

Nuffield Occasional Papers
Health Economics Series: Paper No. 5

**Who Pays for
and Who Gets
Health Care?**

Equity in the Finance and
Delivery of Health Care
in the United Kingdom

Carol Propper

Introduction by
John Wyn Owen



The Nuffield Trust
FOR RESEARCH AND POLICY
STUDIES IN HEALTH SERVICES

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Carol Propper

Department of Economics
University of Bristol

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Series Editor
Professor Alan Maynard



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ABOUT THE AUTHOR

Carol Propper is Professor of Economics at the University of Bristol. She has undertaken extensive research in the economics of health; her current research interests include equity in the NHS, the use of private health care services and the political economy of health care reform. From 1993-94 she was Senior Economic Adviser to the NHS Executive on the Internal Market. She has published in the *Journal of Health Economics*, the *Economic Journal*, the *Journal of Public Economics*, the *Journal of Human Resources*, *Health Economics* and the *BMJ*.

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INTRODUCTION

The government is once again undertaking a comprehensive health spending review. At the same time it has found funds to avoid a winter of emergency inpatient closures and lengthening waiting lists.

Sustainable financing of health care with appropriate mechanisms for individual community and national priority setting are important public policy objectives which have been under scrutiny for many years and must now be addressed with some urgency. The Trust has informed this debate in the past and will continue to do so.

These Occasional Papers offer the economists' contribution and should be of interest to policy-makers at the highest level as they strive to improve the effectiveness of the National Health Service, improve patient care and create the right incentives to reward efficient performance within inevitable financial constraints.

Paper 5 – *Who Pays for and Who Gets Health Care? Equity in the Finance and Delivery of Health Care in the United Kingdom* – by Carol Propper, addresses the issue of equity, a central concern in any modern health service. The author reviews a considerable body of current evidence on both the finance and health care delivery aspects. The conclusions on finance are reasonably robust. The dominance of public finance in the UK health care system, coupled with the fact that a sizeable proportion of taxes are raised from income tax, makes the financing of health care in this country one of the more progressive health care financing systems. The recent reforms have not made major changes to the finance arrangements but if further direct payments from consumers are introduced this will make financing more regressive.

The picture on the delivery of health care is less clear. Detailed studies of particular interventions and populations appear to indicate that the NHS is not achieving its goal of equal treatment for equal need. But studies using nationally representative data from household surveys contradict these findings. The impact of the health reforms on equity of delivery is also unclear. There is a need for: studies that bring together the strengths of medical data and of large scale household survey based data; a concerted effort to analyse the effect of the internal market reforms; and a willingness on the part of policy makers to use such evidence.

John Wyn Owen
February 1998

FOREWORD

The application of economic analysis to health and health care has grown rapidly in recent decades. Alan Williams' conversion of Archie Cochrane to the virtues of the economic approach led the latter to conclude that:

“allocation of funds and facilities are nearly always based on the opinion of consultants but, more and more, requests for additional facilities will have to be based on detailed arguments with ‘hard evidence’ as to the gain to be expected from the patient’s angle and the cost. Few could possibly object to this.”*

During most of the subsequent twenty-five years many clinicians have ignored Cochrane’s arguments whilst economists busily colonised the minds of those receptive to their arguments. More recently clinicians and policy makers have come to equate, erroneously of course, health economics with economic evaluation. Thus the architects of the Department of Health’s R&D strategy have insisted that all clinical trials should have economic components and tended to ignore the broader framework of policy in which economic techniques can be used to inform policy choices by clinicians, managers and politicians. †

The purpose of this series of Occasional Papers on health economics is to demonstrate how this broad approach to the use of economic techniques in policy analysis can inform choices across a wide spectrum of issues which have challenged decision makers for decades. The authors do not offer ‘final solutions’ but demonstrate the complexity of their subjects and how economics can provide useful insights into the processes by which the performance of the NHS and other health care systems can be enhanced.

The papers in this series are stimulating and informative, offering readers unique insights into many aspects of health care policy which will continue to challenge decision makers in the next decade regardless of the form of government or the structure of health care finance and delivery.

Professor Alan Maynard
University of York

* Cochrane AL. *Effectiveness and Efficiency: random reflections on health services*. Nuffield Provincial Hospitals Trust, London, 1972.

† Maynard A and Chalmers I (eds). *Non-random Reflections on Health Services Research: on the 25th anniversary of Archie Cochrane's Effectiveness and Efficiency*. British Medical Journal Publishing, London, 1997.

PREFACE

Equity issues are important to both policy makers and academic commentators. For example, it is concern over equity which has driven much of the popular debate over the benefits – or otherwise – of the current NHS reforms. But much of this discussion is informed by anecdote or small scale evidence. How much the reforms have altered the patterns of payment for, and the receipt of, health care is rather unclear. The aim of this paper is to shed some light on this issue. It draws together recent peer-reviewed evidence on how the NHS and the UK health care system perform in terms of equity. It examines equity in both the finance for and the delivery of health care: it looks at who pays for health care and who gets health care, and examines how this varies across individuals of different incomes and socio-economic status. Where possible the evidence is put in an international context. While much of this evidence is pre-reform, wherever possible the paper draws on findings which may illuminate the position post-reform.

