 4 weeks with Consultant B.

Mean waiting times for a routine appointment during the study period were 6.6 weeks in the case of Consultant A, 16.9 weeks for Consultant B and 17.9 weeks for Consultant C. (See Table 14).

Table 14.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
CONSULTANT RANKING OF REFERRAL LETTERS AND
SUBSEQUENT WAITING TIMES FOR FIRST OUT-PATIENT
APPOINTMENT.

CONSULTANT RANKING	NO. OF REFERRALS	% OF REFERRALS	WAITING TIMES (WEEKS)	
			RANGE	MEAN
CONSULTANT A				
Routine	54	43.5	3-11	6.6
Soon	58	46.8	2-10	4.8
Urgent	11	8.9	1-2	1.5
Undated*	1	0.8		
Sub Total	124	100.0		
CONSULTANT B				
Routine	65	73.9	5-30	16.9
Soon	16	18.2	3-12	7.1
Urgent	7	7.9	1-4	2.7
Sub Total	88	100.0		
CONSULTANT C				
Routine**	31	79.5	4-29	17.9
Urgent	8	20.5	1-2	1.5
Sub Total	39	100.0		

* Undated referral letter ranked Routine by Consultant.

** All letters ranked routine except neonates and infants which were always ranked urgent. No intermediate rankings.

The Patients

The sample comprised 170 males and 129 females. Overall, the 20-29 year age group accounted for the highest number of patients. For males, the peak age range was 20-29 with sub-peaks at 10-19 and 40-49. For females, the peak age range was 50-59 with sub-peaks at 20-29 and 70-79. (See Table 15).

Table 15.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
NEW PATIENTS BY AGE AND SEX.

AGE AT 31/12/86	MALES	FEMALES	TOTAL
0-09	14	8	22
10-19	30	12	42
20-29	31	17	48
30-39	21	12	33
40-49	28	17	45
50-59	17	22	39
60-69	18	14	32
70-79	9	18	27
80-89	2	8	10
90-99	0	1	1
TOTAL	170	129	299

The younger bias of the sample might be seen as reflecting the "gatekeeping" function of general practitioners manifested as a decreasing tendency to refer the elderly with chronic orthopaedic problems. However, trauma (phalangeal and metacarpal fractures, knee injuries and miscellaneous lacerations) accounted for almost half of the males in the 10-19 and 20-29 age ranges.

Amongst women, the age ranges 40-49 and 50-59 accounted for 30.2 per cent of patients. Women in these age groups are particularly vulnerable to a range of orthopaedic conditions including post-menopausal bone loss.²⁰ The prevalence of rheumatoid arthritis in adults, for example, is 3 per cent of women and 1 per cent of men.²¹ The predominance of women in the over 70 age ranges simply reflects the age structure of the population.

Default Rates

The non-attendance rates, both for new patients (See Table 16) and out-patients as a whole (8.1 per cent)²² were significantly lower than the default rates of 20-25 per cent for orthopaedic patients usually cited in the literature.^{23,24}

Table 16.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
NEW PATIENTS AND NON-ATTENDANCE RATES BY CONSULTANT.

CONSULTANT	REFERRALS			DID NOT ATTEND	
	GP	OTHER	TOTAL	NO.	%
Consultant A	124	30	154	5	3.3
Consultant B	88	18	106	10	9.4
Consultant C	39	-	39	4	10.3
TOTAL	251	48	299	19	6.4

There is no obvious explanation for this apparent high level of patient compliance. It is tempting to suggest that it might again reflect an increased tendency on the part of general practitioners to function as "gatekeepers", selectively referring only those patients most likely to benefit from treatment, but, as we shall see, in almost 20 per cent of cases, the consultant found that, at attendance, no treatment of any kind was indicated.²⁵

Patients who do not attend are automatically given a second appointment. If they fail to keep this second appointment, the GP is informed and usually no further appointments are made except at the subsequent specific request of the GP.

Of the 19 patients who failed to attend their first out-patient appointment, 9 (47.4%) attended a subsequent consultation. Only 10 patients, therefore, of the 299 given a first out-patient appointment during the study period, failed to attend at all, giving an overall default rate of only 3.34 per cent.

Some patients attended their first consultation, however, but defaulted at a subsequent stage in the process. Two patients failed to attend for operations and three did not keep follow-up appointments following in-patient treatment. (See Table 17).

Table 17.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
DEFAULTERS*

STAGE AT WHICH DEFAULTED	n
First appointment	10
Second appointment	6
Third appointment	8
Fourth appointment	2
Sixth appointment	1
Admission as an in-patient	2
Follow-up appointment after surgery	3

* Patients who failed to attend for both the appointment stated and for any subsequent appointments.

Orthopaedic Conditions

Case notes for each of the 299 patients in the study were analysed in order to establish the orthopaedic conditions for which the patients had been referred.

Consultant diagnoses were used wherever possible. However, in those cases where no consultant diagnosis was made, such as where the patient did not attend or where no abnormality was found at attendance, then the general practitioner’s provisional diagnosis or description was used.

Table 18.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
NEW PATIENTS BY ORTHOPAEDIC CONDITION FOR WHICH
REFERRED (INCLUDES PATIENTS WHO DID NOT ATTEND).

MOST COMMON CONDITIONS	n
Osteoarthritis of the hip	27
Osteoarthritis of the knee	22
Fractured phalanx or metacarpal	20
Sciatic nerve root compression	17
Carpal tunnel syndrome	15
Torn or unstable meniscus of knee	14
"Painful knee". No abnormality found.	13
TOTAL	128

The single most common presenting condition was osteoarthritis of the hip, followed by osteoarthritis of the knee. Osteoarthritis at all sites accounted for 19.7 per cent of all conditions (See Table 19).

Table 19.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
NEW PATIENTS BY ORTHOPAEDIC CONDITION FOR WHICH
REFERRED (INCLUDES PATIENTS WHO DID NOT ATTEND).

OSTEOARTHRITIS BY ANATOMICAL LOCATION	n
Hip	27
Knee	22
Hand/Wrist	4
Forearm/Elbow	2
Neck/Spine	2
Ankle/Foot	2
TOTAL	59

Although there were as many as 106 presenting conditions,²⁶ the seven most common conditions accounted for 42.8 per cent of the total. In terms of anatomical location, disorders of the hand/wrist, knee and ankle/foot accounted for 64.9 per cent of all conditions. (See Table 20).

Table 20.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
NEW PATIENTS BY ORTHOPAEDIC CONDITION FOR WHICH
REFERRED (INCLUDES PATIENTS WHO DID NOT ATTEND).

SUMMARY BY ANATOMICAL LOCATION	n
Hand/Wrist	85
Knee	62
Ankle/Foot	47
Neck/Spine	39
Hip/Thigh	32
Forearm/Elbow	9
Upper Arm/Shoulder	8
Lower Leg	7
Miscellaneous	10
TOTAL	299

Consultant Action/Treatment

During the study period, 280 new patients attended their first appointment at HGH orthopaedic out-patient clinics. Of the further 19 patients who did not keep their first appointments, 9 attended subsequent clinics. Details of all consultations are recorded in the case notes. Case notes for each of the 289 patients were analysed in order to determine the actions taken by the consultant. (See Table 21).

Table 21.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
CONSULTANT TREATMENT.

CONSULTANT TREATMENT	n
In-patient waiting list ¹	102
No action ²	57
Review only ³	43
Physiotherapy and review ⁴	22
Appliance and review	14
Investigations and review	10
Drug Treatment, physiotherapy and review	7
Appliance only	6
Drug treatment, appliance and review	5
Physiotherapy only	4
Drug treatment only	3
Drug treatment and review	3
Drug treatment and physiotherapy	3
Referred back to GP	3
Private operations ⁵	2
Drug treatment, investigations, physiotherapy & review	2
Drug treatment, investigations and review	1
Investigations, physiotherapy and review	1
Drug treatment, investigations, appliance and review	1
Sub Total	289
Did not attend at all	10
TOTAL	299

- 1
- Includes 6 patients placed on the in-patient waiting list at a later date following a period of conservative treatment.
- 2
- Includes simple advice and reassurance. Includes 5 patients who attended an appointment other than their first.
- 3
- Includes 2 patients who attended an appointment other than their first.
- 4
- Includes 2 patients who attended an appointment other than their first.
- 5
- Patients who attended as NHS out-patients but opted to have their operations performed privately.

96 patients were placed on the in-patient waiting list at their first consultation. A further six patients were placed on the waiting list at a later date, following a period of conservative treatment. One additional patient was placed on the list following re-referral for the same condition, but to a different consultant. A further two patients required operations, but elected to have them performed privately. This conversion rate of 36.3 per cent of all attendances is significantly higher than the 20 per cent suggested by Fordham²⁷ and reflects the "quality" of cases referred, adding weight to the concept of the general practitioner as "gatekeeper".

73 patients (25.3%) were discharged after the first consultation, a significantly lower figure than those usually cited in the literature. In Fordham's 1986 study of orthopaedic referrals within the Yorkshire Regional Health Authority,²⁸ for example, approximately 80 per cent of orthopaedic patients did not progress further in the system than the initial specialist consultation.

In the majority of cases where the patient was discharged after the first consultation, no action of any kind was taken by the consultant. In 57 cases (19.7% of all attendances) no consultant action was taken other than simple advice and reassurance. This was usually because no abnormality was found at attendance, due to spontaneous resolution of the orthopaedic problem.

It has been argued that this apparent waste of clinic time and consultant expertise is in part a "by product" of long waiting times. General practitioners are often aware that many of their patients' orthopaedic problems are likely to resolve spontaneously, but being mindful of the long waiting times for a consultant appointment, their referral threshold is lowered. They therefore refer early in case the condition fails to resolve in a way that would be unnecessary if waiting times were significantly shorter.²⁹ Conversely, it is feasible that long waiting times may encourage the GP to attempt to treat the condition without referring the patient, but there is no evidence to support this view.

A range of other actions is available to the consultant including the prescription of physiotherapy. 39 patients in the study (13.5%) received physiotherapy, either on its own or in combination with other treatment. There have been a number of studies^{30,31} of direct general practitioner access to physiotherapy, which was strongly recommended in the Duthie Report.³² Norman *et al*, for example, found that open general practitioner access to the physiotherapy department of a District General Hospital reduced waiting time and saved consultant time.³³

The prescription of appliances is another area where arguments have been put forward for direct general practitioner access.³⁴ 26 patients in the study (9%) were prescribed appliances, either alone or in combination with other treatment.

The prescription or administration of drugs, either alone or in combination with other treatment was used by the consultants in 25 cases (8.7%). It is reasonable to suppose that in many cases, general practitioners would already have prescribed courses of drug treatment prior to referral, but as we have seen, more than two-thirds of referral documents did not contain this information.³⁵

Drug treatment prescribed by the consultant consisted mainly of a course of non-steroidal anti-inflammatory drugs (NSAIDS), already, theoretically, available from the general practitioner. In four cases, the consultant administered a specific drug by single injection into a joint, for example hydrocortisone to relieve frozen shoulder, a treatment, again, theoretically available from the general practitioner.

Three patients in the study were referred back to the general practitioner. In one case, the consultant indicated that surgery was not indicated and that the treatment the patient was already receiving from the general practitioner was quite adequate. In another case, the patient was severely obese and the consultant indicated that surgery could not be contemplated without drastic weight reduction under the supervision of the GP.

In the third case, the patient required surgery, but for personal reasons wanted it to be performed in Oxford. The consultant concerned (Consultant B), in accordance with established protocol, referred the

patient back to the general practitioner for re-referral to Consultant C. This patient was subsequently seen by Consultant C and placed on the NOC waiting list.

As many as 66 patients (22.8%), therefore, received treatment that was either routinely available from their general practitioner or that arguably could be provided by their general practitioner. Together with the 57 cases where no treatment at all was indicated, this far from optimum use of consultant time accounted for 42.6 per cent of all new cases seen during the study period.

Another 43 patients (14.9%) received no treatment but were asked to return at a specified future date for review. This group mainly consisted of patients for whom surgery was not indicated at the time but who might eventually require it, as well as patients presenting with conditions which in the consultant's opinion would probably resolve without treatment, but where surgery or other treatment might be needed if the problem did not resolve.

15 patients (5.2%) were referred by the consultant for investigations. These included additional x-rays, venograms, computed tomography scans, nerve conduction studies and referrals for opinions from rheumatologists, anaesthetists, consultants in rehabilitation medicine, physicians and general surgeons.

Surgical Procedures

As we have already seen, 105 patients (36.3 per cent of those attending during the study period) required surgery.³⁶ Two patients elected to have their operations performed on a private basis and the remainder were placed on the in-patient waiting list. The distribution of surgical procedures by anatomical location reflected more or less the distribution of presenting conditions. Only the neck/spine region differed substantially, highlighting the relative lack of surgical solutions to problems in this area, particularly in the cervical spine. (See Table 22).

Table 22.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
COMPARISON BETWEEN ORTHOPAEDIC CONDITION FOR WHICH
REFERRED AND SURGICAL PROCEDURES FOR WHICH PLACED
ON WAITING LIST. SUMMARY BY ANATOMICAL LOCATION.

ANATOMICAL LOCATION	CONDITIONS		OPERATIONS	
	n	%	n	%
Hand/Wrist	85	28.5	35	33.3
Knee	62	20.7	20	19.1
Ankle/Foot	47	15.7	19	18.1
Neck/Spine	39	13.1	6	5.7
Hip/Thigh	32	10.7	18	17.1
Forearm/Elbow	9	3.0	1	1.0
Upper Arm/Shoulder	8	2.7	2	1.9
Lower Leg	7	2.3	4	3.8
Miscellaneous	10	3.3	-	-
TOTAL	299	100.0	105	100.0

The most common operation was total hip replacement (17.1 per cent of all operations), followed by carpal tunnel decompression (15.2 per cent of all operations). (See Table 23).

Table 23.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
NEW PATIENTS BY SURGICAL PROCEDURE FOR WHICH PLACED
ON IN-PATIENT WAITING LIST. MOST COMMON SURGICAL
OPERATIONS.

SURGICAL PROCEDURE	n
Total hip replacement	18
Carpal tunnel decompression	16
Arthroscopy	8
Fasciectomy in Dupuytren's contracture	6
Laminectomy/root canal decompression	6
Removal of ganglion/cyst from hand/wrist	5
TOTAL	59

Although there were as many as 34 separate surgical procedures,³⁷ the six most common operations accounted for 56.2 per cent of all procedures. Only six operations (5.7 per cent) were performed on a day case basis. (See Table 24). All of these procedures were carried out by Consultant B.

Table 24.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
SURGICAL DAY CASES.

SURGICAL PROCEDURE	n
Carpal tunnel decompression	3
Arthroscopy	1
Excision of exostosis from hallux	1
Excision of foreign body from heel	1
TOTAL	6

In a report published in 1985,³⁸ the Royal College of Surgeons proposed that day surgery should become the normal method of dealing with all minor surgical conditions. The Report contained a list of elective operations that could eventually be undertaken as day cases.

52 surgical procedures (49.5%) in the study fell within these guidelines, but, as we have seen, only six operations were actually performed as day cases. The Royal College’s guidelines applied to more than half (62.7%) of the most common operations - carpal tunnel decompression (eighteen cases in the study), simple arthroscopy (eight cases), fasciectomy in Dupuytren’s contracture (six cases) and removal of ganglion/cyst from hand/wrist (five cases) - yet only four of these were actually performed on a day case basis.

It should be stressed that the Royal College of Surgeons' recommendations are controversial and many surgeons are opposed to the principle of day surgery. Consultant A, for example, does not perform any day surgery, preferring instead to admit all patients the evening before their operation for assessment and to keep them under observation during their first post-operative night.

At 31st May 1988, eight of those patients attending during the study period were still waiting for their operations. Five of these patients had been placed on the in-patient waiting list at a later date following a period of conservative treatment. (See Table 25).

Table 25.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
SURGICAL PROCEDURES FOR WHICH PATIENTS STILL WAITING
AT 31ST MAY 1988 BY CONSULTANT.

CONSULTANT	SURGICAL PROCEDURE	CASES
A	Flexor to extensor transfer ¹	1
B	Total hip replacement ²	1
C	Arthroscopy	1
C	Total hip replacement ³	1
C	Release of posterior tibial nerve ⁴	1
C	Total knee replacement ⁵	3
	TOTAL	8

- 1
- Placed on waiting list 16/2/87 following period of conservative treatment.
- 2
- Placed on waiting list 12/11/87 following period of conservative treatment.
- 3
- Placed on waiting list 10/9/87 following period of conservative treatment.
- 4
- Placed on waiting list 26/3/87 following period of conservative treatment.
- 5
- One case placed on waiting list 22/1/87 following re-referral.

Eleven operations were cancelled, the most common reason being that at admission, the condition was found to have resolved. (See Table 26).

Table 26.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
CANCELLED OPERATIONS.

REASON FOR CANCELLATION	CASES
Patient admitted but condition resolved	5
Patient admitted but surgery contraindicated	2
Patient failed to attend	2
No reason shown in notes	2
TOTAL	11

14 of the 105 surgical procedures were performed or planned by Consultant C at the NOC. (See Table 27). 6 of the 8 patients still waiting for their operations at 31st May 1988 were on the NOC waiting list.

Table 27.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
SURGICAL PROCEDURES PERFORMED OR PLANNED AT THE
NUFFIELD ORTHOPAEDIC CENTRE.

SURGICAL PROCEDURE	NO. OF CASES
Total hip replacement	4
Total knee replacement	4
High tibial osteotomy	2
Arthroscopy	1
Medial meniscectomy	1
Carpal tunnel decompression	1
Release of posterior tibial nerve	1
TOTAL	14

Waiting Times and Length of Patient "Careers"

We have already seen that waiting times for a first out-patient appointment during the study period ranged from 1 week to 30 weeks depending upon the consultant and the grade assigned to the referral letter.³⁹ Mean waiting time for a first out-patient appointment overall was 9.8 weeks. (See Table 28).

Table 28.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
MEAN WAITING TIMES FOR FIRST OUT-PATIENT APPOINTMENT
BY CONSULTANT.

CONSULTANT	MEAN WAITING TIME*
Consultant A	5.27 weeks
Consultant B	14.01 weeks
Consultant C	14.59 weeks
All Consultants	9.80 weeks

* From date of referral to first out-patient appointment. Includes patients who did not attend. Excludes all non-GP referrals.

However, except for those 73 patients who did not progress further in the system than the initial specialist consultation,⁴⁰ this represented the beginning rather than the end of the process. For the majority of patients, further attendances were involved and for those placed on the in-patient waiting list, a wait of from 1 to 34 weeks and a hospital stay of from less

than 1 day to 40 days were usually followed by a further period as an out-patient. Total out-patient clinic attendances per patient (including follow-up appointments following hospital treatment as an in-patient) ranged from 1 to 8 attendances. Mean attendances per patient were 2.19. (See Table 29).

Table 29.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
TOTAL ATTENDANCES AND MEAN ATTENDANCES BY CONSULTANT.

NUMBER OF ATTENDANCES	CONSULTANT			
	A	B	C	ALL
1	60	40	15	115
2	42	31	15	88
3	21	17	4	42
4	12	7	1	20
5	8	4	2	14
6	6	-	-	6
7	2	1	-	3
8	1	-	-	1
Sub Total	152	100	37	289
Did not attend*	2	6	2	10
TOTAL PATIENTS	154	106	39	299
MEAN ATTENDANCES PER PATIENT	2.32	2.08	1.92	2.19

* Patients who did not attend at all.

For those patients placed on the in-patient waiting list, mean waiting time from the date placed on the list to admission was 22.68 weeks. (See Table 30). For these patients, however, waiting time was in effect a cumulation of two successive queues and the more meaningful statistic of mean waiting time from date of referral was 35.47 weeks. (See Table 31).

Table 30.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
RANGE AND MEAN WAITING TIME FROM DATE PLACED ON IN-
PATIENT WAITING LIST TO ADMISSION* BY CONSULTANT.

CONSULTANT	WAITING TIME (WEEKS)	
	RANGE	MEAN
Consultant A	1-67	18.36
Consultant B	1-42	15.70
Consultant C	20-84	53.77
All Consultants	1-84	22.68

* To 31/5/88 if still waiting for admission at that date.

Total patient "careers" from date of referral to final discharge ranged from 1 to 110 weeks. The mean length of patient career during the study period was 27.45 weeks. (See Table 32).

Table 31.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
RANGE AND MEAN WAITING TIME FROM DATE OF REFERRAL*
TO ADMISSION BY CONSULTANT.**

CONSULTANT	WAITING TIME (WEEKS)	
	RANGE	MEAN
Consultant A	4-84	25.90
Consultant B	7-91	31.57
Consultant C	31-110	74.77
All Consultants	1-110	35.47

* From date of Accident and Emergency incident if not referred by GP.

** To 31/5/88 if still waiting for admission at that date.

Table 32.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
RANGE AND MEAN LENGTH OF PATIENT CAREER FROM DATE OF
REFERRAL* TO DISCHARGE BY CONSULTANT.**

	CONSULTANT			
	A	B	C	TOTAL
Range (Weeks)	1-84	1-93	1-110	1-110
Mean (Weeks)	22.78	26.88	47.33	27.45

* Or date of Accident and Emergency incident.

** To date of last appointment if defaulter or to 31/5/88 if still waiting for admission.

For those patients placed on the in-patient waiting list and admitted before 31st May 1988 (excluding day cases), hospital stay varied from 1 to 40 days. Mean length of stay overall was 7.90 days, but there were significant differences between the consultants. (See Table 33).

Table 33.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
RANGE AND MEAN LENGTH OF HOSPITAL STAY* BY
CONSULTANT.

CONSULTANT	LENGTH OF STAY (DAYS)	
	RANGE	MEAN
Consultant A	1-36	6.53
Consultant B	1-40	9.00
Consultant C	3-23	12.25
All Consultants	1-40	7.90

* Excludes day cases and patients still waiting at 31/5/88.

If we look at mean waiting times, mean length of patient careers, mean length of hospital stay and mean number of out-patient attendances for the most common surgical procedure, total hip replacement, this serves to highlight both the long waiting times involved and the variations between consultants. (See Table 34).

Table 34.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
MEAN WAITING TIMES, MEAN LENGTH OF PATIENT CAREERS,
MEAN LENGTH OF HOSPITAL STAY AND MEAN NUMBER OF OUT-
PATIENT ATTENDANCES FOR TOTAL HIP REPLACEMENT BY
CONSULTANT.

	CONSULTANT			
	A	B	C	ALL
Mean waiting time 1 (weeks) ¹	5.12	15.33	15.50	10.83
Mean waiting time 2 (weeks) ²	28.88	20.17	50.50	30.78
Mean waiting time 1 + 2 (weeks) ³	34.00	35.50	66.00	41.61
Mean length of patient career (weeks) ⁴	51.29	58.14	86.50	61.78
Mean length of hospital stay (days)	20.33	21.50	18.00	20.33
Mean number of out-patient attendances ⁵	2.88	2.57	2.50	2.68

- 1
- From date of referral to first out-patient appointment.
- 2
- From date placed on waiting list to admission or to 31st May 1988 if still waiting.
- 3
- From date or referral to admission or to 31st May 1988 if still waiting.
- 4
- From date of referral to date of discharge or to 31st May 1988 if still waiting or to date of last appointment if defaulter.
- 5
- Includes follow-up appointments after a period in hospital as an in-patient.

Consultant Performance

It is clear that the workload of all three consultant orthopaedic surgeons during the study period was substantial. However, significant differences between the consultants also emerged from the study.

Direct comparisons between the three consultants are impossible, for Consultant C is based at the Nuffield Orthopaedic Centre, performs all his surgery there and only holds two HGH clinic sessions per month. Nevertheless, it is clear that patients referred to Consultant C, with the exception of neonates and infants, faced on average the longest waiting times for a first out-patient appointment (range 4-29 weeks; mean 17.9 weeks).⁴¹ Consultant C's patient careers were the longest in the study (1-110 weeks; mean 47.33 weeks)⁴² and those placed on the NOC waiting list experienced the longest in-patient waiting times (20-84 weeks; mean 53.77 weeks).⁴³ Six of the eight patients still waiting for their operations at 31st May 1988 (75%) were on the NOC waiting list.⁴⁴

If we compare the performance of the two principal consultants (Consultant A and Consultant B) during the three month study period, we find considerable variations.

Consultant A received the highest number of GP and other referrals and the highest number of exclusive GP referrals. He held more clinic sessions

during the study period than Consultant B, saw more patients and had a lower default rate. Mean waiting time for a routine appointment with Consultant A was significantly lower than with Consultant B and for in-patients mean waiting time from referral to admission was also less. (See Table 35).

Table 35.
HGH OUT-PATIENT CLINICS. OCTOBER-DECEMBER 1986.
CONSULTANT PERFORMANCE.

	CONSULTANT	
	A	B
GP referrals	124	88
Exclusive GP referrals	35	20
Other referrals	30	18
Default rate ¹	3.3%	9.4%
Number of clinics ²	28	21
Total patient attendances	437	274
Total new patient attendances	149	98
Mean waiting time for routine out-patient appointment	6.6 weeks	16.9 weeks
Mean waiting time for routine in-patient admission ³	25.90 weeks	31.57 weeks

- 1
- Patients not attending first appointment as a percentage of all referrals.
- 2
- Excluding fracture clinics.
- 3
- From date of referral to date of admission or to 31st May 1988 if still waiting.

These differences reflect the differing views and practices of the two consultants. Consultant B strictly limits out-patient appointments to a maximum of eight new patients per clinic session - five routine cases, one "soon", one urgent and one very urgent case. Consultant B's policy is to limit attendances to those patients whom he can reasonably expect to operate upon within three to six months. This gives him the flexibility, for example in the case of a candidate for a total hip replacement, to review the patient in six months time, knowing that if the condition has deteriorated, the patient faces only a further three month wait for surgery.

By contrast, Consultant A sees as many new patients as possible, as soon as possible. There is no attempt to restrict new out-patient appointments and patient numbers are limited only by the maximum capacity of the clinic. Waiting time for a routine appointment with Consultant A is therefore significantly lower than that for a routine appointment with Consultant B.

A long wait for a first out-patient appointment has the advantage, from the consultant's point of view, of making the referring general practitioner consider carefully the need for referral and review any alternatives that may be available. Long out-patient waiting time may also reduce ultimate demand on clinic capacity by deterring likely defaulters and by eliminating from the system those whose condition may spontaneously resolve during the intervening period. It may also help to keep in-patient waiting times

shorter since the flow of patients onto the in-patient waiting list is more controlled and more selective. Although more convenient to the hospital, this policy reduces the patient's ability to seek a specialist opinion at the earliest opportunity.

Shorter out-patient waiting times, on the other hand, allow the patient to be seen more quickly by an orthopaedic specialist. This means that the condition is less likely to deteriorate whilst waiting and is clearly advantageous in the case of those patients who do not proceed to the in-patient waiting list. However, if this policy results in highly unselected referrals, then it may eventually increase out-patient waiting time due to sheer volume. High levels of out-patient activity, with more clinical time devoted to out-patients, can also, of course, lead to increased in-patient waiting times. As in-patient waiting lists increase in volume, they become less manageable thus increasing the possibility that the conditions of patients may change before admission occurs. This will ultimately cause delays and defaults on invitations for admission.

Summary

This retrospective study has provided some insights into the delivery of orthopaedic care at the level of the District General Hospital. The study has yielded a wide cross-section of patients of all ages, presenting with a broad range of orthopaedic problems. Above all, it has provided an

overview of the processes involved in the provision of hospital-based orthopaedic care and the various stages through which patients pass from initial referral to eventual discharge.

In common with much of the literature, this study has confirmed that for the majority of patients, progress through the system is extremely slow. Mean waiting time for a first out-patient appointment was 9.8 weeks, with a range from 1 to 30 weeks, depending on the consultant and the grade assigned to the GP referral letter. Mean waiting time for subsequent in-patient treatment was 22.68 weeks from the date placed on the waiting list to admission and total patient "careers" from date of referral to final discharge ranged from 1 to 110 weeks, with a mean length of 27.45 weeks. Hospital case notes, from which the majority of the data in this study was obtained, do not of course record the length of time that patients waited before consulting their general practitioner, nor do they indicate the interval, if any, between the first GP consultation and the date of referral.

In contrast to other studies, this study has highlighted the "quality" of general practitioner referrals, reflected in the high conversion rate of out-patients into in-patients (36.3 per cent) and the high level of out-patient attendance, with default rates as low as 3.34 per cent.

Content analysis of GP referral letters has demonstrated the deficiencies of the referral process and has shown that in the majority of cases, the

consultant is unaware of the disability status of those on his out-patient waiting list. The only information available to the consultant is usually contained within the referral document and it is on the basis of this often inadequate information that the patient is given an appointment on an urgent/non-urgent scale.

The study has shown that little is known about patients waiting for their first out-patient appointment, even clinically. Still less is known of the levels of pain or disability in these patients or of the impact of their orthopaedic problem on their personal, family, social or economic circumstances.

This retrospective study points to the need for further research into levels of disability and handicap in patients on orthopaedic waiting lists, into patient satisfaction with waiting times and into the strategies employed by patients for coping with long out-patient and in-patient waiting times.

FOOTNOTES
CHAPTER THREE

- 1 Crossley A (ed). *The Victoria History of the County of*
2 *Oxfordshire. Volume X: Banbury Hundred*. London: University
3 of London Institute of Historical Research, 1972.
- 4 *ibid.*
- 5 *ibid.*
- 6 Oxfordshire District Health Authority.
- 7 Crossley A. *op. cit.*
- 8 *ibid.*
- 9 *ibid.*
- 10 *ibid.*
- 11 Stacey M. *Tradition and Change: a study of Banbury*. Oxford:
12 Oxford University Press, 1960.
- 13 Stacey M, Batstone E, Bell C, Murcott A. *Power, persistence*
14 *and change: a second study of Banbury*. London: Routledge
15 and Kegan Paul, 1975.
- 16 38,588 at 30 June 1988. Cherwell District Council.
- 17 Oxfordshire District Health Authority.
- 18 Oxfordshire District Health Authority.
- 19 Royal College of Surgeons of England. Commission on the
Provision of Surgical Services. *Report of the Working Party on*
the Composition of a Surgical Team - General Surgery,
Orthopaedics and Otolaryngology. London: Royal College of
Surgeons, 1988.
- Oxfordshire Health Authority, Horton Unit. *Annual Theatre*
Statistics 1986. Internal Memorandum, 1987.
- See Appendix A. Table A.
- Kerr TS. *op. cit.*
- Ross AK *et al. op. cit.*
- See Appendix B for examples of referral letters.

- 20 Stevenson JC, Whitehead MI. *op. cit.*
- 21 Muckle DS. *An outline of orthopaedic practice*. Bristol: John Wright and Sons, 1986.
- 22 See Table 8 p.121.
- 23 West RR, McKibbin B. *op. cit.*
- 24 Ross AK *et al. op. cit.*
- 25 See Table 20 p.139.
- 26 See Appendix A. Table B.
- 27 Fordham R. *Options in Orthopaedics: Managing orthopaedic waiting lists*. 1987. *op. cit.*
- 28 *ibid.*
- 29 Oswald NTA. *op. cit.*
- 30 Ellman R *et al. op. cit.*
- 31 Fordham R, Hodgkinson C. *A Cost-Benefit Analysis of Open Access to Physiotherapy for G.P.s*. Discussion Paper. York: University of York Centre for Health Economics, 1987.
- 32 DHSS. *Orthopaedic Services. op. cit.*
- 33 Norman P *et al. op. cit.*
- 34 DHSS. *Orthopaedic Services. op. cit.*
- 35 See Table 11 p.126.
- 36 See Table 21 p.140.
- 37 See Appendix A. Table C.
- 38 Royal College of Surgeons of England. *Guidelines for Day Case Surgery. op. cit.*
- 39 See Table 14 p.132.
- 40 See Table 21 p.140.

- 41 See Table 14 p.132.
- 42 See Table 32 p.153.
- 43 See Table 30 p.152.
- 44 See Table 25 p.148.

CHAPTER FOUR

ANATOMY OF AN ORTHOPAEDIC

IN-PATIENT WAITING LIST

CHAPTER FOUR

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Introduction

The retrospective study which formed the basis of the previous chapter demonstrated that little is known of the disability status of patients on orthopaedic waiting lists; disability status being rarely recorded on referral documents or in clinical records. Still less is known of the levels of pain in these patients, of the problems they may have in carrying out basic activities of daily living or of the impact of their orthopaedic problem on their personal, family, social and economic circumstances.

This chapter will seek to establish the extent of disability and handicap in patients waiting for orthopaedic treatment at the Horton General Hospital. It reports on a postal survey of all adult patients (18 years and over) listed as waiting for orthopaedic in-patient treatment at 28 February 1990.

Qualitative and quantitative data were obtained from a 24-page questionnaire which was divided into three sections. Section One comprised questions about the orthopaedic condition itself, waiting time, consultations, out-patient attendances, patient satisfaction and coping. Section Two incorporated three well-validated standard measuring instruments - the Barthel ADL Index¹, the HAD Scale² and the Frenchay Activities Index³ - as well as additional questions about pain (including a visual analogue scale), pain frequency, pain relief, sleep, mobility, employment, sex life, family and physical dependents. Section Three

consisted of questions designed to establish social class on the basis of occupation, together with questions on marital status, private health insurance, education, accommodation and income.

Methodological Considerations

The orthopaedic waiting list is physically stored as individual patient cards in card index trays in the Admissions Section of Medical Records. Cards are filed by surgeon and further divided into sub-sections which differ between the two consultants. Consultant A separates total hip replacements and total knee replacements from his general list, while Consultant B separates only day cases. Consultant A performs no day case surgery, Consultant B performs no total knee replacements. Within each sub-section, cards are filed by chronological waiting time. Within each surgeon's waiting list are the additional categories of Pending, Planned and Booked Admissions. Patients in these categories are not officially on the waiting list and are not included in the hospital's waiting list statistics.

The Pending category comprises patients for whom surgery is indicated, but has been deferred. This may be because the patient has requested admission to be deferred until after a certain date due to holiday or work commitments. It may be because the patient is being treated for another medical condition such as hypertension where surgery is contraindicated until the condition is controlled. It may be because the patient is pregnant

or is required to lose weight before surgery can be contemplated. It may be because the results of certain diagnostic tests or treatments are awaited, but where surgery is likely to be required.

The Planned category comprises those patients for whom surgery forms part of a planned sequence of events and for whom the date of admission is pre-determined by their condition. This category includes, for example, patients who have had plates or screws inserted in fractured bone which subsequently need to be removed after a certain clinically appropriate time.

In theory, patients in these categories are regularly reviewed and where and when appropriate, moved onto the main waiting list. In practice, review is not as regular as it should be and patients tend to remain in these categories for longer than necessary. Moreover, when these patients are moved onto the main waiting list, their waiting period is deemed to have commenced at that time and they therefore join the rear of the queue. Many of these patients are unaware of the administrative categories involved and regard themselves as having waited for longer periods than technically is the case.

The third, numerically small, Booked Admissions category comprises those patients who have been given a firm date for admission. In the majority of cases, these are patients who had previously been on the waiting list, been

given an admission date, but whose operation had subsequently been cancelled.

The orthopaedic waiting lists were "cleaned" by the Admissions Department in November 1989. All addresses on cards, many of which were incomplete, were cross-checked with computer records and postcodes added from Postcode Directories prior to mailing. Details of time on the waiting list, age, sex and name of surgical procedure for each patient were obtained from the hospital case notes.

256 questionnaires, together with personally addressed, individually signed covering letters on the hospital notepaper and stamped addressed pre-printed envelopes were mailed via the hospital bearing the official franking label. All subsequent reminders, three in all, were also personally addressed and individually signed. The study was carried out according to the following timetable:

28/02/90	Questionnaires mailed
28/03/90	Telephone reminders (if numbers available)
17/04/90	First written reminders
12/05/90	Second written reminders
12/06/90	Third written reminders
12/06/90	Second telephone reminders
30/06/90	Closed

Sample copies of the questionnaires, covering letters and reminders are to be found in Appendix C.

Throughout this chapter, quantitative data are presented on the relationship between selected groups of variables from the questionnaire. All data from the questionnaire were pre-coded and analysed on an Epson PC AX3s Personal Computer using SPSS/PC+ Version 4.0.1.

Cross-tabulated data are accompanied by two summary statistics, a measure of association (Cramer's V) and a test of statistical significance. Measures of association provide a quantitative indicator of how strongly two variables are related to each other and indicate, in probability terms, the extent to which certain characteristics of the sample occur together.

Measures of association like Cramer's V, however, only indicate how strongly two variables are associated amongst the respondents actually studied. In order to infer something about a relationship amongst the wider population from which the sample is drawn, it is necessary to test whether or not the association is simply due to chance factors, that is the particular characteristics of the sampled respondents, or whether the observed association is likely to exist in the wider population. Consequently, it is normal practice to carry out a test of statistical significance.

The significance levels and measures of association detailed in this chapter are based on the Chi-Square (χ^2) test of statistical significance. As with all significance tests, the Chi-Square test allows one to estimate the probability of an association of the strength observed occurring in a representative sample of a given size.

Most tests of statistical significance start from the assumption that no association exists between the variables examined. The Chi-Square test proceeds by calculating the frequencies for each cell in the table which would be expected if the assumption of no association were in fact true. These expected frequencies are then compared with the observed frequencies in the sample data. Small deviations between observed and expected frequencies will always be produced by chance alone, but large deviations, that is large values of Chi-Square, are, however, unlikely.

The significance level accompanying cross-tabulated data tables in this chapter refers to the probability of the difference between observed and expected frequencies being due to chance alone. It is a matter of convention that significance levels of 0.05 or smaller are accepted as statistically significant. Significance levels are sensitive to the size of the sample. In large samples, even quite weak associations may be recorded as statistically significant. This is because relatively small differences between observed and expected frequencies can produce large Chi-Square values. Very small samples, on the other hand, are more likely to contain

atypical cases. Again, this can have the effect of producing large Chi-Square values, even if there is no substantive relationship between the variables being tested. The measure of association used in this chapter, Cramer's V, is based on the Chi-Square test but is standardised to minimise the influence of sample size.

Cramer's V is standardised to take a value between 0 and 1, where 0 indicates no association and 1 indicates perfect association. In practice, a value of 1 would be almost impossible to obtain and conventionally a value of 0.3 or above is considered as indicating a strong relationship given the type of data presented in this study.

Cramer's V, it should be stressed, is simply a measure of association not causation. Each relationship between a pair of variables will be influenced by several other relationships simultaneously and no single measure of association can indicate the form of such relationships, only their strength. The general rule used throughout this chapter is that a high value on the Cramer's V measure of association (0.3 or above) which is also statistically significant ($p = 0.05$ or less) is worthy of interpretation. In most situations, a combination of these two results is sufficient safeguard against drawing inferences about relationships which have no basis in reality.

In addition, the Pearson correlation coefficient (r) was used as an objective summary measure for comparing and summarising linear relationships

between pairs of variables. The Pearson coefficient measures the strength of a linear relationship and its values can range from -1 to +1, with a value of 0 indicating no linear relationship. Negative values indicate a negative relationship and positive values a positive relationship between the variables.

Coefficient values, both positive and negative, were considered in conjunction with their associated significance levels when evaluating relationships between variables. Throughout this chapter, a Pearson correlation coefficient value of 0.5 or above combined with an observed significance level of 0.05 or less has been taken to indicate a strong linear relationship between two variables.

Multiple regression analysis was also utilised to explore the relationships between multiple independent variables and dependent variables such as waiting time. In some cases, distributions of certain variables were "normalised" by changing their values through taking square roots or logarithms of the data.

The purpose of the study which forms the basis of this chapter is to explore the effects of orthopaedic waiting times on patients' individual, family, economic and social relationships and the statistical data presented here is only a guide to explanation.

Study Population and Sample Size

Questionnaires were mailed to all 256 adult patients (18 years and over) listed as waiting for orthopaedic in-patient treatment at 28 February 1990. Four young patients on each consultant's list, eight in all, were excluded on the grounds of age.

173 completed questionnaires were returned, a response rate of 67.6 per cent. Three patients were found to have died and three more had already had their operations. Fourteen patients had moved, of whom seven were subsequently traced through their general practitioner. Five reported that the condition had resolved and that they no longer wanted the operation. Six patients were unable to complete the questionnaire and eighteen (7.0%) refused. There was no response from 41 patients (16.0%) despite three written reminders. (See Table 36).

Eleven patients claimed at telephone reminder not to have received the questionnaire and second copies were despatched. There were six cases where additional correspondence was entered into, providing reassurance about confidentiality and explaining the questionnaire purpose in more detail. Two patients enclosed letters asking questions about their condition. These were passed to the relevant consultant.

Table 36.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONSE TO POSTAL SURVEY.

RESPONSE	n	%
Completed questionnaires returned	124	
Completed after one written reminder	20	
Completed after two written reminders	6	
Completed after three written reminders	3	
Completed after one telephone reminder	16	
Completed after two telephone reminders	4	
SUB TOTAL	173	67.6
Died	3	
Moved away - no trace via GP	7	
Already had operation	3	
Condition resolved	5	
Unable to complete - blind	1	
Unable to complete - poor eyesight	1	
Unable to complete - pain	1	
Unable to complete - too difficult	2	
Unable to complete - confused	1	
Refused	18	
No response after three written reminders	41	
SUB TOTAL	83	32.4
TOTAL	256	100.0

The Patients - Age and Sex

The sample comprised 76 males and 97 females. The sex structure of the sample was broadly representative of the UK population with 56.1 per cent females as opposed to the UK figure of 51.2 per cent. ⁴

The mean age of the sample was 54.2 years overall, 55.2 for females and 52.9 years for males. Overall, the 65+ age group accounted for the highest number of patients of both sexes, 16.2 per cent of males and 22.6 per cent of females. For males, there were sub-peaks at 25-34 and for females at 45-54. (See Table 37).

Table 37.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS BY AGE AND SEX.

AGE AT 31/12/90	MALES		FEMALES		TOTAL	
	n	%	n	%	n	%
15 - 24	5	2.9	9	5.2	14	8.1
25 - 34	18	10.4	11	6.3	29	16.8
35 - 44	4	2.3	9	5.2	13	7.5
45 - 54	11	6.3	16	9.3	27	15.6
55 - 64	10	5.8	13	7.5	23	13.3
65+	28	16.2	39	22.6	67	38.7
TOTAL	76	43.9	97	56.1	173	100.0

When compared with the overall UK population, taking into account that the sample excluded persons aged under 18 years, it is apparent that the sample is heavily weighted towards the older age groups, reflecting the fact that degenerative joint disease and skeletal system failure characteristically occur among the elderly.

The larger number of females in the older age groups accounts in part for the overall slight female bias of the sample. (See Table 38).

Table 38.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
PERCENTAGE AGE AND SEX COMPARISONS RESPONDENTS
VERSUS UK POPULATION.

AGE AT 31/12/90	% MALES		% FEMALES		% TOTAL	
	SAMPLE	UK	SAMPLE	UK	SAMPLE	UK
0 - 14	-	9.6	-	9.1	-	18.8
15 - 24	2.9	7.8	5.2	7.4	8.1	15.2
25 - 34	10.4	7.6	6.3	7.4	16.7	15.0
35 - 44	2.3	6.9	5.2	6.9	7.5	13.8
45 - 54	6.3	5.6	9.3	5.6	15.6	11.2
55 - 64	5.8	5.0	7.5	5.3	13.3	10.3
65+	16.2	6.3	22.6	9.5	38.8	15.7
TOTAL	43.9	48.8	56.1	51.2	100.0	100.0

Source: OPCS, General Register Offices for Scotland and Northern Ireland. *Mid-1989 UK Population*; 1990.

The Patients - Marital Status and Dependants

102 respondents (59%) were married or living as married (See Table 39) and 70 (40.5%) stated that their partner and/or family at least partly depended upon them for financial support. (See Table 40).

Table 39.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
MARITAL STATUS OF RESPONDENTS.

Q35. What is your marital status now?	n	%
Married	96	55.5
Living as married	6	3.5
Widowed	20	11.6
Divorced/separated	16	9.2
Not married	24	13.9
No response	11	6.3
TOTAL	173	100.0

Table 40.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
FINANCIAL DEPENDANTS.