The conclusion of this review is that on the finance side, the dominance of public finance in the UK health care system makes it one of the most progressive health care financing systems. If payment for health care according to ability to pay is the goal of policy, then any changes which reduce the proportion of care financed through general taxation is likely to move the UK system away from, rather than towards, this goal. The NHS reforms have not made major changes to the finance arrangements for health care in the UK, but if further direct out of pocket payments (e.g. user charges) are introduced then this will make financing more regressive. On the delivery side, the picture is more mixed. Detailed studies of particular interventions and populations appear to indicate that the NHS is not achieving its goal of equal treatment for equal need. But studies using nationally

representative data from household surveys appear to indicate that income does not appear to affect the receipt of care once differential morbidity across socio-economic groups has been taken into account. The impact of the reforms on equity on the delivery side is also unclear. Various studies¹ show that GP Fund Holders have achieved change: there are no large studies which measure the impact of this change on equity in the delivery of services at national level. Data presented here from a large scale national survey, the British Panel Data Survey,² appears to show that at an aggregate level the reforms have had little overall impact on equity in the delivery of care to date.

The paper focuses on evidence. Readers interested in the philosophical foundations of a concern over equity in health care are referred to Le Grand³ and Culyer and Wagstaff⁴ as starting places. The paper includes sections which examine equity on the finance side, the delivery side and then offers brief conclusions.

EQUITY IN THE FINANCE FOR HEALTH CARE

The policy goal

Equity in the finance of health care is an examination of who pays for health care and how these payments are related to ability to pay. In part, the distribution of payments for health care is of concern because it affects the utilisation of health care. For example, there is concern in the UK that the increase in user charges for prescription drugs and for eye and dental care may limit the use of such care by low income groups, even though the poorest are exempt from prescription charges. But the widespread search for financing measures to limit the growth of health care costs (e.g. Hurst⁵) has also prompted a concern over the distributional impact of different forms of health care financing. Regardless of the impact of finance on utilisation, a health care system which required the greatest contribution from the poorest members of society may not be regarded as desirable. Further, in the UK the policy goal on the financing side is that the NHS should be financed according to ability to pay,⁵ and not according to any other criterion.

A comparison of policy statements on equity in several OECD countries suggests that there is generally broad agreement that payments for health care should be related to ability to pay, instead of (or as well as) utilisation of medical facilities.⁶ Accordingly, studies of the distribution of finance (for Britain and elsewhere) have taken as their starting point the premise that health care ought to be financed according to ability to pay. But as Wagstaff and van Doorslaer⁶ point out, there are two distinct equity concepts within this premise. The first is the concept of vertical equity: that individuals of unequal ability to pay make appropriately dissimilar payments for health care. As illustration, a vertical equity concept lies behind the general notion in OECD countries that income taxes should be progressive. A progressive tax is one in which individuals who earn more pay a higher proportion of their income in tax. The second is the

concept of horizontal equity: that individuals who are defined as of equal ability to pay make the same contributions. Horizontal equity would require, for example, that two individuals who earn the same amount should pay the same amount in tax. In a typical health care system health care is financed through a combination of public and private insurance, pay roll taxation, and out of pocket payments. So an individual's payments can depend, *inter alia*, upon their employment status, their marital status, age and income. So horizontal inequality would occur when someone with a mortgage (say) who earned the same amount as someone without a mortgage paid a different amount for their health care, purely as a result of their mortgage status.

While recent work has examined the issue of horizontal equity in the UK and a number of other countries' health care systems, most of the research has examined vertical equity. This review focuses on that work. The authors of this body of research have examined, either implicitly or explicitly, the extent to which payments for health care departs from proportionality. In other words, the question asked is 'do individuals or households across the income distribution all pay the same proportion of their income for health care, or do richer individuals and households pay more or less?' The answer will depend on the mixture of sources of finance used to pay for health care, and the relative progressivity of each of these sources.

The financing mix

Health care in the UK, as elsewhere, is financed from a mixture of four sources. These are taxation, social insurance, private insurance and direct out of pocket payments. Social insurance is like taxation in that it is compulsory, but is levied on earnings which distinguishes it from other sources of taxation. In some countries it is earmarked for health

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care (or other uses): in the UK the social insurance component of health care financing – national insurance – is not earmarked, but goes into the general taxation pool where a proportion is used to finance the NHS.