Q31. Does your partner and/or your family depend on you for financial support?	n	%
Completely	20	11.6
Mostly	14	8.1
Partly	36	20.8
Not at all/not applicable	91	52.6
No response	12	6.9
TOTAL	173	100.0

Only 15 respondents had a partner or close relative who was at least partly dependent upon them for physical support. (See Table 41). Although a numerically small category, bringing these patients into hospital can pose significant problems for the support services.

Table 41.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
PHYSICAL DEPENDANTS.

Q32. Does your partner (or close relative) depend on you for physical support (ie is he/she disabled or infirm)?	n	%
Completely	-	-
Mostly	5	2.9
Partly	10	5.8
Not at all/not applicable	146	84.4
No response	12	6.9
TOTAL	173	100.0

The Patients - Social Class

The questionnaire contained a series of standard questions adapted from the British General Election Study,⁵ designed to establish Social Class on the basis of occupation. 25 respondents (14.5% of the sample) failed to

supply sufficient information for a social class category to be assigned. Social class grades were assigned using the following Registrar General's categories:

- I. Professional (for example accountant, doctor, lawyer)*
- II. Intermediate (for example manager, nurse, schoolteacher)*
- IIIN. Skilled non-manual (for example clerical worker, secretary, shop assistant)*
- IIIM. Skilled manual (for example bus driver, butcher, carpenter, coal face worker)*
- IV. Partly skilled (for example agricultural worker, bus conductor, postman)*
- V. Unskilled (for example cleaner, dock worker, labourer) ⁶*

The limitations of these classifications are dealt with in detail in *The Black Report*,⁷ but the editors conclude that they remain convenient working categories.

The social class structure of the sample provides evidence of a class gradient and mirrors the findings from other, much larger studies^{8,9,10} that

morbidity and disadvantage in health status appear to be related in a very regular way to the social class structure. With 63.6 per cent (74.3% of those assigned social class grades) in Social Classes IIIM-V, it is clear that the sample is heavily weighted towards the lower social classes. (See Table 42).

Table 42.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
SOCIAL CLASS OF RESPONDENTS BY OCCUPATION. REGISTRAR
GENERAL’S CATEGORIES.

SOCIAL CLASS	n	%
I Professional	4	2.3
II Intermediate	18	10.4
IIIN Skilled non-manual	16	9.2
IIIM Skilled manual	32	18.5
IV Partly skilled	38	22.0
V Unskilled	40	23.1
Insufficient data/no response	25	14.5
TOTAL	173	100.0

The bias of the sample towards the lower social classes is confirmed by comparing the social class structure of the sample with that of the UK population as a whole. 27 per cent of the sample were in Social Class V, compared to the UK figure of 11.8 per cent. More than half (52.7%) of

the sample were in Social Classes IV-V, whereas these two classes comprise only 31.2% of the UK population as a whole. (See Table 43).

Table 43.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS BY SOCIAL CLASS. SAMPLE VERSUS UK
POPULATION.

SOCIAL CLASS (REGISTRAR GENERAL'S CATEGORIES)		SAMPLE		UK %
		n	%	
I	Professional	4	2.7	2.6
II	Intermediate	18	12.2	13.9
IIIN	Skilled non-manual	16	10.8	26.8
IIIM	Skilled manual	32	21.6	25.5
IV	Partly skilled	38	25.7	19.4
V	Unskilled	40	27.0	11.8
TOTAL		148	100.0	100.0

Source: OPCS, General Register Offices for Scotland and Northern Ireland. *Mid-1989 UK Population*; 1990.

Patients in Social Class V were the most numerous, had the highest mean and median ages and the longest median waiting times. (See Table 44).

Table 44.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS BY SOCIAL CLASS, MEAN AGE (YEARS), MEDIAN
AGE (YEARS), MEAN TIME ALREADY WAITED (WEEKS) AND
MEDIAN TIME ALREADY WAITED (WEEKS).

SOCIAL CLASS	n	MEAN AGE	MEDIAN AGE	MEAN WT	MEDIAN WT
I	4	49.8	46.5	59.8	26.0
II	18	46.8	45.5	52.1	15.5
IIIN	16	56.6	54.0	27.9	8.5
IIIM	32	51.0	53.5	32.7	20.5
IV	38	47.3	41.0	50.0	27.0
V	40	59.9	62.0	48.1	27.0
TOTAL	148				

Other variations by social class will be examined later in this chapter.

The Patients - Employment

73 patients (42.2%) in the sample were employed for a least ten hours per week. Almost a third of all respondents (29.3%) were wholly retired from work. (See Table 45).

More than half (55.5%) of respondents in employment or seeking employment reported some degree of impaired performance at work as a

result of their orthopaedic problem. Three patients were unable to undertake their existing work and five reported their performance at work severely limited. (See Table 46).

Table 45.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
OCCUPATION OF RESPONDENTS.

Q34. Which of the following descriptions applies to what you were doing last week, that is, in the seven days ending last Sunday?	n	%
In full time education (not paid for by employer)	2	1.2
In paid work (or away temporarily) for at least 10 hours in the week	73	42.2
Waiting to take up paid work already accepted	1	0.6
Unemployed and registered at a benefit office	1	0.6
Unemployed, <u>not</u> registered, but actively looking for work	2	1.2
Permanently sick or disabled	13	7.5
Wholly retired from work	51	29.4
Looking after the home	22	12.7
No response	8	4.6
TOTAL	173	100.0

Table 46.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
ORTHOPAEDIC PROBLEM AFFECTING RESPONDENTS’
EMPLOYMENT OR AVAILABILITY FOR WORK.

Q29. How does your orthopaedic problem affect your work (or your availability for work if unemployed)?	n	%
Unable to undertake paid employment	13	7.5
Unable to undertake existing work	3	1.7
Performance at work severely limited	5	2.9
Impaired performance at work	35	20.3
No problems at work	44	25.4
Not applicable/retired	62	35.8
No response	11	6.4
TOTAL	173	100.0

The Patients - Educational Background

The majority of respondents (69.8%) completed their full-time education at sixteen years or younger and 29.4 per cent at fourteen years or younger. Only 6.5 per cent of respondents received full-time education after the age of eighteen. (See Table 47).

Table 47.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
AGE AT WHICH RESPONDENTS COMPLETED FULL-TIME
EDUCATION.

Q38. At what age did you complete your full-time formal education (ie school, college or university)?	n	%
Twelve	1	0.6
Thirteen	3	1.7
Fourteen	47	27.1
Fifteen	30	17.3
Sixteen	40	23.1
Seventeen	13	7.5
Eighteen	9	5.2
Over eighteen	11	6.5
Still in full-time education	1	0.6
No response	18	10.4
TOTAL	173	100.0

58 per cent of those leaving school before the age of sixteen and 65 per cent of those having had no secondary schooling were in Social Classes IV and V. There was a fairly strong linear relationship between Social Class and school leaving age ($r = -0.3855, p = <0.001$).

49.1 per cent of respondents attended secondary modern, technical or comprehensive schools for their secondary education; 12.2 per cent attended direct grant or grammar schools and 5.8 per cent attended independent, fee-paying schools. (See Table 48).

Table 48.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
TYPE OF SECONDARY SCHOOL ATTENDED BY RESPONDENTS.

Q39. What type of secondary school did you attend?	n	%
Secondary modern or technical school	43	24.8
Comprehensive school	42	24.3
Grammar school	20	11.6
Direct grant school	1	0.6
Independent (fee-paying) school	10	5.8
No secondary schooling	40	23.1
No response	17	9.8
TOTAL	173	100.0

37.6 per cent of respondents had no formal qualifications and of these 60 per cent were in Social Classes IV-V. Only 9 respondents (5.2%) had a technical, professional or business qualification and only 5 (2.9%) had a university degree or diploma. 37 respondents (21.4%) declined to answer the question on educational qualifications. (See Table 49).

Table 49.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
HIGHEST EDUCATIONAL QUALIFICATIONS OF RESPONDENTS.

Q40 Have you passed any of the exams or got any of the following qualifications?	n	%
No formal qualification	65	37.6
CSE Grades 2-5	4	2.3
CSE Grade 1/GCE O Level/School Certificate/Scottish (SCE) Ordinary/Lower	10	5.8
GCE A/S Level/High School Certificate/Scottish (SCE) Higher	3	1.7
Recognised trade apprenticeship completed	5	2.9
RSA/other clerical/commercial qualification	19	10.9
City & Guilds Craft/Intermediate/Ordinary/Part I	6	3.5
City & Guilds Advanced/Final/Part II/Part III	3	1.7
City & Guilds Full Technological	1	0.6
BEC/TEC General, ONC or OND	3	1.7
BEC/TEC Higher, HNC or HND	1	0.6
Nursing qualification	2	1.2
Technical/professional/business qualification	9	5.2
University or CNAA degree or diploma	5	2.9
No response	37	21.4
TOTAL	173	100.0

The Patients - Accommodation

101 respondents (58.4%) lived in owner-occupied accommodation, only slightly less than the figure for the United Kingdom as a whole of 65 per cent.¹¹ 20.2 per cent of respondents lived in council accommodation. 60 per cent of council tenants and 39.6 per cent of owner-occupiers were in Social Classes IV-V. (See Table 50).

Table 50.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS' ACCOMMODATION.

Q41. What type of accommodation do you live in?	n	%
Council house or flat	35	20.2
Privately rented or Housing Association house or flat	19	10.9
Owner-occupied (owned by yourself or your family)	101	58.4
Accommodation that comes with your or your partner's job	7	4.0
Other: college accommodation	2	1.2
Other: living with daughter	1	0.6
Other: living with parents	1	0.6
Other: Guest House	1	0.6
Other: Nursing Home	1	0.6
No response	5	2.9
TOTAL	173	100.0

The Patients - Household Income

Patients were asked to give details of the total income of their household using standard OPCS weekly income bandings.¹² (See Table 51).

Table 51.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
HOUSEHOLD INCOME OF RESPONDENTS. OPCS INCOME
BANDINGS.

Q43. What is the <u>total</u> weekly income of your household from <u>all</u> sources, before tax? (Includes income from earnings, benefits, savings etc).	n	%
£ 0.01 - £ 100.00	50	28.9
£ 100.01 - £ 200.00	48	27.7
£ 200.01 - £ 300.00	21	12.1
£ 300.01 or more	25	14.4
No response	29	16.9
TOTAL	173	100.0

Average annual household income in the United Kingdom in 1990 was £14,979 per annum or just under £300 per week.¹³ 119 respondents (68.7%) stated that their total weekly household income from all sources was £300 per week or less. Only 25 respondents (14.4%) earned more than the national average. 60 per cent of those having total household incomes of £100 per week or less were in Social Classes IV-V, and 55 per cent of those with incomes of £200 per week or less.

There was a very strong linear relationship between age and household income ($r = -0.6014$, $p = <0.001$) and a fairly strong relationship between social class and household income ($r = -0.4028$, $p = <0.001$).

Patients were also asked whether they or anyone in their household were covered by a private health insurance scheme. (See Table 52). The percentage of the UK population having private health insurance rose from 3.6 per cent in 1970 to 11.7 per cent in 1990. Of these, approximately half were covered individually, the other half being covered at least partly through their employers.¹⁴

Table 52.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS HAVING PRIVATE HEALTH INSURANCE.

Q37. Are you, or is anyone in your household, covered by a private health insurance scheme that allows you to get private medical treatment?	n	%
Yes, through group	3	1.7
Yes, individually	4	2.3
No	149	86.1
No response	17	9.9
TOTAL	173	100.0

It is surprising to find even seven patients eligible for private medical treatment on a waiting list for NHS treatment, particularly when the length of waiting time is taken into account. (See Table 53). Most private health insurance schemes reward patients for opting for NHS treatment by paying a flat daily rate for each day of in-hospital stay, but there is no reward for time spent on a waiting list. Mean and median time already waited for these seven patients were 85.1 and 50 weeks respectively. One patient had already waited more than five years (282 weeks) for bilateral first metatarsal osteotomies. She had been sent for in January 1985, but the operation was cancelled by the hospital due to trauma workload and again in July 1986 on which occasion the patient cancelled because she was getting married. Even when this is taken into account, this patient's waiting time is still 186 weeks.

Table 53.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS ELIGIBLE FOR PRIVATE MEDICAL TREATMENT.
TIME ALREADY WAITED (WEEKS) AND SURGICAL PROCEDURES
FOR WHICH WAITING.

SURGICAL PROCEDURE	WT (WEEKS)
Remove plate and screws ankle	7
Remove plate and screws ulna	9
Ulnar nerve decompression	21
Manipulation under anaesthesia finger	50
Fuse distal interphalangeal joint 1st toe	58
Flexor-extensor transfer both 2nd toes	169
Bilateral 1st metatarsal osteotomies	282

Surgical Procedures

Surgical procedures were classified into five levels of complexity using a simplified version of the classification used by the British United Provident Association (BUPA)¹⁵ for establishing the levels of consultants’ fees for private surgery.

The classifications used were as follows:

<i>Grade</i>	<i>Operating Time</i>
<i>Minor</i>	<i>01 - 20 minutes</i>
<i>Intermediate</i>	<i>21 - 40 minutes</i>
<i>Major</i>	<i>41 - 60 minutes</i>
<i>Major Plus</i>	<i>61 - 120 minutes</i>
<i>Complex Major</i>	<i>120 + minutes</i>

The 173 patients in the study were waiting for a total of 195 procedures plus four investigations (lumbar radiculograms). Almost half of all procedures (49.7%) were classified as Intermediate and one third (33.4%) were classified as Major, Major Plus or Complex Major. 16.9 per cent of procedures were classified as Minor. (See Table 54). Only eight of these procedures (4.1%) were planned for day case surgery. All of the eight day case procedures were arthroscopies.

Table 54.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
CLASSIFICATION OF SURGICAL PROCEDURES.

GRADE	EXAMPLE	n	%
Minor	Bunionectomy	33	16.9
Intermediate	Arthroscopy	97	49.7
Major	Wrist fusion	6	3.1
Major Plus	Total knee replacement	55	28.2
Complex Major	Revision hip replacement	4	2.1
	SUB TOTAL	195	100.0
Investigation	Lumbar radiculogram	4	
	TOTAL	199	

Whilst there was evidence of a fairly weak relationship between surgical procedure and age ($r = 0.2286$, $p = <0.001$), there was no relationship between surgical procedure and any of the other variables such as social class ($r = -0.001$, $p = 0.499$), waiting time ($r = -0.0594$, $p = 0.219$), pain ($r = 0.1541$, $p = 0.023$), or levels of satisfaction with GP care ($r = 0.0366$, $p = 0.328$), hospital care ($r = -0.0811$, $p = 0.161$) and time already waiting for operation ($r = -0.0693$, $p = 0.199$).

The largest single category of patients (17.3%) was those waiting for total hip replacements including revisions. Almost one-third (33.0%) of respondents were waiting for either total hip or total knee replacements. (See Table 55). 72.7 per cent of patients waiting for total hip replacements and 65.2 per cent of those waiting for total knee replacements were in Social Classes IV and V.

Table 55.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS BY SURGICAL PROCEDURE FOR WHICH WAITING.

SURGICAL PROCEDURE	n
Total hip replacement including revisions	30
Total knee replacement	27
Arthroscopy	19
Miscellaneous metatarsal osteotomies	15
Miscellaneous finger/hand procedures	14
Miscellaneous plate and screw removals	14
Miscellaneous foot procedures	11
Keller's Procedure	6
Trigger Finger release	6
Lumbar radiculogram	4
Ulnar nerve decompression	4
Carpal tunnel decompression	4
Bunionectomy	3
Slocum Procedure	2
Miscellaneous minor knee procedures	2
Tenotomy	2
Flexor-extensor transfer	1
Excision outer end clavicle	1
Screw fixation acromio-clavicular joint	1
Removal of subarticular cyst fibula plus bone graft	1
Posterior fusion L2-L3	1
Hoffman Procedure	1
Root canal decompression	1
De Quervain's release	1
Dupuytren's release	1
Wrist fusion	1
TOTAL	173

Almost 90 per cent of respondents confirmed that they still wanted their operation. (See Table 56). One patient did not know and two gave no response to the question. Fifteen respondents (8.7 per cent) indicated that they no longer wanted the operation. Mean and median waiting times for this group were 75.1 and 63.0 weeks respectively.

Table 56.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS STILL WANTING OPERATION.

Q3. Do you still want this operation?	n	%
Yes	155	89.5
No	15	8.7
Don't know	1	0.6
No response	2	1.2
TOTAL	173	100.0

The most common reason given for not wanting the operation was that the condition had resolved. (See Table 57). There were an additional five patients who indicated that their orthopaedic condition had resolved and gave this as their reason for not completing the questionnaire. (See Table 36).

Table 57.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS' REASONS FOR NO LONGER WANTING
OPERATION.

REASONS FOR NO LONGER WANTING OPERATION	n
Condition resolved or much better	7
Learned to cope with the condition	4
Afraid operation may not be successful	1
Cannot afford to be away from work	1
Previous operation unsuccessful	1
Arranged to have operation elsewhere	1
TOTAL	15

The majority of patients (87.9 per cent) indicated that they felt they had been given enough information as to why they needed their operation (See Table 58) and 61.9 per cent felt that the hospital consultant or his deputy had given them the most information about their condition. 30 patients (17.3%) claimed that their general practitioner had given them the most information. (See Table 59).

Table 58.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
INFORMATION AS TO WHY OPERATION NEEDED.

Q4. Do you feel that you were given enough information as to why you needed this operation?	n	%
Yes	152	87.9
No	18	10.4
No response	3	1.7
TOTAL	173	100.0

Table 59.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
MOST INFORMATION ABOUT CONDITION.

Q5. Whom do you feel gave you the most information about your condition?	n	%
The hospital consultant or his deputy	107	61.9
Your family doctor	30	17.3
Both	21	12.1
Another doctor	4	2.3
No one	4	2.3
A friend	1	0.6
Mother who had same operation	1	0.6
Physiotherapist	1	0.6
Another patient	1	0.6
No response	3	1.7
TOTAL	173	100.0

140 patients (80.9%), comprising 43.9 per cent of males and 56.1 per cent of females, had previously been in hospital for a surgical operation. (See Table 60). Of these, almost half (49.6 per cent) were in Social Classes IV and V. 50 patients (35.7%) had last been in hospital for orthopaedic operations including orthopaedic trauma. Hysterectomy was the most common non-orthopaedic operation (see Table 61) and gynaecological procedures as a whole accounted for 28.8 per cent of all previous operations on females. Almost half (47.5%) of these patients had been in hospital for surgery within the last five years. (See Table 62).

Table 60.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS PREVIOUSLY HAVING BEEN IN HOSPITAL FOR SURGERY.

Q18. Have you been in hospital for a surgical operation before?	MALE n	FEMALE n	TOTAL n	TOTAL %
Yes	60	80	140	80.9
No	16	14	30	17.3
No response		3	3	1.8
TOTAL	76	97	173	100.0

Table 61.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS PREVIOUSLY HAVING BEEN IN HOSPITAL FOR
SURGERY. LAST SURGICAL PROCEDURE.

LAST SURGICAL PROCEDURE	n
Miscellaneous orthopaedic (elective)	22
Hysterectomy	13
Total hip replacement	11
Miscellaneous orthopaedic (trauma)	10
Prostatectomy/vasectomy/misc GU surgery	9
Tonsillectomy/adenoidectomy/misc ENT surgery	8
Laparoscopy/misc abdominal/rectal surgery	8
Total knee replacement	7
Appendicectomy	7
Phlebectomy/varicectomy	6
Enterocoele/hernia repair	5
Cholecystectomy	5
Dilatation and curettage	5
Miscellaneous gynaecological procedures	5
Caesarean section	3
Cardiac surgery	1
Miscellaneous minor procedures	11
Don't know	3
No response	2
TOTAL	141

Table 62.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS PREVIOUSLY HAVING BEEN IN HOSPITAL FOR SURGERY. TIME SINCE LAST IN HOSPITAL FOR SURGERY.

TIME SINCE LAST IN HOSPITAL FOR SURGERY	n
Less than one year ago	1
1 - 5 years ago	66
6 - 10 years ago	19
11 - 15 years ago	18
16 - 20 years ago	10
More than 20 years ago	14
Don't know	5
No response	8
TOTAL	141

99 patients (57.2%) felt that their orthopaedic problem had deteriorated whilst they had been on the in-patient waiting list. (See Table 63).

Table 63.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
DETERIORATION OF ORTHOPAEDIC CONDITION WHILST WAITING. RESPONDENTS' OPINIONS AND MEAN TIME ALREADY WAITED (WEEKS).

Q17. Do you think that your orthopaedic problem has got worse while you have been waiting for this operation?	n	%	MEAN WT (WEEKS)
Yes	99	57.2	49.9
No	66	38.2	35.3
No response	8	4.6	
TOTAL	173	100.0	

Respondents who felt that their orthopaedic condition had deteriorated whilst on the waiting list were given the opportunity to provide details on the questionnaire. 83 respondents gave a total of 114 responses; 16 other respondents who felt that their condition had deteriorated gave no details. Waiting times quoted represent time already waited at 28 February 1990.

Increased pain and pain frequency were most frequently mentioned (by 41.5 per cent of patients):

Male aged 45 waited 13 weeks for carpal tunnel decompression:

"The pain is getting worse."

Male aged 86 waited 27 weeks for total hip replacement:

"Terrible pain, nearly sending me mental."

Male aged 36 waited 29 weeks for medial wedge osteotomy first toe:

"More painful."

Female aged 67 waited 22 weeks for removal of exostosis toe:

"The degree of pain has increased."

Male aged 68 waited 42 weeks for total hip replacement:

"Pain worsening."

Pain was frequently mentioned in conjunction with decreased range of movement or decreased mobility:

Female aged 41 waited 14 weeks for bilateral Keller's procedure:

"More pain and inability to walk as far."

Female aged 59 waited 13 weeks for arthroscopy:

"Increasing stiffness and limitation of movement. Being unable to walk more than a few hundred yards without pain."

Male aged 70 waited 11 weeks for bilateral revision hip replacement:

"Both hip sockets are loose and I can't walk because of the pain."

Female aged 71 waited 15 weeks for revision hip replacement:

"Bouts of pain more frequent. Have to take more care positioning leg when sitting, standing or lying in bed."

Female aged 69 waited 35 weeks for total hip replacement:

"I cannot walk without a stick, every step I take is very painful."

Male aged 76 waited 110 weeks for total knee replacement:

"More pain and knee lets me down making it very difficult to get around."

Decreased mobility was mentioned by 21.5 per cent of patients:

Male aged 71 waited 37 weeks for total hip replacement:

"Hard work to get about. Have to catch hold of anything to help me along."

Female aged 80 waited 33 weeks for total hip replacement:

"At first, I could walk with difficulty - now, I cannot take one step without using two sticks."

Male aged 80 waited 37 weeks for total knee replacement:

"Cannot walk more than a few steps. Stairs are a great problem."

Female aged 57 waited 16 weeks for total knee replacement:

"Knee has deteriorated and am becoming more housebound."

Female aged 70 waited 155 weeks for total knee replacement:

"Deterioration of joints to the extent that I am wheelchair bound and in a nursing home."

15 patients (11.5%) mentioned increased deformity:

Female aged 39 waited 159 weeks for dorsal wedge osteotomy:

"Toes now out of shape as well as original problem."

Male aged 28 waited 115 weeks for trimming osteophytes hallux:

"It has grown bigger and more painful."

Female aged 64 waited 82 weeks for medial wedge osteotomy:

"It has enlarged more and more painful at times."

Male aged 69 waited 24 weeks for total hip replacement:

"Right leg much shorter than left".

Male aged 71 waited 37 weeks for excision fibroma finger:

"The growth is growing."

Four patients mentioned decreased ability to perform everyday tasks:

Female aged 77 waited 31 weeks for trigger thumb release:

"When I use my thumb, like writing, to any type of housework I find my thumb is extra painful."

Male aged 78 waited 39 weeks for ulnar nerve decompression:

"Gradually losing grip on small and difficult objects."

Female aged 71 waited 4 weeks for removal of second toe:

"Because I have to do a lot of walking now since my sister sold car. The bus fare is too expensive every day."

Male aged 55 waited 4 weeks for lumbar radiculogram:

"After rest & physio in hospital I felt little or no pain, but after carrying out normal daily tasks plus driving my condition is much worse. (Very painful)."

Disturbed sleeping patterns were mentioned by two patients:

Male aged 63 waited 115 weeks for total hip replacement:

"I find that some days are worse than others and I get a lot of lower back pain. I cannot walk for any distance without resting. My sleep is greatly affected but if I sleep with a hot-water bottle on the hip this helps quite considerably."

Male aged 72 waited 3 weeks for total knee replacement:

"Increasing difficulty in walking and pain & fatigue through lack of sleep."

One patient, at least, managed to remain surprisingly cheerful:

Female aged 52 waited 11 weeks for arthroscopy:

"Painful & I walk badly. Limp, limp, limp! but smile too!"

Patient responses are summarised in Table 64.

Table 64.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
DETERIORATION OF ORTHOPAEDIC CONDITION WHILST
WAITING. SUMMARY OF DETAILS GIVEN BY RESPONDENTS.

Q17. Do you think that your orthopaedic problem has got worse while you have been waiting for this operation? If YES, please give details	n	%
Increased pain/pain frequency	54	41.5
Decreased mobility	28	21.5
Increased deformity	15	11.5
Decreased range of movement	11	8.5
Decreased ability to perform everyday tasks	4	3.1
Disturbed sleeping patterns	2	1.5
No details given	16	12.4
TOTAL	130	100.0

Pain and Distress

Pain is a universal experience and there are few orthopaedic conditions where pain is not a major component. Pain is a multidimensional experience and cannot be directly observed or measured.¹⁶ Whilst there have been various attempts to measure pain objectively using indirect indicators such as respiratory¹⁷ or hormonal¹⁸ changes produced by pain, in general, its measurement depends on the subjective emotional response of the person experiencing it, a response that is strongly influenced by

cultural, social and psychological factors. Sex, upbringing, personality and age have all been shown to influence a person’s response to pain.^{19,20}

The questionnaire contained a number of questions about pain, pain frequency and pain relief including a visual analogue scale as a simple means of recording subjective estimates of pain intensity. Visual analogue scales have been widely used in measuring pain and have demonstrated reliable results.^{21,22,23,24,25} Patients were asked first to describe the amount of pain that they attributed to their orthopaedic condition. Only nine patients (5.2 per cent) reported no pain. 35.8 per cent reported moderate pain and 32.4 per cent severe pain. (See Table 65).

Table 65.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS’ DESCRIPTIONS OF PAIN.

Q22. Please describe the amount of pain that you attribute to your orthopaedic condition.	n	%
Unbearable pain	6	3.5
Severe pain	56	32.4
Moderate pain	62	35.8
Slight discomfort	36	20.8
No pain	9	5.2
No response	4	2.3
TOTAL	173	100.0

Whilst there was no significant relationship between pain and social class, nevertheless, 66.7 per cent of those reporting unbearable pain and 65.3 per cent of those reporting severe pain were in Social Classes IV and V. (See Table 66).

Table 66.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS' DESCRIPTIONS OF PAIN BY SOCIAL CLASS.

PAIN DESCRIPTION	SOCIAL CLASS						TOTAL
	I	II	IIIN	IIIM	IV	V	
Unbearable pain		1	1			4	6
Severe pain		4	5	8	13	19	49
Moderate pain	1	5	8	14	12	11	51
Slight discomfort	3	7	2	8	9	5	34
No pain		1		1	4	1	7
No response							26
TOTAL	4	18	16	31	38	40	173

Cramer’s V = 0.21981, p = 0.10005

Patients were then asked to indicate the severity of their pain on a visual analogue scale with a 100mm line. Responses were measured in millimetres from 0 (no pain) to 100 (unbearable pain). (See Table 67).

Table 67.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
VISUAL ANALOGUE PAIN SCALE. MEASURED SCORES.

Q26. Now, place a mark on the line below at a point which represents as closely as possible your opinion of the severity of your pain.	n	%
0	4	2.3
1 - 20	25	14.4
21 - 40	23	13.3
41 - 60	37	21.4
61 - 80	46	26.6
81 - 100	20	11.6
No response	18	10.4
TOTAL	173	100.0

There was a very strong correlation ($r = 0.8460$, $p = <0.001$) between patients’ descriptions of their pain and their equivalent visual analogue scores. (See Table 68).

Table 68.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
PAIN DESCRIPTION VERSUS VISUAL ANALOGUE RATING.

PAIN DESCRIPTION	VISUAL ANALOGUE SCORE	
	MEAN	MEDIAN
Unbearable pain	93.2	95.0
Severe pain	73.7	75.5
Moderate pain	47.7	50.0
Slight discomfort	22.3	16.5
No pain	0.2	0

Patients were also asked about the frequency of their pain. 31 patients (17.9%) reported constant pain, 127 (73.4%) pain at certain times and 8 (4.6%) no pain at any time. Seven patients gave no response to this question.

There was a strong linear relationship between pain frequency and pain severity ($r = 0.5666$, $p = <0.001$). 25 of the 56 patients reporting severe or unbearable pain stated that it was constant and 36 that it was intermittent. (See Table 69).

Table 69.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
PAIN DESCRIPTION VERSUS PAIN FREQUENCY.

PAIN DESCRIPTION	CONSTANT PAIN	PAIN AT CERTAIN TIMES	NO PAIN AT ANY TIME	NO RESPONSE	TOTAL
Unbearable pain	5	1	-	-	6
Severe pain	20	35	-	1	56
Moderate pain	6	54	-	2	62
Slight discomfort	-	33	3	-	36
No pain	-	3	5	1	9
No response	-	1	-	3	4
TOTAL	31	127	8	7	173

Cramer’s V = 0.55815, p = <0.001

77 patients (44.5%) stated that they took pain killers to relieve their pain, whereas 89 (51.5%) did not. (See Table 70).

Table 70.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS TAKING MEDICATION TO RELIEVE PAIN.

Q25. Do you take pain killers to relieve your pain?	n	%
Yes	77	44.5
No	89	51.5
No response	7	4.0
TOTAL	173	100.0

The category of patients taking pain killers included all those reporting unbearable pain, 78.6 per cent of those reporting severe pain, 37.1 per cent of those reporting moderate pain and 8.3 per cent of those reporting slight discomfort. A surprising 21.4 per cent of those reporting severe pain stated that they did not take pain killers to relieve it. 64 of the 77 patients taking pain killers (83.1%) stated that they were prescribed by a doctor. Five of the remaining patients taking unprescribed medication had reported their pain as severe.

Patients were asked to describe the degree of relief from pain provided by their medication. Only 4 patients stated that their medication provided complete relief from pain. (See Table 71). 73.1% of those reporting very little or no relief from pain were in Social Classes IV and V.

Table 71.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
DEGREE OF PAIN RELIEF PROVIDED BY MEDICATION.

DEGREE OF PAIN RELIEF	n	%
No relief from pain	2	2.6
Very little relief from pain	26	33.8
Moderate relief from pain	43	55.8
Complete relief from pain	4	5.2
No response	2	2.6
TOTAL	77	100.0

All of the medication where the patients reported no relief from pain, 80.8 per cent of that where very little relief from pain was reported and 86 per cent of medication where patients reported moderate relief from pain was prescribed by a doctor. 82.1 per cent of patients reporting that their prescribed medication gave very little or no relief from pain described their pain as unbearable or severe.

Patients were asked to indicate the degree of pain relief provided by their medication on a second visual analogue scale with a 100mm line. Responses were then measured in millimetres from 0 (complete relief) to 100 (no relief). (See Table 72).

Table 72.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
VISUAL ANALOGUE PAIN RELIEF SCALE. MEASURED SCORES.

Q26. Now, place a mark on the line below at a point which represents as closely as possible the degree of relief from pain which your pain killers give you.	n	%
1 - 20	5	6.4
21 - 40	12	15.6
41 - 60	19	24.7
61 - 80	19	24.7
81 - 100	13	16.9
No response	9	11.7
TOTAL	77	100.0

There was a strong correlation ($r = 0.6656$, $p = <0.001$) between patients' descriptions of their degree of pain relief and their equivalent visual analogue scores. (See Table 73).

Table 73.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
PAIN RELIEF DESCRIPTION VERSUS VISUAL ANALOGUE RATING.

PAIN RELIEF DESCRIPTION	VISUAL ANALOGUE RATING	
	MEAN	MEDIAN
No relief from pain	97.0	97.0
Very little relief from pain	71.4	75.5
Moderate relief from pain	49.7	49.0
Complete relief from pain	10.7	14.0

Pain that is not well-controlled by medication can result in disturbed sleeping patterns and patients were asked to state how their orthopaedic problem affected their sleeping habits. 93 patients (53.8%) reported some disturbance in their sleeping habits as a result of their orthopaedic problem. (See Table 74). All of those who stated they had less than 2 hours sleep, 69.2 per cent of those having less than 4 hours sleep and 61.1 per cent of those having less than 6 hours sleep also reported severe or unbearable pain. All of those having less than 2 hours sleep, 76.9 per cent of those having less than 4 hours sleep and 66.7 of those having less than 6 hours sleep were taking pain relief medication prescribed by a doctor. 72.7 per cent of those reporting less than six hours sleep were in Social Classes IV and V.

Table 74.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
SLEEPING PATTERNS OF RESPONDENTS.

Q27. How does your orthopaedic problem affect your sleeping habits?	n	%
Have less than 2 hours sleep	2	1.2
Have less than 4 hours sleep	13	7.5
Have less than 6 hours sleep	36	20.8
Have less than 8 hours sleep	42	24.3
Sleep well	75	43.3
No response	5	2.9
TOTAL	173	100.0

It is clear that a significant number of patients in the study had constant, severe self-reported pain, unrelieved by prescribed medication together with disturbed sleeping patterns.

Pain is an inevitable feature of the majority of orthopaedic conditions and the amount of pain that the patient is suffering is an important clinical indicator of the need for surgery. It therefore comes as no surprise to find that patients on an orthopaedic waiting list report varying degrees of pain and distress. However, there is no reason why in the majority of cases pain should not be controlled by medication prescribed either by the hospital consultant or by the patient's general practitioner. Clearly, for the 37 per cent of patients receiving prescribed medication, attempts were being made to control their pain, but as has been shown, in a significant number of cases, prescribed medication brought little relief.

Anxiety and Depression

The questionnaire incorporated the Hospital Anxiety and Depression (HAD) Scale,²⁶ developed in the Department of Psychiatry at St. James's University Hospital, Leeds. The HAD Scale is a well-validated, self-assessment scale which has been found to be a reliable instrument for detecting states of anxiety and depression in non-psychiatric settings. The anxiety and depression subscales have also been shown to be valid measures of the severity of emotional disorder.²⁷

The HAD Scale is designed to minimise the influence of associated physical illness. It provides separate measures of the constructs of Depression and Anxiety, each with scores in the normal, borderline and morbid range. The Depression subscale relies on the state of anhedonia (failure of the pleasure response) since this state represents a relatively discrete concept within the spectrum of depressive states and one which may most clearly reflect the biogenic aspect of the mood. High Depression subscale scores are therefore not expected in states of grief or other aspects of psychogenic depression. A high Depression subscale score suggests that antidepressant medication may be beneficial to the patient.²⁸

There was a strong correlation between patients' scores on both subscales ($r = 0.7565$, $p = <0.001$). Borderline or morbid scores were recorded by 46 patients (26.6%) on the Anxiety subscale and by 36 patients (20.9%) on the Depression subscale. (See Tables 75 and 76). There was a significant association between waiting time and both Anxiety subscale scores (Cramer's $V = 0.61201$, $p = <0.005$) and Depression subscale scores (Cramer's $V = 0.75694$, $p = <0.005$).

Whilst there was no significant relationship between social class and either Anxiety subscale (Cramer's $V = 0.35213$, $p = 0.62879$) or Depression subscale scores (Cramer's $V = 0.33852$, $p = 0.38477$), nevertheless, 61.9 per cent of patients recording morbid scores on the Anxiety subscale and 64.7 per cent of those with morbid scores on the Depression subscale were

in Social Classes IV and V. Mean anxiety scores overall were 5.5 (7.2 for patients in Social Class V) and mean depression scores were 4.5 overall (6.2 for patients in Social Class V).

Table 75.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
THE HAD SCALE. RESPONDENTS' ANXIETY SUBSCALE SCORES.

HAD ANXIETY SCORE		n	%
Normal	0 - 7	120	69.4
Borderline	8 - 10	21	12.1
Morbid	11 - 21	25	14.5
No response		7	4.0
TOTAL		173	100.0

Table 76.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
THE HAD SCALE. RESPONDENTS' DEPRESSION SUBSCALE SCORES.

HAD DEPRESSION SCORE		n	%
Normal	0 - 7	130	75.1
Borderline	8 - 10	16	9.3
Morbid	11 - 21	20	11.6
No response		7	4.0
TOTAL		173	100.0

Patients with morbid scores on the Anxiety subscale were predominantly female (64%) with mean and median ages of 60.4 and 60 years respectively. Mean time already waited by this group was 37.8 weeks and median time already waited was 19 weeks. 56 per cent of this group had reported severe pain and 16 per cent unbearable pain.

Patients with morbid scores on the Depression subscale were evenly distributed between the sexes and had mean and median ages of 63.2 and 68 years respectively. Mean time already waited by this category of patients was 24.3 weeks and median time waited was 20 weeks. 65 per cent of this group reported severe pain and 60 per cent reported constant pain (See Table 77). Although the category was numerically small, there was a strong correlation between self-reported pain and HAD depression scores ($r = 0.5432$, $p = <0.001$).

Table 77.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS WITH MORBID DEPRESSION SCORES ON THE
HAD SCALE. SELF-REPORTED PAIN AND PAIN FREQUENCY.

PAIN AND PAIN FREQUENCY	n	%
Unbearable, constant pain	4	20.0
Severe, constant pain	7	35.0
Severe pain at certain times	5	25.0
Severe pain, no response to pain frequency	1	5.0
Moderate, constant pain	1	5.0
Moderate pain at certain times	2	10.0
TOTAL	20	100.0

Disability and Handicap

The World Health Organisation has defined disability as:

"Any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being." ²⁹

The World Health Organisation's definition of the functionally related concept of handicap is as follows:

"A disadvantage for a given individual, resulting from an impairment or a disability, that limits or prevents the fulfilment of a role that is normal (depending on age, sex, and social and cultural factors) for that individual." ³⁰

The questionnaire incorporated two established, well-validated standard measuring instruments, the Barthel ADL Index,³¹ which is more concerned with disability and the Frenchay Activities Index,³² which is more concerned with handicap. The Barthel Index, introduced by Dorothea Barthel in 1955 to monitor progress in self-care and mobility skills during in-patient rehabilitation, has been recommended as the disability "gold standard" and is widely used in a rehabilitation context. The Barthel ADL Index was adapted slightly for self-completion.

The Barthel Index has a maximum score of 20 indicating no disability. The lower the patient score, the more severe the disability. 128 patients in the sample (73.9%) scored the maximum of 20, with only 13 patients (7.6%) achieving a score under 15. (See Table 78). There was no significant relationship between Barthel scores and any other variable except age ($r = -0.3893$, $p = <0.001$).

Table 78.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
THE BARTHEL ADL INDEX. RESPONDENTS' SCORES.

BARTHEL ADL INDEX SCORE	n	%
1 - 5	1	0.6
6 - 10	3	1.8
11 - 15	9	5.2
16 - 20	150	86.6
No response	10	5.8
TOTAL	173	100.0

Of the 128 patients with maximum Barthel scores, 25 had borderline or morbid anxiety measured by the HAD Scale, 16 had borderline or morbid depression, 34 reported unbearable or severe pain, 15 reported being in constant pain, 50 had Frenchay scores of under 45, 13 were on the waiting list for total knee replacement, 12 for total hip replacement, including one revision and 4 reported that they were confined to home except for escorted outings. Nevertheless, the Barthel Index failed to detect any disability in these patients.

More than anything else, this highlights the limitations of the Barthel ADL Index because of its ability to identify only the very severest cases of disability. While it may be suitable for the assessment of rehabilitation outcomes in orthopaedic trauma, it is completely unsuitable for use in an elective orthopaedic context.

The Frenchay Activities Index has a minimum score of 15 indicating the severest handicap and a maximum score of 60 indicating no handicap. 20 patients in the study (11.6%) scored under 30 and a further 61 (35.3%) scored between 30 and 44. (See Table 79).

Table 79.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
THE FRENCHAY ACTIVITIES INDEX. RESPONDENT’S SCORES.

FRENCHAY ACTIVITIES INDEX SCORE	n	%
15 - 29	20	11.6
30 - 44	61	35.3
45 - 59	81	46.8
No response	11	6.3
TOTAL	173	100.0

As with the Barthel ADL Index, there was no significant relationship between Frenchay scores and any other variable except age ($r = -0.4960$, $p = <0.001$). There was, however, a strong correlation between the Barthel and Frenchay scores themselves ($r = 0.6552$, $p = <0.001$).

Primarily concerned with social and domestic life, the greatest single limitation of the Frenchay Activities Index is that it does not distinguish between ability to perform a task and inclination.

A number of married males in the older age groups indicated that they had never prepared main meals, done the washing of clothes or done heavy or light housework, but from their answers to other questions it was at least probable that this was no indication of any functional limitation on their ability to do so, but rather a reflection of their normal lifestyle. Conversely, for similar reasons, the responses of a number of married women who indicated that they had not done any gardening, household or car maintenance, did not necessarily reflect anything other than their normal lifestyle.

In addition to the two standard measuring instruments, patients were also asked a specific question as to whether their orthopaedic problem imposed any restriction on their mobility. 117 patients (67.6%) reported some degree of restriction in mobility as a result of their orthopaedic problem. (See Table 80).

Table 80.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESTRICTIONS IN MOBILITY OF RESPONDENTS.

Q28. Does your orthopaedic problem impose any restriction on your mobility?	n	%
Confined to chair or wheelchair or able to move around house only with support from an assistant	8	4.6
Confined to home except for escorted outings	18	10.4
Some restriction	91	52.6
No restriction	52	30.1
No response	4	2.3
TOTAL	173	100.0

Sexual Difficulties

46 patients (26.6%) reported at least some restriction in their sex life resulting from their orthopaedic problem. A significant number of patients (33) declined to answer this question of whom eight indicated on the questionnaire that they thought the question intrusive. (See Table 81).

Table 81.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
LIMITATIONS ON SEX LIFE.

Q30. Does your orthopaedic problem impose any restriction on your sex life?	n	%
Complete restriction (no sex life)	25	14.5
Severe restriction	2	1.2
Some restriction	19	10.9
No restriction (normal)	94	54.3
No response	33	19.1
TOTAL	173	100.0

There have been few studies of the sexual difficulties of orthopaedic patients despite the fact that functional disability in sexual activity is an inevitable consequence of many orthopaedic conditions. Harris and Currey³³ found that arthritis of the hip joint, by the time it has progressed to a stage requiring operative treatment, produced sexual difficulties in more than 50 per cent of patients.

They found that such difficulties were relatively more common in women and were usually caused by stiffness and pain in the joint rather than by loss of libido. Moreover, they found that more than one-third of patients with local mechanical sexual difficulties due to hip joint arthritis were dramatically relieved of this disability by low friction arthroplasty.

Difficulties in Coping

Patients were asked an open-ended question as to what they felt was the single hardest thing they had to cope with as a result of being on a hospital waiting list. The individual responses to this question provide a fascinating insight into the problems of patients on orthopaedic waiting lists.

141 patients mentioned a total of 232 factors. Waiting times quoted represent time already waited at 28 February 1990. Pain and discomfort were most frequently mentioned (by 65 respondents) and individual responses included the following:

Male aged 86 waited 27 weeks for total hip replacement:

"Terrible pain. No sleep."

Male aged 72 waited 3 weeks for total knee replacement:

"Continual severe pain. Sleepless nights."

Female aged 19 waited 3 weeks for arthroscopy:

"The pain."

**Male aged 28 waited 115 weeks for trimming of osteophytes
hallux:**

"Pain!"

Female aged 77 waited 31 weeks for trigger thumb release:

"Pain in thumb getting worse. Pain shooting up my arm."

Male aged 32 waited 21 weeks for root canal decompression:

"Putting up with the pain and not knowing the cause."

Female aged 54 waited 110 weeks for removal of subarticular cyst fibula plus bone graft:

"Agony."

Female aged 42 waited 24 weeks for myelogram:

"My backache and numb leg and constant cramp."

Pain and discomfort were also frequently mentioned in relation to work or housework:

Male aged 55 waited 4 weeks for lumbar radiculogram:

"Not being able to carry out my employment properly ie being an area sales manager I drive approx 130 miles per day. This has not been possible due to pain thus restricting my daily work routine."

Male aged 27 waited 18 weeks for removal of ganglia from fingers:

"Putting up with the pain in the joints when I lift or grip at work mainly, as I have to keep up with a machine into which I have to fold sections of magazines for binding but this is only for a few days every 2-3 weeks at the moment."

Female aged 60 waited 45 weeks for flexor tenotomy 2nd toe:

"Before I retired I worked at [Name of Factory]. We had to wear safety shoes & my toes used to be very painful rubbing on the shoe causing them to blister. I now wear sandals as often as I can."

Male aged 32 waited 3 weeks for arthroscopy:

"I have a lot of pain at work. This tends to inhibit me a great deal."

Female aged 77 waited 22 weeks for trigger finger release:

"Finger painful when used for more than one duties in kitchen, finger seizes up and has to be pushed back every time."

Limitations on mobility and walking were mentioned by 41 patients:

Male aged 59 waited 10 weeks for arthroscopy:

"I live on my own - for a time very painful, restricted mobility - domestic duties, shopping, car driving and a main recreation, walking."

Male aged 71 waited 37 weeks for total hip replacement:

"Not being able to get about with help with a stick - also not getting any information concerning entry into hospital. Going upstairs on all fours 'as it were' coming downstairs backwards, if I sit too long I get stiff in my legs cannot walk far. In other words I'm immobile."

Female aged 72 waited 32 weeks for total knee replacement:

"Loss of mobility. Pain. Loss of sleep. Difficulty in climbing stairs and steps. Loss of independence."

Male aged 70 waited 17 weeks for total knee replacement:

"Limited mobility & painful when trying to get about."

Uncertainty and inability to plan ahead or go on holiday were mentioned by 21 patients:

Male aged 47 waited 3 weeks for bilateral arthroscopy:

"Uncertainty."

Female aged 59 waited 24 weeks for total hip replacement:

"The suspense."

Female aged 23 waited 7 weeks for removal of plate and screws femur:

"Not knowing when you will be going in to have the operation done."

Male aged 37 waited 16 weeks for arthroscopy:

"Not knowing when I was to be operated on & therefore worry about subsequent loss of work at some undefined future date as I'm self employed."

Male aged 36 waited 29 weeks for medial wedge osteotomy first toe:

"Pain & discomfort. Not being able to book a holiday in case I have to go into hospital."

Female aged 59 waited 13 weeks for arthroscopy:

"Uncertainty - not being able to plan ahead. I work in the Health Service and am made to feel very guilty because it will not be easy to cover my work while I am off sick. Frustration at lack of mobility."

Male aged 33 waited 27 weeks for arthroscopy:

"Being unable to plan ahead (awaiting appointments which are only advised one week in advance of admittance)."

Discomfort and problems with footwear were a preoccupation of a number of patients:

Female aged 57 waited 9 weeks for bilateral Keller's procedure:

"Not being able to wear decent shoes just wearing one old pair as my feet are so painful with pressure on them."

Female aged 32 waited 282 weeks for bilateral first metatarsal osteotomies:

"Buying shoes and also wearing shoes all day long which is very painful."

Female aged 69 waited 80 weeks for first metatarsal osteotomy:

"Discomfort wearing shoes, mostly wearing sandals these days."

Female aged 67 waited 22 weeks for removal of exostosis toe:

"The fact that the delay in a very minor operation prevents me from walking with any degree of comfort & limits my choice of footwear, having to wear sandals all the time."

Female aged 59 waited 20 weeks for first and second metatarsal osteotomies:

"Pain, unable to walk far and only able now to wear sandals or slippers."

Inability to play sport was a major problem for the younger age groups:

Male aged 28 waited 18 weeks for Slocum Procedure:

"I can no longer play sport, and as a result of that I am no longer as fit as I was and the confidence in the strength of my knee is always on my mind in every day routines."

Male aged 20 waited 58 weeks for fusion DIP joint 1st toe:

"It's affected sport, social life and work."

Male aged 18 waited 10 weeks for removal of GK nail femur:

"Not being [able] to play sport."

Female aged 20 waited 4 weeks for arthroscopy:

"I can no longer drive - and find it very difficult to walk distances. Can no longer play sports etc."

Loss of independence, confinement to home, inability to fulfil family and social roles, worries about the family and restrictions on activities of daily living were other important concerns:

Female aged 45 waited 4 weeks for lumbar radiculogram:

"I am a single working mother, with a five year old child at school in [name of village]. My increased pain has made me irritable, sleepless, very short-tempered, which affects my child more than anyone. I cannot cope with our home or looking after my child as I want to."

Female aged 41 waited 14 weeks for bilateral Keller's procedure:

"Making arrangements for my family for my time in hospital and when I come out. The postponement of the operation has meant starting to do this all over again."

Female aged 80 waited 33 weeks for total hip replacement:

"Having to rely on my husband for a lot of help with domestic chores & shopping. I very much miss my independence."

Female aged 82 waited 30 weeks for total knee replacement:

"Can't walk so I can't get out. Can't cook meals properly. Solely dependent upon other people."

Female aged 70 waited 155 weeks for total knee replacement:

"Deterioration of joints to the extent that I am wheelchair bound and in a nursing home."

Female aged 69 waited 35 weeks for total hip replacement:

"Being confined to home."

Female aged 71 waited 15 weeks for revision hip replacement:

"Change of lifestyle caused by physical restrictions & pain and unsettling inability to plan anything."

Female aged 57 waited 16 weeks for total knee replacement:

"Inability to lead normal life indoors or outdoors owing to chronic pain and walking any distance."

Male aged 79 waited 13 weeks for total hip replacement:

"Not being able to look after myself properly like dressing and cooking meals, not being able to get up & down stairs 2 flights and not being able to stand for very long not getting much sleep."

Female aged 77 waited 27 weeks for total knee replacement:

"Carrying on with everyday tasks & walking as before developing arthritis I loved walking & gardening."

Female aged 78 waited 35 weeks for total hip replacement:

"Unable to do housework and shopping in other words unable to fulfil my role as a housewife."

Some took the opportunity to point out the deficiencies in the system:

Female aged 68 waited 194 weeks for bilateral first metatarsal osteotomies:

"Seeing other people with the same having the operation without waiting such a long time."

Male aged 63 waited 115 weeks for total hip replacement:

"After being accepted & told that a bed was available, having the tests, told what day to report & also the ward to go to, I received via phone call cancellation owing to the number of road accidents. This I could understand but as my records will show I did not hear again for about 12 months. When the call finally came I could not attend because of other commitments."

Others were more philosophical:

Female aged 52 waited 38 weeks for dorsal wedge osteotomies:

"I was given to understand that the waiting list for this operation would be approx 12-18 months, and I was consequently well prepared for the delay."

Female aged 30 waited 13 weeks for removal of plate and screws ankle:

"No problems as I accept I will suffer a certain amount of discomfort with metal in my leg."

Patient responses are summarised in Table 82.

Table 82.

**HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
DIFFICULTIES IN COPING WITH BEING ON A WAITING LIST.
FACTORS MENTIONED BY RESPONDENTS (MULTIPLE
RESPONSES).**

Q16. As far as you personally are concerned, what would you say has been the single hardest thing you have had to cope with as a result of being on a hospital waiting list?	n
Pain	55
Limitations on mobility	41
Uncertainty	16
Problems with footwear	12
Physical impairment	11
Discomfort	10
Waiting	10
Restrictions on activities of daily living	10
Impaired performance at work	6
Loss of sleep	6
Frustration	5
Confined to home	5
Inability to fulfil family roles	5
Inability to play sport	5
Inability to fulfil social roles	4
Inability to work	4
Loss of independence	4
Inability to plan ahead	3
Financial problems	3
Inability to go on holiday	2
Inability to drive	1
Confined to wheelchair	1
Worry that condition will deteriorate	1
No problems	12
No response	32
TOTAL	264

Waiting Times

Waiting times in this study are the times the patients had already waited at the time that the study commenced (28 February 1990).

Taking a sample of patients on a waiting list at a single point in time was the only practical method of carrying out this study, but it does mean that care has to be taken in forming conclusions about waiting times in general. 20.3 per cent of patients in the study had already waited more than 60 weeks, but it would be misleading to suppose that the same percentage of patients newly placed on the list could expect to wait for a similar length of time. Calculating the waiting times of patients actually admitted to hospital over a period of time would be likely to show a lower proportion of patients waiting over 60 weeks.

Don, Lee and Goldacre³⁴ compared the waiting times of patients in the Oxford region as measured by SBH 203 routine statistical returns ("census" data) with those as measured by the Hospital Activity Analysis measure of all admissions ("event" data). They demonstrated that the SBH 203 returns showed a higher proportion of patients who had waited over a year. Indeed, they suggest that the difference between the census and event measures is analogous to the difference between prevalence and incidence in epidemiology.³⁵ While the "incidence" measure is preferable for quantifying individual chances and risks, because of the nature of the

investigation, it is the "prevalence" measure with which this study is concerned.

Time already waited by patients in the study ranged from one to two hundred and ninety-nine weeks. 35 patients (20.2 per cent) had already waited more than 60 weeks. (See Table 83). Mean time already waited was 44.8 weeks and median time already waited was 23 weeks.

Table 83.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS BY TIME ALREADY WAITED.

TIME ALREADY WAITED AT 28/02/90	n	%
1 - 12 weeks	49	28.3
13 - 24 weeks	42	24.3
25 - 36 weeks	22	12.7
37 - 48 weeks	18	10.4
49 - 60 weeks	7	4.1
More than 60 weeks	35	20.2
TOTAL	173	100.0

Whilst patients in the older age groups, females and those in the lower social classes tended to wait slightly longer than average, there were no significant differences in time already waited by age (see Table 84), sex (see Table 85) or social class (see Table 86). When the distribution of waiting time data was "normalised" through log transformation, there was evidence of a weak linear relationship between waiting time and social

class ($r = 0.1517$, $p = 0.066$), but no evidence of a significant relationship between waiting time and any other variables.

Table 84.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
TIME ALREADY WAITED BY AGE.

WAITING TIME (WEEKS)	AGE (YEARS)						TOTAL
	15-24	25-34	35-44	45-54	55-64	65+	
1-12	7	12		10	7	13	49
13-24	2	6	5	7	7	15	42
25-36		3	2	3		14	22
37-48	2	1	1	2	1	11	18
49-60	1	2	1	1	1	1	7
61+	2	5	4	4	7	13	35
TOTAL	14	29	13	27	23	67	173

Cramer’s V = 0.19024, p = 1.7908

Table 85.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
TIME ALREADY WAITED BY SEX.

TIME ALREADY WAITED	SEX		TOTAL
	FEMALE	MALE	
1-12 weeks	25	24	49
13-24 weeks	24	18	42
25-36 weeks	17	5	22
37-48 weeks	6	12	18
49-60 weeks	3	4	7
More than 60 weeks	22	13	35
TOTAL	97	76	173

Cramer’s V = 0.23397, p = 0.9170

Table 86.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
TIME ALREADY WAITED BY SOCIAL CLASS.

WAITING TIME (WEEKS)	SOCIAL CLASS						TOTAL
	I	II	IIIN	IIIM	IV	V	
1-12		8	9	10	8	5	40
13-24	1	4	2	12	10	12	41
25-36		2	2	4	3	8	19
37-48	2			1	3	6	12
49-60		1	1		3	1	6
61+	1	3	2	5	11	8	30
TOTAL	4	18	16	32	38	40	148

Cramer’s V = 0.24573, p = 0.11160

Median waiting time ranged from 14 weeks for an investigation to 39.5 weeks for an operation classified as Major. Median time waiting time for the 53 operations classified as Major Plus (all total hip or total knee replacements) was 32.0 weeks. (See Table 87).

Table 87.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS BY SURGICAL PROCEDURE AND MEAN AND MEDIAN TIMES ALREADY WAITED (WEEKS).

SURGICAL PROCEDURE	n	MEAN WT	MEDIAN WT
Minor	29	23.1	19.0
Intermediate	77	50.1	21.0
Major	6	50.7	39.5
Major Plus	53	48.9	32.0
Complex Major	4	59.3	15.0
Investigation	4	23.8	14.0
TOTAL	173		

92 patients (53.2%) claimed that they had been suffering the symptoms for more than six months before they first consulted a doctor about their orthopaedic problem. 140 patients in total (80.9%) had waited one month or more before consulting a doctor. (See Table 88). 58.2 per cent of patients suffering symptoms for more than six months before consulting a doctor were in Social Classes IV and V.

Table 88.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
TIME FROM ONSET OF SYMPTOMS TO FIRST MEDICAL CONSULTATION.

Q6. How long had you been suffering the symptoms before you first saw a doctor about this problem?	n	%
Less than a week	16	9.2
1 - 4 weeks	11	6.4
1 - 3 months	23	13.3
4 - 6 months	25	14.4
More than 6 months	92	53.2
Not applicable (originally emergency)	4	2.3
No response	2	1.2
TOTAL	173	100.0

167 patients (96.5%) stated that their first approach about their orthopaedic problem was made to the formal medical services. Of these, 147 (85.0%) approached their general practitioner. (See Table 89). Only three patients stated that they first approached non-medical practitioners.

The first consulted a chiropodist, the second a physiotherapist and the third an osteopath. No patients admitted to consulting with friends or relatives or to participating in lay referral networks such as those described by Suchman, Friedson and others.^{36,37,38}

It is possible that the wording of the question may have led respondents to believe that only details of formal consultations were being sought, or they may have felt it simply inappropriate to record informal approaches on an apparently "official" questionnaire.

Table 89.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS' FIRST APPROACH ABOUT ORTHOPAEDIC
PROBLEM.

Q7. Whom did you first approach about this problem?	n	%
GP/family doctor	147	85.0
Hospital casualty department	14	8.1
Non-medical practitioner	3	1.7
Other doctor	6	3.5
No response	3	1.7
TOTAL	173	100.0

85 patients (51.5%) had consulted their general practitioner more than once about their orthopaedic problem and 24 (13.9%) had seen their GP six times or more. 38 patients (22%) stated that they did not know how many times they had consulted their GP, but it is reasonable to suppose that the majority of this group had made multiple visits. (See Table 90). Mean and median numbers of general practitioner consultations were 3.5 and 2 respectively.

Table 90.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
NUMBER OF GP CONSULTATIONS.

Q8. How many times have you seen your own doctor about this problem?	n	%
One	37	21.4
Two	35	20.2
Three	15	8.7
Four	12	6.9
Five	3	1.7
Six	10	5.8
More than six	14	8.1
Don't know	38	22.0
Not applicable (originally emergency)	3	1.7
No response	6	3.5
TOTAL	173	100.0

113 patients (65.3%) waited up to 12 weeks from their first visit to a doctor to their first hospital out-patient appointment; 13 (7.5%) waited up to 24 weeks and another 13 (7.5%) waited for more than 24 weeks. (See Table 91). Mean length of wait overall was 14.9 weeks and median length of wait 6 weeks. These waiting times are significantly less than those found elsewhere in this study (see Chapter Three), suggesting that patients most likely to benefit from surgery might tend to be given earlier appointments.

Table 91.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
WAITING TIME FROM FIRST MEDICAL CONSULTATION TO FIRST
HOSPITAL OUT-PATIENT APPOINTMENT.

Q11. How long did you have to wait between your first visit to a doctor and your first hospital out-patient appointment?	n
1 - 4 weeks	56
5 - 8 weeks	35
9 - 12 weeks	22
13 - 16 weeks	5
17 - 20 weeks	3
21 - 24 weeks	5
More than 24 weeks	13
Don't know	18
Not applicable (originally emergency)	5
No response	11
TOTAL	173

The majority of patients (56.1 per cent) were placed on the surgical waiting list following their first hospital out-patient appointment. 32.4 per cent attended hospital out-patient clinics twice or more before being placed on the waiting list for surgery. (See Table 92).

Table 92.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
OUT-PATIENT ATTENDANCES.

Q13. How many times did you attend hospital as an out-patient before being put on the waiting list?	n	%
Once	97	56.1
Twice	30	17.3
3 Times	8	4.6
4 Times	6	3.5
5 Times	2	1.2
6 Times	7	4.0
More than 6 Times	3	1.8
Don't know	11	6.3
Not applicable	2	1.2
No response	7	4.0
TOTAL	173	100.0

Patient Satisfaction

The questionnaire contained a number of questions designed to elicit levels of patient satisfaction with various aspects of their care and their experience of being on the in-patient waiting list.

71.6 per cent of patients declared themselves very satisfied with the quality of care provided by their own doctor. Only 11 patients (6.4%) stated that they were dissatisfied or very dissatisfied. (See Table 93).

Table 93.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS' SATISFACTION WITH GP CARE.

Q9. Are you satisfied with the quality of care you received from your own doctor?	n	%
Very satisfied	124	71.6
Fairly satisfied	32	18.5
Dissatisfied	9	5.2
Very dissatisfied	2	1.2
Not applicable	2	1.2
No response	4	2.3
TOTAL	173	100.0

Satisfaction with the quality of care received so far from the hospital was at a relatively high level (though not as high as satisfaction with GP care) with 56.7 per cent of patients declaring themselves very satisfied and only 4 patients (1.7%) stating that they were very dissatisfied. (See Table 94).

Table 94.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RESPONDENTS’ SATISFACTION WITH HOSPITAL CARE.

Q10. Are you satisfied with the quality of care you have received so far from the hospital?	n	%
Very satisfied	98	56.7
Fairly satisfied	53	30.6
Dissatisfied	15	8.7
Very dissatisfied	4	2.3
No response	3	1.7
TOTAL	173	100.0

Whilst the numbers of patients declaring themselves very satisfied/fairly satisfied with the quality of care received so far from the hospital were more or less inversely proportional to time already waited, there appeared to be no relationship between patients declaring themselves dissatisfied/very dissatisfied and waiting time. (See Table 95).

Table 95.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RELATIONSHIP BETWEEN WEEKS ON WAITING LIST AND
SATISFACTION WITH QUALITY OF CARE RECEIVED SO FAR FROM
THE HOSPITAL.

WEEKS ON LIST	VS	FS	DS	VD	NR	TOTAL
1 - 12 weeks	32	15	1	-	2	50
13 - 24 weeks	21	12	6	2	-	41
25 - 36 weeks	8	11	2	1	1	23
37 - 48 weeks	10	7	1	-	-	18
49 - 60 weeks	4	1	2	-	-	7
61 + weeks	23	7	3	1	-	34
TOTAL	98	53	15	4	3	173

- VS = Very satisfied
- FS = Fairly satisfied
- DS = Dissatisfied
- VD = Very dissatisfied
- NR = No response

Cramer’s V = 0.19169, p = 0.22573

It has already been shown that waiting time from first medical consultation to first out-patient appointment was relatively short, median length of wait being six weeks. Nevertheless, only 24.9 per cent of patients declared themselves satisfied with the amount of time they had to wait for this appointment. (See Table 96). There was a strong linear relationship

between levels of satisfaction with waiting time from first medical consultation to first out-patient appointment and waiting time itself (Cramer's $V = 0.56210$, $p = 0.00038$).

Table 96.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
SATISFACTION WITH TIME WAITED FOR FIRST OUT-PATIENT
APPOINTMENT.

Q12. How do you feel about the amount of time you had to wait for this appointment?	n	%
Very satisfied	43	24.9
Fairly satisfied	76	43.9
Dissatisfied	24	13.9
Very dissatisfied	16	9.2
Don't know	1	0.6
Not applicable	5	2.9
No response	8	4.6
TOTAL	173	100.0

Levels of satisfaction with time already waited for operation were relatively low with only 12.7 per cent of respondents declaring themselves very satisfied. 29.5 per cent stated that they were dissatisfied and a further 19.7 per cent declared themselves very dissatisfied. (See Table 97).

Table 97.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
SATISFACTION WITH TIME ALREADY WAITED FOR OPERATION.

Q15. How do you feel about the amount of time you have already waited for your operation?	n	%
Very satisfied	22	12.7
Fairly satisfied	59	34.1
Dissatisfied	51	29.5
Very dissatisfied	34	19.7
No response	7	4.0
TOTAL	173	100.0

Again, whilst the number of patients declaring themselves very satisfied/fairly satisfied was more or less inversely proportional to time already waited, there appeared to be no equivalent relationship between levels of dissatisfaction and waiting time. (See Table 98).

There was, however, a straightforward linear relationship between levels of patient satisfaction with time already waited and mean and median waiting times. (See Table 99).

Table 98.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RELATIONSHIP BETWEEN WEEKS ON WAITING LIST AND
SATISFACTION WITH TIME ALREADY WAITED.

WEEKS ON LIST	VS	FS	DS	VD	NR	TOTAL
1 - 12 weeks	12	22	8	6	1	49
13 - 24 weeks	4	13	15	9	1	42
25 - 36 weeks	1	8	9	4	1	23
37 - 48 weeks	1	6	9	1	1	18
49 - 60 weeks	1	1	2	3	-	7
60 + weeks	3	9	8	11	3	34
TOTAL	22	59	51	34	7	173

VS = Very satisfied
 FS = Fairly satisfied
 DS = Dissatisfied
 VD = Very dissatisfied
 NR = No response

Cramer’s V = 0.22961, p = 0.03543

Table 99.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RELATIONSHIP BETWEEN PATIENT SATISFACTION WITH TIME
ALREADY WAITED AND MEAN AND MEDIAN WAITING TIMES.

LEVEL OF SATISFACTION	n	MEAN WT (WEEKS)	MEDIAN WT (WEEKS)
Very satisfied	22	24.4	11.5
Fairly satisfied	59	31.1	18.0
Dissatisfied	51	48.0	27.0
Very dissatisfied	34	69.1	33.5
No response	7	-	-
TOTAL	173		

Levels of patient satisfaction did not appear to be related in any regular way to social class. (See Table 100).

Table 100.
HGH ORTHOPAEDIC IN-PATIENT WAITING LIST AT 28/02/90.
RELATIONSHIP BETWEEN PATIENT SATISFACTION WITH TIME
ALREADY WAITED AND SOCIAL CLASS.

SOCIAL CLASS	VS	FS	DS	VD	NR	TOTAL
I	-	2	-	2	-	4
II	3	4	4	7	-	18
IIIN	2	7	4	2	1	16
IIIM	5	9	11	7	-	32
IV	5	14	9	7	3	38
V	4	11	15	8	2	40
Unknown	3	12	8	1	1	25
TOTAL	22	59	51	34	7	173

- VS = Very satisfied
- FS = Fairly satisfied
- DS = Dissatisfied
- VD = Very dissatisfied
- NR = No response

Cramer’s V = 0.16056 p = 0.75382

At the end of the questionnaire, patients were given the opportunity to make general comments on their own or their friends' or relatives' experience of waiting for hospital treatment. 37 patients (21.4%) took advantage of this opportunity. Some chose to comment on the questionnaire itself:

Q44. Are there any other comments you would like to make about your or your friends' or relations' experience of waiting for hospital treatment that have not already been covered in this questionnaire?

"After such a long wait I really haven't enjoyed filling in this form."

"Yes. Will filling in this questionnaire help reduce the long hospital waiting lists that are totally unacceptable in this day and age? We should be going forward not back to the dark ages."

"While I have no objections to completing this form I feel that from Section 3 has nothing in common for the long waiting lists for my operation."

"I have always had good treatment and the H.G.H. and hope it won't be too long before the op. However I fail to see how a number of these questions can help with research into arthritis - I attribute my illness to bringing up a large family on very little money years ago and being illtreated by my ex-husband for years."

The majority of respondents took the opportunity to comment upon the system, make various suggestions and to question various aspects of their treatment:

"Consideration should be given to waiting patients by offering monthly reports in letter form giving further information on how many days/weeks it will be before admittance for the operation. This is obviously not always possible, but it would help the patient to plan his/her everyday life much better. Delays should be notified if hospital circumstances change."

"The only thing worrying me is the question of how much notice will I be given of the date when I am to have the operation, as arrangements will need to be made with my employers, and family commitments sorted out."

"I am not questioning the consultant's professional ability but I do wonder if it is absolutely necessary for this minor operation to be done under a general anaesthetic. If I could be treated as an out-patient the matter could be resolved without such delay. I had a not dissimilar operation many years ago, & this was carried out under a local. A long medical history has left me without any apprehensions! And of course makes me a know-all. I even worked for a surgeon at a London teaching hospital..."

"I don't feel that the consultant I saw explained fully about the operation and never took the time to tell me how long I would be in hospital and how long I would be off work."

"My father in law has been on the waiting list for replacement knee for 112 weeks now. He's in constant pain, and continuously falling over, as he has no strength at all in that leg. He is supposed to be "priority" but that was over 4 months ago."

"I had x-ray for my replacement knee early 1988, was asked to cancel holiday if possible as I would be admitted first bed available. This information was from Records staff, had operation January 1989. Had x-ray for my present trouble April 1989. Told the same as before, saw [name of consultant]'s assistant October 1989, never checked knee, and said no point of making another appointment as we don't know when operation can be performed, could be another 12 mnths."

"Due to the waiting list being so long and treatment for my problem being withheld my quality of life has greatly been reduced. I have an orthopaedic problem that with the correct treatment I would be able to regain my mobility and therefore my independence. This makes me feel very dissatisfied with the present waiting list situation."

"A neighbour needs 2 knee replacements - has been waiting over a year for op by [name of consultant] and meanwhile knees are deteriorating fast and he has a lot of pain and increasing immobility."

"I was waiting for admission on 14th Dec 1989, only to be told that due to staff illness admission would be delayed until after Xmas. I waited with mixed feelings (not at all nice!) the whole of January 1990 to hear. My husband rang thro, finally only to be told that admission would now be delayed until April - hopefully it will be third time lucky."

"I have many friends who have waited far to long & been in considerable pain."

"Always friendly & helpful but "long waits" in outpatients. Appointments are never on time can't be as 4 to each time are planned to allow for people not keeping apts."

"Just a little suggestion! It is a long way down all those corridors for X-Rays B/Pressures etc I had a job to do it without severe pain. So what about a chair or form, for a little rest, other patients were moaning what a long way it was! Just a suggestion that's all! Anyway roll on."

Some respondents were full of praise for the hospital and its staff:

"I was very satisfied with the operation that [name of consultant] carried out, I am very confident in him. I have had the screws removed from my leg and I will be happier when the rod is removed and [I] can lead a normal life."

"I would like to personally wish you all the best in your fight for more money from the government to care as you allway's have and hopefully all ways will. Very best of luck."

"Only that I appreciate the problems of money and time facing the Health Service and don't mind having to wait for my operation as there are others in far more need than myself at this present time. I think your doing a good job and would like to say thanks."

"No comment because I except your job is as difficult as anybody's elses, and I except waiting my turn."

"My wife had to give up her job to look after me. Because of my disability I am on invalidity and attendance allowance. I wish to thank all the doctors and staff of the Horton General Hospital for being so kind when I had my operations."

"I am very grateful that there is a health service that looked after me fantastically when I injured my leg in 1988 and I would like to thank everyone at Horton who took care of me and look forward to my next stay!!!"

Some patients took the opportunity to put forward a plea for more prompt treatment:

"Hurry up with my appointment please!"

"I hope the waiting will soon end."

Perhaps nowhere is the suffering of patients on orthopaedic waiting lists better demonstrated than in the following poignant plea from a patient reporting severe, constant pain with prescribed analgesics providing little relief who had already waited 27 weeks for a total hip replacement:

"Please send for me soon, as I am 86 years old on 1st Sept 1990 and to ease my pain and loss of sleep it would be a God send to get it over with."

Summary

This postal survey of all adult patients (18 years and over) listed as waiting for orthopaedic in-patient treatment at the Horton General Hospital at 28 February 1990 has yielded a wealth of quantitative and qualitative data.

173 completed questionnaires were available for analysis at the end of the study, an overall response rate of 67.6 per cent. 3 patients were found to have died, 7 had moved out of the area, 3 had already had their operation, 6 were unable to complete the questionnaire for various reasons and 5 reported that their condition had resolved and they no longer wanted the operation. If these categories are discounted, then the response rate was 74.6 per cent.

While the sample was broadly representative of the UK population in terms of sex structure, it was heavily weighted towards the older age groups and the lower social classes. 27.0 per cent of the sample were in Social Class V, compared to the UK figure of 11.8 per cent. Patients in Social Class V were the most numerous, had the highest mean and median ages and the longest median waiting times.

69.8 per cent of respondents completed their full-time education at sixteen years or younger and only 6.5 per cent received full-time education after the age of eighteen. 37.6 per cent of the sample had no formal educational

qualifications. 58.4 per cent of respondents lived in owner-occupied accommodation, only slightly less than the figure for the United Kingdom as a whole of 65 per cent. 20.2 per cent lived in council accommodation, 60 per cent of whom were in Social Classes IV-V.

42.2 per cent of respondents were employed for at least ten hours per week and almost one third were wholly retired from work. Only 25 respondents (14.4%) earned more than the national average and only 7 (4%) had some form of private health insurance. 81 respondents (46.8%) were living in poverty (defined as below 60 per cent of average earnings). More than half (55.5%) of respondents in employment reported some degree of impaired performance at work as a result of their orthopaedic problem. 59 per cent of the sample were married or living as married and 40.5 per cent stated that their partner and/or family at least partly depended upon them for financial support.

The 173 patients in the study were waiting for a total of 195 surgical procedures plus 4 investigations (lumbar radiculograms). Almost half of all procedures (49.7%) were classified as Intermediate and one third (33.4%) were classified as Major, Major Plus or Complex Major. Only eight of these procedures were planned for day case surgery.

The largest single category of patients (17.3%) was those waiting for total hip replacements including revisions. Almost one third (33.0%) of patients

were waiting for either total hip or total knee replacements. 72.7 per cent of patients waiting for total hip replacements and 65.2 per cent of those waiting for total knee replacements were in Social Classes IV-V.

15 respondents stated that they no longer wanted the operation, the most common reason given being that the condition had resolved. 87.9 per cent of patients indicated that they felt they had been given sufficient information as to why they needed their operation and 80.9 per cent had previously been in hospital for a surgical procedure. Of these, almost half were in Social Classes IV-V. 35.7 per cent had last been in hospital for orthopaedic operations including orthopaedic trauma. Hysterectomy was the most common non-orthopaedic operation and gynaecological procedures as a whole accounted for 28.8 per cent of all previous operations on females. 47.5% of these patients had been in hospital for surgery within the last five years.

57.2 per cent felt that their orthopaedic problem had deteriorated whilst they had been on the waiting list. Increased pain and pain frequency were most frequently cited (by 41.5 per cent of patients), followed by decreased mobility, increased deformity and decreased range of movement.

A significant number of patients in the study had constant, severe self-reported pain, unrelieved by prescribed medication. Only nine patients reported no pain. 35.8 per cent reported moderate pain and 32.4 per cent

severe pain. 66.7 per cent of those reporting unbearable pain and 65.3 per cent of those reporting severe pain were in Social Classes IV-V. 17.9 per cent reported constant pain and 73.4 per cent intermittent pain. 25 of the 56 patients reporting severe or unbearable pain stated that it was constant and 36 that it was intermittent. 44.5 per cent of respondents stated that they took pain killers to relieve their pain. The category of patients taking analgesics included all those reporting unbearable pain and 78.6 per cent of those reporting severe pain. 64 of the 77 patients taking analgesics (83.1%) stated that they were prescribed by a doctor. Only 4 patients stated that their medication provided complete relief from pain. 82.1 per cent of patients reporting that their prescribed medication gave very little or no relief from pain described their pain as unbearable or severe. 73.1 per cent of those reporting very little or no relief from pain were in Social Classes IV-V. 93 patients (53.8%) also reported some disturbance in their sleeping habits as a result of their orthopaedic problem.

Pain is an inevitable feature of the majority of orthopaedic conditions and the amount of pain that the patient is suffering is an important clinical indicator of the need for surgery. However, there is no reason why in the majority of cases pain should not be controlled by medication prescribed either by the hospital consultant or by the patient's general practitioner. Clearly, for the 37 per cent of patients receiving prescribed analgesics, attempts were being made to control their pain, but in a significant number of cases, prescribed medication brought little relief.

Borderline or morbid scores were recorded by 26.6 per cent of patients on the HAD Anxiety subscale and by 20.9 per cent on the Depression subscale. 61.9 per cent of patients with morbid anxiety scores and 64.7 per cent of those with morbid depression scores were in Social Classes IV-V.

117 patients (67.6%) reported some degree of restricted mobility as a result of their orthopaedic problem. Almost half (46.9%) of patients reported significant levels of impairment in activities of daily living as measured by the Frenchay Activities Index, but by contrast, only 7.6 per cent had significant levels of disability measured by the Barthel ADL Index. More than anything else, this highlights the limitations of the Barthel Index in an elective orthopaedic context because of its ability to detect only the very severest cases of disability. The Frenchay Activities Index, too, was shown to have its limitations, principal among which being its inability to distinguish between ability to perform a task and inclination.

46 patients (26.6%) reported at least some restriction in their sex life resulting from their orthopaedic problem and a further 19.1 per cent declined to answer the question.

Pain and discomfort were cited by the majority of respondents as being the hardest things they had to cope with as a result of being on a waiting list, followed by restricted mobility and uncertainty.

Time already waited by patients in the study ranged from 1 to 299 weeks. 20.2 per cent of patients had already waited more than 60 weeks. Mean time already waited was 44.8 weeks and median time already waited was 23 weeks. Whilst patients in the older age groups, females and those in the lower social classes tended to wait slightly longer than average, there were no significant differences in time already waited by age, sex or social class. Median time already waited ranged from 14 weeks for an investigation to 39.5 weeks for an operation classified as Major. Median time already waited for the 53 operations classified as Major Plus (all total hip or total knee replacements) was 32 weeks.

53.2 per cent of patients claimed that they had been suffering the symptoms for more than six months before they first consulted a doctor about their orthopaedic problem. 80.9 per cent had waited one month or more before consulting a doctor. 58.2 per cent of patients suffering symptoms for more than six months before consulting a doctor were in Social Classes IV-V. 96.5 per cent stated that their first approach about their orthopaedic problem was made to the formal medical services. Only three patients stated that they first approached non-medical practitioners.

51.5 per cent had consulted their general practitioner more than once about their orthopaedic problem and 13.9 per cent had seen their GP six times or more. Mean and median numbers of general practitioner consultations were 3.5 and 2 respectively. 65.3 per cent waited up to 12

weeks from their first visit to a doctor to their first hospital out-patient appointment; 7.5 per cent waited up to 24 weeks and a further 7.5 per cent waited for more than 24 weeks. Mean length of wait overall was 14.9 weeks and median length of wait 6 weeks. These waiting times are significantly less than those found elsewhere in this study, suggesting that patients most likely to benefit from surgery might tend to be given earlier appointments. The majority of patients were placed on the surgical waiting list following their first hospital out-patient appointment. 32.4 per cent attended hospital out-patient clinics twice or more before being placed on the waiting list.

71.6 per cent of patients declared themselves very satisfied with the quality of care provided by their own doctor, with only 6.4 per cent stating that they were dissatisfied or very dissatisfied. Satisfaction with the quality of care received so far from the hospital was at a relatively high level (though not as high as satisfaction with GP care) with 56.7 per cent of patients declaring themselves very satisfied and only 1.7 per cent stating that they were dissatisfied.

Whilst the numbers of patients declaring themselves very satisfied/fairly satisfied with the quality of care received so far from the hospital were more or less inversely proportional to time already waited, there appeared to be no equivalent relationship between patients declaring themselves dissatisfied/very dissatisfied and waiting time.

Levels of satisfaction with time already waited for operation were relatively low with only 12.7 per cent of respondents declaring themselves very satisfied. Again, whilst the number of patients declaring themselves very satisfied/fairly satisfied was more or less inversely proportional to time already waited, there appeared to be no equivalent relationship between levels of dissatisfaction and waiting time. There was, however, a straightforward linear relationship between levels of patient satisfaction with time already waited and mean and median waiting times. Levels of patient satisfaction did not appear to be related in any regular way to social class.

The results from this survey reveal that for the individuals on orthopaedic waiting lists, the waiting process involves varying degrees of pain, distress, disability and loss of physical and social independence. Moreover, they reveal that disadvantage appears to be related to the social class structure. Patients in Social Classes IV-V were the most numerous on the waiting list, had the highest mean and median ages, waited the longest before consulting a doctor, had the longest waiting times, were waiting for the most complex operations, had histories of the most previous operations, reported the most pain and the least relief from pain, recorded the highest levels of anxiety and depression, and, additionally, were further disadvantaged in terms of education, housing and household income.

The following chapter will seek to establish the levels of disability and handicap in patients attending orthopaedic out-patient clinics. It will seek to identify the levels of pain in these patients, the difficulties that they may have in carrying out basic activities of daily living and the impact of their orthopaedic problem on their personal, family, social and economic circumstances.

FOOTNOTES

CHAPTER FOUR

- 1 Mahoney FI, Barthel DW. *op.cit*
- 2 Zigmond AS, Snaith RP. The Hospital Anxiety and
Depression Scale. *Acta Psychiatr Scand* 1983; **67**: 361-370.
- 3 Holbrook M, Skilbeck CE. *op.cit.*
- 4 OPCS, General Register Offices for Scotland and Northern
Ireland. *Mid-1989 UK Population*; 1990.
- 5 Social and Community Planning Research and the University
of Oxford, Nuffield College. *British General Election Study
1987*. London: Social and Community Planning Research,
1987.
- 6 Townsend P, Davidson N (eds). *op.cit.*: 48
- 7 *ibid.*: 47-50.
- 8 *ibid.*
- 9 Cox BD, Blaxter M, Buckle AJL *et al.* *op.cit.*
- 10 Blaxter M. Evidence on inequality in health from a national
survey. *op.cit.*
- 11 United Kingdom 1989. *The Economist Yearbook 1991*.
London: The Economist Newspaper Limited, 1991.
- 12 OPCS Fieldwork Supervisor. *Personal communication*.
January 1990.
- 13 Average annual household income United Kingdom 1989.
The Economist Yearbook 1991. op.cit.
- 14 Central Statistical Office. *Social Trends*. No 21. *op.cit.*
- 15 British United Provident Association. Benefit levels:
surgeons - July 1991. *Consult* 1991; Issue 6.
- 16 Beecher HK. *op.cit.*
- 17 Spence AA, Logan DA. Respiratory effects of extradural
nerve block in the postoperative period. *Br J Anaes* 1975; **47**
(Suppl): 281.
- 18 Huskisson EC. Catecholamine excretion and pain. *Br J Clin
Pharm* 1974; **1**: 80.

- 19 Tursky B, Jamner LD, Friedman R. The Pain Perception Profile: a psychophysical approach to the assessment of pain report. *Behav Ther* 1982; 13: 376-94.
- 20 Frederiksen LW, Lynd RS, Ross J. Methodology in the measurement of pain. *Behav Ther* 1978; 9: 486-88.
- 21 Huskisson EC. Measurement of pain. *Lancet* 1974; 2: 1127-31.
- 22 Huskisson EC. Measurement of pain. *J Rheumatol* 1982; 9: 768-69.
- 23 Scott J, Huskisson EC. Graphic representation of pain. *Pain* 1976; 2: 175-84.
- 24 Maxwell C. Sensitivity and accuracy of the visual analogue scale: a psycho-physical classroom experiment. *Br J Clin Pharmacol* 1978; 6: 15-24.
- 25 Downie WW, Leatham PA, Rhind VM, Wright V, Branco JA, Anderson JA. Studies in pain rating scales. *Ann Rheum Dis* 1978; 37: 378-81.
- 26 Zigmond AS, Snaith RP. *op.cit.*
- 27 *ibid.*
- 28 *ibid.*
- 29 World Health Organisation. *International Classification of Impairments, Disabilities and Handicaps: a manual of classification relating to the consequences of disease. op.cit.*
- 30 *ibid.*
- 31 Mahoney FI, Barthel DW. *op.cit.*
- 32 Holbrook M, Skilbeck CE. *op.cit.*
- 33 Harris J, Currey LF. *Sexual problems due to disease of the hip joint: their relevance to hip surgery.* In: Jayson M (ed). *Total Hip Replacement.* London: Sector Publishing, 1971: 144-48.

- 34 Don B, Lee A, Goldacre MJ. Waiting list statistics. III. Comparison of two measures of waiting times. *Br Med J* 1987; **295**: 1247-48.
- 35 Incidence may be defined as the frequency with which a given event occurs, for example the number of new cases of a particular condition occurring in a given population over a given period of time. By contrast, prevalence is the number of instances of a condition in a specified population without any distinction between new and old cases.
- 36 Suchman E. *op.cit.*
- 37 Friedson E. *op.cit.*
- 38 Zola I. *op.cit.*

CHAPTER FIVE

ANATOMY OF AN ORTHOPAEDIC

OUT-PATIENT WAITING LIST

CHAPTER FIVE

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Introduction

This chapter will seek to establish the extent of disability and handicap in patients attending orthopaedic out-patient clinics at the Horton General Hospital. It reports on a survey of all patients attending orthopaedic out-patient clinics at the hospital during the month of September 1990.

Qualitative and quantitative data were obtained from a 24-page questionnaire similar to that which formed the basis of the in-patient waiting list survey reported upon in Chapter Four. The questionnaire was divided into three sections. Section One comprised questions about the orthopaedic condition itself, general practitioner consultations, waiting time and patient satisfaction. Section Two incorporated the three standard measuring instruments - the Barthel ADL Index,¹ the HAD Scale² and the Frenchay Activities Index³ - as well as additional questions about pain, pain frequency, pain relief, sleep, mobility, employment, sex life, family and physical dependents. Section Three consisted of questions designed to establish social class on the basis of occupation, together with questions on marital status, private health insurance, education, accommodation and income.

Objective assessments were obtained using a simple out-patient assessment form. This provided the consultant's assessment of disability, pain, probable outcome of treatment and patient motivation.

Methodological Considerations

Questionnaires were distributed to all patients attending orthopaedic out-patient clinics during the month of September 1990. Fracture clinics were excluded from the study. During the study period, there were eight orthopaedic out-patient clinics, each of 2-3 hours duration involving a total of 131 patients. Questionnaires were coded in advance of each clinic session using the clinic sheets produced by the hospital's Medical Records Department.

Each patient was greeted individually upon arrival, the questionnaire's purpose was explained, assurances as to confidentiality given and the patient's co-operation sought. In some instances, lengthy explanations were required in order to obtain patient compliance. In each case, patients were given a pre-printed self-seal envelope together with the questionnaire. Patients were given the option of either completing the questionnaire whilst waiting in the out-patient department or completing the questionnaire at home, in which case they were supplied with a stamped addressed envelope. Patients who opted to complete the questionnaires at home and subsequently failed to return them received two written reminders on the hospital notepaper, personally addressed and individually signed. Patient's addresses were obtained from computer records and, where appropriate, postcodes added from Postcode Directories prior to mailing.

The study was carried out according to the following timetable:

03/09/90	First orthopaedic clinic
27/09/90	Final orthopaedic clinic
09/10/90	First written reminders
30/10/90	Second written reminders
30/11/90	Closed

The out-patient assessment forms were also coded in advance of each clinic session and made available to the consultants with the patient case notes. Although these forms consisted only of a simple four-part checklist, both consultants found them tedious to complete in the hectic setting of a busy out-patient clinic. Despite frequent reminders and a considerable degree of persuasion, in eleven instances the assessment forms were not completed by the consultants.

At the end of each clinic session, diagnoses, details of treatment and other consultant actions were obtained from the consultant's entry in the case notes. Further patient details were obtained from the hospital case notes and clinic sheets.

Sample copies of the questionnaires, out-patient assessment forms and reminders are to be found in Appendix D.

Throughout this chapter, quantitative data are presented on the relationship between selected groups of variables from the questionnaire. All data from the questionnaire were pre-coded and analysed on an Epson PC AX3s Personal Computer using SPSS/PC+ Version 4.0.1.

Cross-tabulated data are accompanied by two summary statistics, a measure of association (Cramer's V) and a test of statistical significance. The general rule used is that a high value on the Cramer's V measure of association (0.3 or above) which is also statistically significant ($p = 0.05$ or less) is worthy of interpretation. In most situations, a combination of these two results is sufficient safeguard against drawing inferences about relationships which have no basis in reality.

In addition, the Pearson correlation coefficient (r) is used as an objective summary measure for comparing and summarising linear relationships between pairs of variables. The Pearson coefficient measures the strength of a linear relationship and a coefficient value of 0.5 or above combined with an observed significance level of 0.05 or less has been taken to indicate a strong linear relationship between two variables.

Multiple regression analysis has also been utilised to explore the relationships between multiple independent variables and dependent variables such as waiting time.

The purpose of the study which forms the basis of this chapter is to explore the effects of orthopaedic waiting times on patients’ individual, family, economic and social relationships and the statistical data presented here is only a guide to explanation.

Study Population and Sample Size

Eight orthopaedic out-patient clinics were held during the study period, four by each of the two consultants. Out of a total of 160 patients given appointments, 24 patients failed to attend and 5 patients cancelled, an overall default rate of 18.1 per cent. (See Table 101).

Table 101.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.

	CONSULTANT		TOTAL
	A	B	
Number of clinics	4	4	8
Total patients	97	63	160
Cancellations	2	3	5
Patients not attending	14	10	24
Total patients seen	81	50	131
Patients in study	61	31	92

Out of the 131 attenders, 4 patients were missed, 4 patients were excluded at their second clinic attendance during the study period and 10 refused to participate in the study. Of the remaining 113 patients who agreed to take part in the study, completed questionnaires were finally received from 92, a response rate of 81.4 per cent. 18 patients took away a questionnaire but failed to return it despite two written reminders and 3 patients returned their questionnaires blank. (See Table 102). In the case of the nine patients aged 14 years or younger, questionnaires were completed by or with the assistance of a parent.

Table 102.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
RESPONSE TO QUESTIONNAIRE DISTRIBUTION.

RESPONSE	n	%
Completed in Out-Patient Department	46	
Returned by Post	46	
SUB TOTAL	92	70.2
Refused	10	
Took away, did not return	18	
Returned blank	3	
Already in study	4	
Missed	4	
SUB TOTAL	39	29.8
TOTAL	131	100.0

The Patients

The sample was more or less evenly distributed between the sexes, comprising 47 males and 45 females. The sample was weighted towards the older age groups with 39.1 per cent aged 55 years and over and 25 per cent aged 65 years and over. (See Table 103).

Table 103.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
RESPONDENTS BY AGE AND SEX.

AGE AT 31/12/90	MALES		FEMALES		TOTAL	
	n	%	n	%	n	%
0 - 14	7		2		9	
15 - 24	4		7		11	
25 - 34	8		6		14	
35 - 44	7		7		14	
45 - 54	4		4		8	
55 - 64	3		10		13	
65+	14	29.8	9	22.2	23	25.0
TOTAL	47	51.1	45	48.9	92	100.0

51 respondents (55.4%) were married or living as married and 34 (37%) stated that their partner and/or family at least partly depended upon them for financial support. Only 6 respondents had a disabled partner or close relative who was dependent upon them for physical support.

Social class grades on the basis of occupation were assigned using the Registrar General's classifications.⁴ 16 patients (17.4%) provided insufficient data for a social class grade to be assigned. The class structure of the sample was broadly representative of the UK population with a slight bias towards Social Classes II and IIIN. 50 per cent of the sample was in these two classes as opposed to 40.7 per cent of the UK population. (See Table 104).

Table 104.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
RESPONDENTS BY SOCIAL CLASS. SAMPLE VERSUS UK
POPULATION.

SOCIAL CLASS (REGISTRAR GENERAL'S CATEGORIES)		SAMPLE		UK %
		n	%	
I	Professional	2	2.6	2.6
II	Intermediate	17	22.4	13.9
IIIN	Skilled non-manual	21	27.6	26.8
IIIM	Skilled manual	12	15.8	25.5
IV	Partly skilled	14	18.4	19.4
V	Unskilled	10	13.2	11.8
TOTAL		76	100.0	100.0

Source: OPCS, General Register Offices for Scotland and Northern Ireland. *Mid-1989 UK Population*; 1990.

The social class structure of the sample, however, masks the fact that patients in the older age groups with the most disability and the most severe orthopaedic problems tended to be concentrated in the lower social classes. 12 of the 16 patients (75%) placed on the waiting list for, attending for pre-operative assessments prior to, or attending follow-up appointments following, total hip or total knee replacement were in Social Classes IV and V. Patients in Social Class V had the highest mean and median ages, while patients in the higher social classes tended to be younger, presenting with predominantly sports, work or trauma-related orthopaedic conditions. There appeared, however, to be no regular relationship between waiting times for new patients and social class ($r = 0.05385$, $p = 0.68280$). (See Table 105).

Table 105.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
RESPONDENTS BY SOCIAL CLASS, MEAN AGE (YEARS), MEDIAN
AGE (YEARS), MEAN WAITING TIME (WEEKS) AND MEDIAN
WAITING TIME (WEEKS).

SOCIAL CLASS	TOTAL SAMPLE			NEW PATIENTS ONLY		
	n	MEAN AGE	MEDIAN AGE	n	MEAN WT	MEDIAN WT
I	2	46.0	46.0	2	27.0	27.0
II	17	47.4	43.0	13	14.4	12.0
IIIN	21	38.1	35.0	13	14.8	12.0
IIIM	12	37.6	26.5	4	22.0	25.5
IV	14	52.4	44.5	8	13.0	9.0
V	10	53.1	52.5	7	12.0	12.0
TOTAL	76			47		

43.5 per cent of patients in the sample were employed for at least ten hours per week, while 19.6 per cent were wholly retired from work. 80.1 per cent of respondents in employment or seeking employment reported some degree of impaired performance at work as a result of their orthopaedic problem. Eight patients were unable to undertake their existing work and seven reported their performance at work severely limited.

The majority of respondents (58.7%) completed their full-time education at sixteen years or younger and 32.6 per cent at fourteen years or younger. Only 6.5 per cent of respondents received full-time education after the age of eighteen. There was a fairly strong linear relationship between school leaving age and social class ($r = -0.4628$, $p = <0.001$).

62 per cent attended secondary modern, technical or comprehensive schools for their secondary education; 8.7 per cent attended grammar schools and 3.3 per cent attended independent, fee-paying schools. 28.3 per cent of respondents had no formal qualifications and only one respondent had a university degree or diploma.

57 respondents (62%) lived in owner-occupied accommodation, only slightly less than the figure for the United Kingdom as a whole of 65 per cent.⁵ 18.5 per cent of respondents lived in council accommodation.

51.1 per cent of respondents stated that their total weekly household income from all sources was less than the national average⁶ of £300 per week. 22.8 per cent of respondents earned more than the national average. There was a fairly strong linear relationship between household income and both age ($r = -0.4980$, $p = <0.001$) and social class ($r = -0.4894$, $p = <0.001$). Only seven patients (7.6%) stated that they were eligible for private medical treatment through a health insurance scheme.

Orthopaedic Conditions

The study yielded a wide cross-section of patients of all ages, presenting with a broad range of orthopaedic problems. 58 patients (63%) were attending for the first time, 27 were attending follow-up appointments, either following surgery or other treatment, 4 patients were attending for pre-operative assessment for total hip replacement and 3 for removal of stitches following surgery.

The 58 new patients presented with a wide range of orthopaedic conditions. 5 patients stated at attendance that the condition for which they had been referred had resolved. Osteoarthritis of the hip and knee were the most common presenting conditions, followed by various disorders of the lumbar spine. Osteoarthritis at all sites accounted for 29 per cent of all conditions. There was no evidence of any relationship between orthopaedic condition and any of the other variables such as

social class ($r = 0.0103$, $p = 0.475$), waiting time ($r = 0.0218$, $p = 0.447$), age ($r = -0.1897$, $p = 0.121$) or self-reported pain ($r = 0.1799$, $p = 0.133$).

Table 106.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
ACTION TAKEN BY CONSULTANT.

CONSULTANT ACTION	n
Waiting list for surgery	20
Review	15
Discharge (follow-up patients)	13
Physiotherapy	13
No action (other than advice, reassurance)	13
No action (surgery contraindicated)	2
Appliance	5
Drug therapy/injection	5
Investigation	2
Admit (pre-op assessment)	2
Refer to another specialist	2
TOTAL	92

20 patients were placed on the waiting list for surgery (see Table 107), representing a conversion rate of new patients of 34.5 per cent. By contrast, in 15 cases (22.4% of new patients), the consultant decided that no treatment other than advice and reassurance was necessary and in a further two cases no action was taken because surgery was contraindicated due to the cardiac status of the patients. In addition, two of the four

patients attending for pre-operative assessment were found to be unfit for surgery. Other actions available to the consultants included discharging follow-up patients, review at a later date, referral for another specialist opinion, ordering further investigations such as CT scans, and the prescription of physiotherapy, drug therapy (usually non-steroidal anti-inflammatory drugs) or appliances. (See Table 106).

Table 107.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
SURGICAL PROCEDURES FOR WHICH PATIENTS PLACED ON
WAITING LIST.

SURGICAL PROCEDURE	n
Keller's Procedure	4
Total hip replacement	3
Revision total hip replacement	1
Total knee replacement	2
Arthroscopy	3
Hydrocortisone injection under X-ray control calcaneus	1
Remove calcaneal spurs	1
Arthrodesis MTP joint	1
Sub-acromial resection	1
Screw fixation acromio-clavicular joint	1
Root canal decompression	1
Ulnar nerve decompression	1
TOTAL	20

Consultant assessments of probable outcome of treatment were predominantly favourable. In 53.3 per cent of cases, the consultants expected treatment to lead to significant improvement or complete recovery. (See Table 108).

Table 108.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
CONSULTANT ASSESSMENT OF OUTLOOK/PROBABLE OUTCOME
OF TREATMENT.

Outlook/Probable Outcome of Treatment	n	%
Deterioration/treatment contraindicated or unnecessary	4	4.3
No change/chronic condition	6	6.5
Stabilisation (ie would deteriorate if untreated)	9	9.8
Improvement	13	14.1
Significant improvement (patient's independence threatened if untreated)	11	12.0
Significant improvement (clinically)	24	26.1
Complete recovery	14	15.2
Not graded	11	12.0
TOTAL	92	100.0

Patient motivation was also ranked highly by the consultants. 73 patients (79.3%) were classified as well or highly motivated and only 8 patients were classified as poorly motivated or worse. (See Table 109).

Table 109.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
CONSULTANT ASSESSMENT OF APPARENT MOTIVATION.

Apparent Motivation	n	%
Negative or hostile	1	1.1
Passive, afraid, insecure (needing much support)	1	1.1
Poorly, unrealistically motivated	6	6.5
Good emotional strengths, motivated with support	40	43.4
Independent, confident, highly motivated	33	35.9
Not graded	11	12.0
TOTAL	92	100.0

There was no evidence of any relationship between patient motivation as ranked by the consultants and age ($r = 0.0812$, $p = 0.324$), waiting time ($r = 0.1581$, $p = 0.186$), self-reported pain ($r = 0.3354$, $p = 0.026$), social class ($r = -0.2911$, $p = 0.047$) or orthopaedic condition ($r = 0.3668$, $p = 0.016$).

33 patients (35.9%) felt that their orthopaedic problem had deteriorated whilst they had been waiting for their out-patient appointment. (See Table 110).

Table 110.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
DETERIORATION OF ORTHOPAEDIC CONDITION WHILST
WAITING. RESPONDENTS' OPINIONS.

Q8. Do you think that your orthopaedic problem has got worse while you have been waiting for this appointment?	n	%
Yes	33	35.9
No	55	59.8
No response	4	4.3
TOTAL	92	100.0

Respondents who felt that their condition had deteriorated were given the opportunity to provide details on the questionnaire. Increased pain was most frequently mentioned:

Female aged 35 early osteoarthritic changes knee waited 12 weeks:

"Pain has got worse and am taking pain killers now."

Male aged 14 Osgood Schlatter’s disease waited 2 weeks:

"It hurts more than it used to."

Female aged 41 ?cervical spondylosis waited 8 weeks:

"Pain has increased."

Female aged 15 cyst calcaneus waited 6 weeks:

"Right heel & ankle have been aching and have had sharp pains in heel."

Female aged 27 low back pain waited 14 weeks:

"Back pains have increased tremendously to such an extent sometimes to go to bed is the only solution."

Female aged 78 gross osteoarthritis hip waited 6 weeks:

"More painful."

Female aged 44 low back pain waited 10 weeks:

"I've been in more pain."

Male aged 58 ulnar nerve compression waited 20 weeks:

"Numbness returns to my hand more frequently than before."

Female aged 67 osteoarthritis hip waited 23 weeks:

"Increased discomfort and pain."

Pain was also mentioned in conjunction with decreased physical mobility and interference with work, sport and footwear:

Male aged 45 pain acromio-clavicular joint waited 10 weeks:

"Increasing pain & lack of joint mobility."

Male aged 19 ?medial meniscus injury knee waited 13 weeks:

"Extreme pain & discomfort causing time off work and inability to do other things eg sport etc."

Female aged 74 bilateral hallux valgus waited 12 weeks:

"Too painful to wear shoes."

Decreased mobility was mentioned by a number of patients:

Female aged 59 hyperlordotic spine waited 12 weeks:

"Between waiting I now have trouble bending and sometimes walking."

Female aged 23 pre-operative assessment for total hip replacement waited 12 weeks:

"Walking has got worse. Pain has got worse."

Female aged 80 pre-operative assessment for total hip replacement waited 76 weeks:

"I cannot now walk at all without two sticks. It is very difficult to do any work in the house or do any cooking as with two sticks my hands are not free."

Male aged 79 pre-operative assessment for total hip replacement waited 26 weeks:

"Rapid increase in immobility."

Other patients mentioned increased deformity, interference with sport and with sleep:

Female aged 70 trigger thumb waited 12 weeks:

"Progressive more contraction over the time."

Female aged 19 pain and effusion knee waited 16 weeks:

"Because the knee joint has become swollen."

Male aged 25 early osteoarthritic changes knee waited 20 weeks:

"Unable to keep 100% physically active and to lead normal sporting interests."

Male aged 79 pre-operative assessment for total hip replacement waited 50 weeks:

"Am now unable to walk or sleep properly."

Pain and Distress

The questionnaire incorporated a number of questions about pain, pain frequency and pain relief. Visual analogue scales were also included. In addition, consultants were asked to give their assessment of patients' pain. 80.4 per cent of patients were graded by the consultants as suffering moderate, mild or no pain and only seven patients (7.6%) were ranked as suffering severe pain. (See Table 111). By contrast, 22.9 per cent of patients rated their own pain as unbearable or severe. (See Table 112). Fifteen patients ranked by the consultants as suffering moderate, mild or no pain, rated their own pain as severe. Conversely, three of the seven patients whose pain was ranked severe by the consultants rated their own pain as moderate and one patient reported only slight discomfort. (See Table 113).

Table 111.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
CONSULTANT ASSESSMENT OF PAIN/DISTRESS.

Pain/Distress	n	%
No distress	24	26.1
Mild	30	32.6
Moderate	20	21.7
Severe	7	7.6
Not graded	11	12.0
TOTAL	92	100.0

Table 112.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
RESPONDENTS' DESCRIPTIONS OF PAIN.

Q12. Please describe the amount of pain that you attribute to your orthopaedic condition.	n	%
Unbearable pain	2	2.2
Severe pain	19	20.7
Moderate pain	38	41.3
Slight discomfort	27	29.3
No pain	2	2.2
No response	4	4.3
TOTAL	92	100.0

Table 113.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
CONSULTANT ASSESSMENT OF PAIN/DISTRESS VERSUS
RESPONDENTS' SELF-REPORTED PAIN.

Pain/Distress Consultant Grade	Patients' Self-Reported Pain						
	UP	SP	MP	SD	NP	NR	TOTAL
No distress		3	9	11	1		24
Mild	1	5	15	8		1	30
Moderate		7	6	4		3	20
Severe	1	2	3	1			7
Not graded		2	5	3	1		11
TOTAL	2	19	38	27	2	4	92

UP = Unbearable pain
SP = Severe pain
MP = Moderate pain

SD = Slight discomfort
NP = No pain
NR = No response

Cramer’s V = 0.25428, p = 0.24495

Patients were asked to indicate the severity of their pain on a visual analogue scale with a 100mm line. Responses were measured in millimetres from 0 (no pain) to 100 (unbearable pain). (See Table 114). There was a very strong correlation between patients' descriptions of their pain and their equivalent visual analogue pain scores ($r = 0.7632$, $p = <0.001$).

Table 114.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
VISUAL ANALOGUE PAIN SCALE. MEASURED SCORES.

Q13. Now, place a mark on the line below at a point which represents as closely as possible your opinion of the severity of your pain.	n	%
0	1	1.1
01 - 20	14	15.2
21 - 40	26	28.3
41 - 60	24	26.1
61 - 80	14	15.2
81 - 100	4	4.3
No response	9	9.8
TOTAL	92	100.0

Comparisons between patient visual analogue scores and consultant rankings followed a similar pattern to comparisons with patient descriptions of pain. Eleven patients ranked by the consultants as suffering moderate, mild or no pain, had visual analogue scores of over 60. (See Table 115).

Table 115.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
CONSULTANT ASSESSMENT OF PAIN/DISTRESS VERSUS
RESPONDENTS' VISUAL ANALOGUE PAIN SCORES.

Pain/Distress Consultant Grade	Patients' Visual Analogue Pain Scores							
	0	01- 20	21- 40	41- 60	61- 80	81- 100	NR	TOTAL
No distress	1	10	3	9	1			24
Mild		3	11	9	5	1	1	30
Moderate			6	4	3	1	6	20
Severe		1	2		2	2	1	7
Not graded		1	4	2	3		1	11
TOTAL	1	14	26	24	14	4	9	92

NR = No response

Cramer's V = 0.81809, p = 0.24316

Patients were also asked about the frequency of their pain. 15 patients (16.3%) reported constant pain, 70 (76.1%) pain at certain times and 4 (4.3%) no pain at any time. (See Table 116). There was a strong linear relationship between pain frequency and pain severity ($r = -0.61936$, $p = <0.001$). 52.3 per cent of patients reporting severe or unbearable pain also stated that it was constant.

Table 116.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
SELF-REPORTED PAIN FREQUENCY.

Q14. How frequent is this pain?	n	%
Constant pain	15	16.3
Pain at certain times	70	76.1
No pain at any time	4	4.3
No response	3	3.3
TOTAL	92	100.0

46 patients (50.0%) stated that they took pain killers to relieve their pain. 34 of the 46 patients taking pain killers (73.9%) stated that they were prescribed by a doctor. Patients were asked to describe the degree of relief from pain provided by their medication. Only 6 patients stated that their medication provided complete relief from pain. (See Table 117).

Patients were asked to indicate the degree of pain relief provided by their medication on a second visual analogue scale with a 100mm line. Responses were then measured in millimetres from 0 (complete relief) to 100 (no relief). (See Table 118). There was a strong correlation between patients' descriptions of the degree of pain relief provided by their medication and their equivalent visual analogue pain relief scores ($r = 0.6737, p = <0.001$).

Table 117.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
DEGREE OF PAIN RELIEF PROVIDED BY MEDICATION.

DEGREE OF PAIN RELIEF	n	%
No relief from pain	-	-
Very little relief from pain	6	13.0
Moderate relief from pain	33	71.8
Complete relief from pain	6	13.0
No response	1	2.2
TOTAL	46	100.0

Table 118.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
VISUAL ANALOGUE PAIN RELIEF SCALE. MEASURED SCORES.

Q16. Now, place a mark on the line below at a point which represents as closely as possible the degree of relief from pain which your pain killers give you.	n	%
0	1	2.2
01 - 20	13	28.3
21 - 40	11	23.9
41 - 60	8	17.4
61 - 80	7	15.2
81 - 100	2	4.3
No response	4	8.7
TOTAL	46	100.0

Patients were also asked how their orthopaedic problem affected their sleeping habits. 48 patients (52.2%) reported some disturbance in their sleeping habits as a result of their orthopaedic problem. (See Table 119).

Table 119.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
SLEEPING PATTERNS OF RESPONDENTS.

Q17. How does your orthopaedic problem affect your sleeping habits?	n	%
Have less than 2 hours sleep		
Have less than 4 hours sleep	5	5.4
Have less than 6 hours sleep	20	21.7
Have less than 8 hours sleep	23	25.0
Sleep well	41	44.6
No response	3	3.3
TOTAL	92	100.0

This study has shown that a significant number of patients had constant, severe self-reported pain, unrelieved by prescribed medication together with disturbed sleeping patterns. Moreover, it has also shown that the consultants appeared to be unaware of the extent of patients' pain and consistently underrated it.

Anxiety and Depression

The questionnaire incorporated the Hospital Anxiety and Depression (HAD) Scale, a well-validated self-assessment scale which has been found to be a reliable instrument for detecting states of anxiety and depression in non-psychiatric settings.⁷

There was a strong correlation between patients' scores on the Anxiety and Depression subscales ($r = 0.7299$, $p = <0.001$). Borderline or morbid scores were recorded by 26 patients (28.3%) on the Anxiety subscale and by 13 patients (14.1%) on the Depression subscale. (See Tables 120 and 121). There was no significant association between waiting time and either Anxiety subscale scores (Cramer's $V = 0.59302$, $p = 0.12569$) or Depression subscale scores (Cramer's $V = 0.55199$, $p = 0.75242$). There was again no significant association between social class and either Anxiety (Cramer's $V = 0.45855$, $p = 0.66715$) or Depression (Cramer's $V = 0.38973$, $p = 0.75092$) subscale scores.

Patients with borderline or morbid scores on the Anxiety subscale had a mean age of 47.1 years and were predominantly (61.5%) female. Patients recording borderline or morbid scores on the Depression subscale had a mean age of 56 years and 53.9 per cent were female. There was a weak correlation between self-reported pain and HAD depression scores ($r = 0.2736$, $p = 0.006$).

Table 120.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
THE HAD SCALE. RESPONDENTS' ANXIETY SUBSCALE SCORES.

HAD ANXIETY SCORE	n	%
Normal 0 - 7	60	65.2
Borderline 8 - 10	9	9.8
Morbid 11 - 21	17	18.5
No response/void	6	6.5
TOTAL	92	100.0

Table 121.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
THE HAD SCALE. RESPONDENTS' DEPRESSION SUBSCALE SCORES.

HAD DEPRESSION SCORE	n	%
Normal 0 - 7	73	79.4
Borderline 8 - 10	6	6.5
Morbid 11 - 21	7	7.6
No response/void	6	6.5
TOTAL	92	100.0

Disability and Handicap

The questionnaire incorporated two standard measuring instruments, the Barthel ADL Index⁸ and the Frenchay Activities Index.⁹ The Barthel Index has a maximum score of 20 indicating no disability. The lower the patient score, the more severe the disability. 66 patients (71.7%) scored the maximum of 20, with only 2 patients achieving scores lower than 16. (See Table 122). Once again, this mirrors the findings from the in-patient study, demonstrating the unsuitability of the Barthel Index for use in a clinical orthopaedic context because of its ability to detect only the severest cases of disability. There was no significant relationship between Barthel scores and any other variable except age ($r = -0.4172$, $p = <0.001$).

Table 122.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
THE BARTHEL ADL INDEX. RESPONDENTS' SCORES.

BARTHEL ADL INDEX SCORE	n	%
1 - 5	-	-
6 - 10	-	-
11 - 15	2	2.2
16 - 20	80	87.0
No response\void	10	10.8
TOTAL	92	100.0

The Frenchay Activities Index has a minimum score of 15 indicating the severest handicap and a maximum score of 60 indicating no handicap. 7 patients (7.6%) scored under 30 and a further 31 (33.7%) scored between 30 and 44. (See Table 123).

Primarily concerned with social and domestic life, the Frenchay Activities Index also has its limitations because of its inability to distinguish between ability to perform a task and inclination. As with the Barthel ADL Index, there was no significant relationship between Frenchay scores and any other variable except age ($r = -0.5248, p = <0.001$). There was, however, a significant correlation between the Barthel and Frenchay scores themselves ($r = 0.3990, p = <0.001$).

Table 123.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
THE FRENCHAY ACTIVITIES INDEX. RESPONDENT'S SCORES.

FRENCHAY ACTIVITIES INDEX SCORE	n	%
15 - 29	7	7.6
30 - 44	31	33.7
45 - 59	45	48.9
No response/void	9	9.8
TOTAL	92	100.0

In addition to the two standard measuring instruments, patients were also asked a specific question as to whether their orthopaedic problem imposed any restriction on their mobility. 62 patients (67.4%) reported at least some degree of restriction in mobility as a result of their orthopaedic problem. (See Table 124).

Table 124.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
RESTRICTIONS IN MOBILITY OF RESPONDENTS.

Q18. Does your orthopaedic problem impose any restriction on your mobility?	n	%
Confined to home except for escorted outings	9	9.8
Some restriction	53	57.6
No restriction	28	30.4
No response	2	2.2
TOTAL	92	100.0

Patients were also asked if their orthopaedic problem imposed any restriction on their sex life. 31 patients (33.7%) reported some kind of restriction. 16 patients (17.4%) failed to answer this question. (See Table 125).

Table 125.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
LIMITATIONS ON SEX LIFE.

Q20. Does your orthopaedic problem impose any restriction on your sex life?	n	%
Complete restriction (no sex life)	10	10.9
Severe restriction	1	1.1
Some restriction	20	21.7
No restriction (normal)	36	39.1
No response	16	17.4
Not applicable (child)	9	9.8
TOTAL	92	100.0

Consultants were asked to give their assessments of patient’s disability and physical mobility. (See Table 126).

Table 126.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
CONSULTANT ASSESSMENT OF DISABILITY/PHYSICAL MOBILITY.

DISABILITY/PHYSICAL MOBILITY	n	%
No disability	35	38.0
Difficulty (unaided)	38	41.3
Aided (appliance)	5	5.4
Dependent (on assistant)	3	3.3
Completely disabled/immobile	-	-
Not graded	11	12.0
TOTAL	92	100.0

There was a fairly strong relationship between consultant grades and both Barthel ($r = 0.4783$, $p = <0.001$) and Frenchay scores ($r = 0.3256$, $p = 0.002$). Consultant grades also corresponded well to mean Barthel and Frenchay scores (see Table 127), but because of the limitations of these measuring instruments, the more meaningful comparison is between consultant grades of disability/physical mobility and patients' self-reported mobility. Here, it is apparent that consultants tended to underestimate patients' disability and the restrictions on their physical mobility resulting from their orthopaedic problem. 20 of the 35 patients (57.1%) ranked by consultants as having no disability reported at least some restriction on their mobility and one of these patients reported being confined to home except for escorted outings. (See Table 128).

Table 127.
HIGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
CONSULTANTASSESSMENT OF DISABILITY/PHYSICAL MOBILITY
VERSUS MEAN AND MEDIAN BARTHEL AND FRENCHAY SCORES.

Consultant Grade	BARTHEL SCORE		FRENCHAY SCORE	
	MEAN	MEDIAN	MEAN	MEDIAN
No disability	19.9	20.0	47.4	50.0
Difficulty (aided)	19.6	20.0	43.1	44.5
Aided (appliance)	18.6	20.0	36.2	35.0
Dependent (on assistant)	15.0	15.0	37.0	37.0

Table 128.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
CONSULTANT ASSESSMENT OF DISABILITY/PHYSICAL MOBILITY
VERSUS RESPONDENTS' SELF-REPORTED MOBILITY.

Self-Reported Restriction	CONSULTANT SCORES					
	0	1	2	3	NR	TOTAL
No restriction	15	9	1		3	28
Some restriction	19	24	2	2	6	53
Confined to home except for escorted outings	1	3	2	1	2	9
No response		2				2
TOTAL	35	38	5	3	11	92

- 0 = No disability
- 1 = Difficulty (unaided)
- 2 = Aided (appliance)
- 3 = Dependent (on assistant)
- NR = No response

Cramer’s V = 0.3265, p = 0.003

Waiting Times

Waiting times for the 58 patients attending their first orthopaedic out-patient consultation ranged from one to thirty-three weeks. Mean and median waiting times for this group were 12.7 weeks and 12 weeks respectively. There were no significant differences in new patient waiting time by age (Cramer’s V = 0.2817, p = 0.2384), sex (Cramer’s V = 0.2547, p = 0.5632) or social class (Cramer’s V = 0.2592, p = 0.4796).

The remaining 34 patients had previously attended the hospital and were attending out-patient clinics in accordance with a predetermined programme.

39 patients (42.4%) stated that they had been suffering the symptoms for more than six months before they first consulted a doctor about their orthopaedic problem. 61 patients in total (66.3%) had waited one month or more before consulting a doctor. (See Table 129).

Table 129.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
TIME FROM ONSET OF SYMPTOMS TO FIRST MEDICAL CONSULTATION.

Q2. How long had you been suffering the symptoms before you first saw a doctor about this problem?	n	%
Less than a week	14	15.2
1 - 4 weeks	15	16.3
1 - 3 months	13	14.1
4 - 6 months	9	9.8
More than 6 months	39	42.4
No response	2	2.2
TOTAL	92	100.0

89 patients (96.7%) stated that their first approach about their orthopaedic problem was made to the formal medical services. Of these, 81 (88% of the total) approached their general practitioner. (See Table 130). Only two patients stated that they first approached non-medical practitioners. The non-medical practitioners in question were a chiropractor and an osteopath.

Table 130.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
RESPONDENTS' FIRST APPROACH ABOUT THEIR ORTHOPAEDIC PROBLEM.

Q3. Whom did you first approach about this problem?	n	%
GP/family doctor	81	88.0
Hospital casualty department	7	7.6
Non-medical practitioner	2	2.2
Other (Health Visitor)	1	1.1
No response	1	1.1
TOTAL	92	100.0

54 patients (58.7%) had consulted their general practitioner more than once about their orthopaedic problem and 12 (13%) had seen their GP six times or more. 12 patients stated that they did not know how many times they had consulted their GP, but it is reasonable to suppose that the majority of this group had made multiple visits. (See Table 131). Mean and median numbers of GP consultations were 3.2 and 2 respectively.

Table 131.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
NUMBER OF GP CONSULTATIONS.

Q4. How many times have you seen your own doctor about this problem?	n	%
One	23	25.0
Two	23	25.0
Three	8	8.7
Four	11	12.0
Six	5	5.4
More than six	7	7.6
Don't know	12	13.0
No response	3	3.3
TOTAL	92	100.0

Patient Satisfaction

The questionnaire contained a number of questions about levels of patient satisfaction with various aspects of their care and their experiences as out-patients.

67.4 per cent of patients declared themselves very satisfied with the quality of care provided by their own doctor. Only 6 patients (6.5%) stated that they were dissatisfied or very dissatisfied. (See Table 132).

Table 132.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
RESPONDENTS' SATISFACTION WITH GP CARE.

Q5. Are you satisfied with the quality of care you received from your own doctor?	n	%
Very satisfied	62	67.4
Fairly satisfied	24	26.1
Dissatisfied	4	4.3
Very dissatisfied	2	2.2
TOTAL	92	100.0

Levels of satisfaction with time waited for out-patient appointments were much lower with only 20.6 per cent of respondents declaring themselves very satisfied. (See Table 133). The pattern of satisfaction was similar for new patients with 24.2 per cent of this group declaring themselves very satisfied. (See Table 134).

There was a significant relationship between levels of dissatisfaction and waiting time. (See Table 135). With the single exception that the older age groups tended to be more satisfied with waiting time than younger patients, there was no significant relationship between levels of patient satisfaction and age, (see Table 136), sex (see Table 137) or social class (see Table 138).

Table 133.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
SATISFACTION WITH TIME WAITED FOR OUT-PATIENT
APPOINTMENT.

Q7. How do you feel about the amount of time you had to wait for this appointment?	n	%
Very satisfied	19	20.6
Fairly satisfied	39	42.4
Dissatisfied	16	17.4
Very dissatisfied	10	10.9
No response	8	8.7
TOTAL	92	100.0

Table 134.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
SATISFACTION WITH TIME WAITED FOR OUT-PATIENT
APPOINTMENT. NEW PATIENTS ONLY.

Q7. How do you feel about the amount of time you had to wait for this appointment?	n	%
Very satisfied	14	24.2
Fairly satisfied	22	37.9
Dissatisfied	12	20.7
Very dissatisfied	5	8.6
No response	5	8.6
TOTAL	58	100.0

Table 135.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
RELATIONSHIP BETWEEN WEEKS WAITED AND SATISFACTION.
NEW PATIENTS ONLY.

WEEKS WAITED	VS	FS	DS	VD	NR	TOTAL
1 - 4 weeks	10	6	1			17
5 - 10 weeks	1	3	1	1		6
11 - 15 weeks	1	6	5	2	2	16
16 - 20 weeks	1	2	1			4
More than 20 weeks	1	5	4	2	3	15
TOTAL	14	22	12	5	5	58

VS = Very satisfied
 FS = Fairly satisfied
 DS = Dissatisfied
 VD = Very dissatisfied
 NR = No response

Cramer’s V = 0.65680, p = <0.005

Table 136.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
RELATIONSHIP BETWEEN PATIENT SATISFACTION WITH
WAITING TIME AND AGE. NEW PATIENTS ONLY.

SATISFACTION	n	MEAN AGE	MEDIAN AGE
Very satisfied	14	49.4	61.5
Fairly satisfied	22	48.2	47.0
Dissatisfied	12	35.6	36.5
Very dissatisfied	5	39.2	41.0
No response	5	42.0	42.0
TOTAL	58		

Cramer’s V = 0.2827, P = 0.3306

Table 137.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
RELATIONSHIP BETWEEN PATIENT SATISFACTION WITH
WAITING TIME AND SEX. NEW PATIENTS ONLY.

SATISFACTION	MALE	FEMALE	TOTAL
Very satisfied	7	7	14
Fairly satisfied	14	8	22
Dissatisfied	6	6	12
Very dissatisfied	3	2	5
No response	2	3	5
TOTAL	32	26	58

Cramer’s V = 0.1231, p = 0.7356

Table 138.
HGH ORTHOPAEDIC OUT-PATIENT CLINICS SEPTEMBER 1990.
RELATIONSHIP BETWEEN PATIENT SATISFACTION WITH
WAITING TIME AND SOCIAL CLASS. NEW PATIENTS ONLY.

SATISFACTION	SOCIAL CLASS						TOTAL
	I	II	IIIN	IIIM	IV	V	
Very satisfied		6			2	1	9
Fairly satisfied		3	6		4	4	17
Dissatisfied	1	2	4	3	1		11
Very dissatisfied	1	2				2	5
No response			3	1	1		5
TOTAL	2	13	13	4	8	7	47

Cramer’s V = 0.3176, p = 0.1509

At the end of the questionnaire, patients were given the opportunity to make general comments on their own or their friends' or relatives' experience as an out-patient. 13 patients (14.1%) took advantage of this opportunity. The majority were critical of the time spent waiting in the out-patient department, of hurried consultations and poor communication:

Q34. Are there any other comments you would like to make about your or your friends' or relations' experience as an out-patient that have not already been covered in this questionnaire?

"On our first visit we had to wait over an hour between our appointment time and when we actually saw [name of Consultant]. Our second visit was the same. This can be stressful when the patient is only 3½ years."

"Our main concern is the length of time spent in the waiting room of the consultant - 1 hour or more is not uncommon. Then the consultation is very brief and hurried with little communication. eg 'has the lump grown? - right we will have it out.' Consultant leaves room with no further explanation, this is in front of a ten year old child. Details of the operation had to be obtained from his secretary by phone."

"Although my toe is only a 'minor' trouble, I felt I couldn't really talk to the surgeon - he was half way out of the door! On the other hand I had an appointment for 2.0pm & I was stuck and rang up and was seen later."

"I was disappointed that on my 2nd appointment to see 'my consultant' I saw a different doctor. ('underling') felt quite rushed when actually in the surgery and not entirely happy with conclusions. Will consider private 2nd consultation."

"Having obtained the appointment, I rang several weeks prior to it, to ask if I should obtain x-rays. Having been informed that this was unnecessary, I arrive for a 10.15 a.m. appointment and am duly sent off to x-ray!! eventually meeting the consultant at 11.45 a.m., for approximately ten minutes. I'm sure that efficiency is your aim, and that's what this paper is all about. Efficient coordination of services. Good luck."

"Sometimes the waiting gets a bit long."

"Appointment never on time."

"I would say that NHS out-patient treatment takes a long time to get treatment and is generally a slow process."

By contrast, 5 patients took the opportunity to praise the hospital and its staff:

"I have always been well satisfied at the Horton General."

"Very pleased with the way I have always been treated especially Horton General Hospital in fact more than satisfied."

"Always very good helpful & considerate. No complaints [Name of local private hospital] couldn't compete!!"

"Very thorough, considerate attention by the consultant."

"I know the doctors have a lot to do so I just wait until they have time to see me, I know they will get me better in the end, well I hope so."

Summary

This survey of all patients attending orthopaedic out-patient clinics at the Horton General Hospital during the month of September 1990 has yielded further quantitative and qualitative data to supplement that reported upon in Chapter Four.

Eight orthopaedic out-patient clinics were held during the study period. Out of a total of 160 patients given appointments, 24 patients failed to

attend and a further 5 cancelled, giving an overall default rate of 18.1 per cent. 92 completed questionnaires were available for analysis at the end of the study, a response rate of 81.4 per cent.

While the sample was more or less evenly distributed between the sexes, it was weighted towards the older age groups. The social class structure of the sample showed a bias towards Social Classes II and IIIN, but this masked the fact that those patients in the lower social classes tended to have the most disability and the most severe orthopaedic problems.

58.7 per cent of respondents completed their full-time education at sixteen years or younger and only 6.5 per cent received full-time education after the age of eighteen. 28.3 per cent of the sample had no formal educational qualifications. 62 per cent of respondents lived in owner-occupied accommodation, only slightly less than the figure for the United Kingdom as a whole of 65 per cent.

43.5 per cent of respondents were employed for at least ten hours per week, while 19.6 per cent were wholly retired from work. Only 21 respondents (22.8%) earned more than the national average and only 7 (7.6%) had some form of private health insurance. 25 respondents (27.2%) were living in poverty (defined as below 60 per cent of average earnings). 80.1 per cent of respondents in employment or seeking employment reported some degree of impaired performance at work as a result of their

orthopaedic problem. 55.4 per cent of the sample were married or living as married and 37 per cent stated that their partner and/or family at least partly depended upon them for financial support.

The study yielded a wide cross-section of patients of all ages, presenting with a broad range of orthopaedic problems. 58 patients (63%) were attending for the first time, 27 were attending follow-up appointments, following surgery or other treatment, 4 were attending for pre-operative assessments and 3 for removal of stitches following surgery. Osteoarthritis of the hip and knee were the most common presenting conditions, followed by various disorders of the lumbar spine.

34.5 per cent of new patients were placed on the waiting list for surgery, while 18.5 per cent of new patients received no treatment other than advice or reassurance. In 53.3 per cent of cases, the consultants expected treatment to lead to significant improvement or complete recovery. Patient motivation was also ranked highly by the consultants with 79.3 per cent of patients being classified as well or highly motivated.

35.9 per cent felt that their orthopaedic problem had deteriorated whilst they had been waiting for their out-patient appointment. Increased pain was most frequently cited, followed by decreased mobility, increased deformity and interference with work, sport and sleep.

A significant number of patients in the study had constant, severe self-reported pain, unrelieved by prescribed medication. Only 2 patients reported no pain. 41.3 per cent reported moderate pain and 20.7 per cent severe pain. 16.3 per cent reported constant pain and 76.1 per cent intermittent pain. 50 per cent of respondents stated that they took analgesics to relieve their pain. 34 of the 46 patients taking analgesics (73.9%) stated that they were prescribed by a doctor. Only 6 patients stated that their medication provided complete relief from pain. 48 patients (52.2%) also reported some disturbance in their sleeping habits as a result of their orthopaedic problem. Consultants appeared to be unaware of the extent of patients' pain and consistently underrated it. 15 patients ranked by the consultants as suffering moderate, mild or no pain, rated their own pain as severe.

Borderline or morbid scores on the HAD Anxiety subscale were recorded by 28.3 per cent of patients and by 14.1 per cent on the Depression subscale. Patients with borderline or morbid anxiety scores had a mean age of 47.1 years and were predominantly female. Patients recording borderline or morbid depression scores had a mean age of 56 years and 53.9 per cent were female.

62 patients (67.4%) reported some degree of restricted mobility as a result of their orthopaedic problem. 41.3 per cent of patients reported significant levels of impairment in activities of daily living as measured by the

Frenchay Activities Index, but by contrast, only 2.2 per cent had significant levels of disability measured by the Barthel ADL Index. This reinforces the findings from Chapter Four which demonstrated the unsuitability of the Barthel ADL Index in an elective orthopaedic context because of its ability to detect only the very severest cases of disability.

In making their objective assessments, the consultants tended to underestimate patients' disabilities and the restrictions on their physical mobility resulting from their orthopaedic problem. 57.1 per cent of the patients ranked by the consultants as having no disability reported at least some restriction on their mobility and one of these patients reported being confined to home except for escorted outings.

31 patients (33.7%) reported at least some restriction in their sex life resulting from their orthopaedic problem and a further 17.4 per cent declined to answer the question.

Waiting times for the 58 patients attending their first orthopaedic out-patient consultation ranged from 1 to 33 weeks. Mean and median waiting times for this group were 12.7 weeks and 12 weeks respectively. There were no significant differences in waiting time by age, sex or social class. The remaining 34 patients had previously attended the hospital and were attending out-patient clinics in accordance with a predetermined programme of treatment.

42.4 per cent of patients stated that they had been suffering the symptoms for more than six months before they first consulted a doctor about their orthopaedic problem. 66.3 per cent had waited one month or more before consulting a doctor. 96.7 per cent stated that their first approach about their orthopaedic problem was made to the formal medical services. Of these 88 per cent approached their general practitioner. Only two patients stated that they first approached non-medical practitioners.

58.7 per cent had consulted their general practitioner more than once about their orthopaedic problem and 13 per cent had seen their GP six times or more. Mean and median numbers of general practitioner consultations were 3.2 and 2 respectively.

67.4 per cent of patients declared themselves very satisfied with the quality of care provided by their own doctor, with only 6.5 per cent stating that they were dissatisfied or very dissatisfied. Satisfaction with time waited for out-patient appointments was much lower with only 20.6 per cent of respondents declaring themselves very satisfied.

There was a significant relationship between levels of dissatisfaction and waiting time. With the single exception that the older age groups tended to be more satisfied with waiting time than younger patients, levels of patient satisfaction did not appear to be related in any regular way to age, sex or social class.

The results from this survey of out-patients supplement those from the larger in-patient waiting list study and confirm that for the individuals waiting for orthopaedic treatment, the waiting process involves varying degrees of pain, distress, disability and loss of independence. The relationship between disadvantage and the social class structure is not as apparent as in the previous study, but nevertheless, it is clear that a substantial proportion of patients attending orthopaedic out-patient clinics experienced significant levels of restriction in mobility, impairment in their activities of daily living, in their sex lives and in their performance at work; had significant levels of pain, disturbed sleep, anxiety and depression; and were further disadvantaged in terms of education, housing and household income.

FOOTNOTES
CHAPTER FIVE

- 1 Mahoney FI, Barthel DW. *op.cit.*
- 2 Zigmond AS, Snaith RP. *op. cit.*
- 3 Holbrook M, Skilbeck CE. *op.cit.*
- 4 Townsend P, Davidson N (eds). *op.cit.*
- 5 United Kingdom 1989. *The Economist Yearbook 1991. op.cit.*
- 6 Average annual household income United Kingdom 1989.
ibid.
- 7 Zigmond AS, Snaith RP. *op. cit.*
- 8 Mahoney FI, Barthel DW. *op.cit.*
- 9 Zigmond AS, Snaith RP. *op. cit.*