The NHS is predominately, 96 per cent, funded from general taxation, with the remaining 4 per cent being made up from user charges. Given the dominance of the NHS in the health care system, this also means health care as a whole is predominately financed by general taxation. Table 1 gives the components of health care finance for 1985 and 1992. The table shows that around 85 per cent of health care finance is from taxation, 7 per cent from private insurance and 9 per cent from direct payments. This financing mix puts the UK system firmly within a tax financed ‘cluster’ of health care systems. Other members of this cluster include the Nordic countries, Portugal, and to a lesser extent Spain.⁶

Even within a system in which health care is predominantly tax-financed, payments for health care will not necessarily be progressive,

TABLE 1: UK health care financing mix 1985 and 1992

	Direct taxes	Indirect taxes	National insurance	Total public	Private health insurance	Out of pocket payment	Total private	Total payment
1985	38%	31%	17%	86%	5%	9%	14%	100%
1992	29%	35%	20%	84%	7%	9%	16%	100%

Sources: 1985 Wagstaff A *et al*⁶; 1992 van Doorslaer E *et al*⁸.

as some taxes are related explicitly to ability to pay (e.g. income tax) but others (e.g. indirect taxes, such as VAT) are not. As a broad generalisation, direct taxes (income tax and social insurance) tend to be progressive, the latter to a lesser extent than the former, while indirect taxes and direct ‘out of pocket’ payments tend to be regressive. Wagstaff *et al*⁶ have shown the progressivity or otherwise of health

insurance depends on whether it is supplementary to existing cover, in which case it is a good bought more by the better off, and hence financing is progressive (more is paid by the rich), or it is the principal way of financing health care, in which case it tends to be regressive. As health insurance is supplementary in the UK the component of health care payments accounted for by health insurance is progressive. A greater proportion of the income of richer individuals is spent on this source of health care finance than by poorer individuals. However, as only those who pay for it benefit from it, the benefits from this purchase also favour the better-off.

The progressivity of the UK system

Estimates have been made of the progressivity of health care payments in the UK for the years 1985 and 1992.⁶⁻⁸ These estimates calculate an index of the progressivity of the payments for each source of funding and for all sources of funding together to give an estimate of the progressivity of the total health care financing system. The index used – the Kakwani index – weights departures from proportionality equally whether they occur at low values of income or at high ones. It takes values between -2 and +1. A positive value indicates a distribution of payments which is progressive: one in which richer individuals pay a greater proportion of their income than poorer individuals. A negative index indicates a distribution which is regressive: poorer individuals pay a greater proportion of their income than richer individuals. Further details of the index and alternative measures are given in Wagstaff *et al.*⁶

Table 2 presents these estimates for 1992, the latest year available. They indicate that for the UK direct taxes and national insurance are progressive (the Kakwani index for both is positive and has a value of

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0.29 for direct taxes and 0.187 for national insurance). Indirect taxes and out of pocket payments are regressive (both have negative Kakwani indices, the former a value of -0.015, the latter a value of -0.22). Adding together and weighting these sources according to the proportion they are used to finance health care indicates that the total

TABLE 2: Progressivity of UK health care financing mix 1985 and 1992 (Kakwani indices)

	Direct taxes	Indirect taxes	National insurance	Total public	Private health insurance	Out of pocket payment	Total private	Total payment
1992	0.290	-0.150	0.187	0.079	0.080	-0.220	-0.090	0.052

Note: The Kakwani index is a measure of departures from progressivity. The index is bounded between -2.00 and 1.00. A positive value indicates a progressive system.

Source: Calculations by Johnson P and Propper C in van Doorslaer E *et al.*⁸

public finance for health care is mildly progressive, total private payments are regressive and total health care payments are mildly progressive. This is indicated by the positive sign of the Kakwani index on total payments (0.052). As the NHS is basically financed from general taxation (96 per cent is from general taxation and 4 per cent is from user charges) this means that the distribution of NHS finance will be close to the distribution of total public payments. So the finance for the NHS is mildly progressive.

Wagstaff *et al.*⁶ have made comparable calculations for a group of OECD countries (Denmark, France, Portugal, Ireland, Italy, The Netherlands, Spain, the UK and the USA), so the UK position can be compared with these (see table 3). The table indicates that health care financing in the UK, using the 1985 tax structure, was amongst the most progressive. The results also indicate a general ranking of progressivity across the different types of health care financing system. Systems that are

predominately tax financed (such as the UK system) were the most progressive, systems that are predominantly financed from private health insurance are least progressive (e.g. USA and Switzerland), and systems in which health care is primarily financed through social insurance (such as those of Germany and France) lie in-between these two extremes. So the conclusion that can be taken from this work is that the way in which the NHS is funded is more progressive than either of the two other types of system used in the OECD.

TABLE 3: Kakwani indices of progressivity of health care payments in various OECD countries

Country	UK (1985)	USA (1981)	Netherlands (1987)
Public finance	0.045 (basically the NHS)	0.047	0.003
Private finance	-0.051	-0.296	-0.131
Total payments	0.032	-0.145	-0.067

Note: The Kakwani index is a measure of departures from progressivity. The index is bounded between -2.00 and 1.00. A positive value indicates a progressive system.

Source: Wagstaff A *et al.*⁶

The impact of the NHS reforms

The reforms did not alter the financing arrangements in a major way. So, as for the pre-reform system, the primary determinants of equity in financing of the NHS post-reform is the structure of taxation. There has been a change in the UK tax structure in the last 15 years with a trend towards a greater reliance on indirect taxes such as VAT and a smaller reliance on direct taxes, such as income tax. As indirect taxes are more regressive than direct taxes, this makes the general tax system less progressive. This will also make the UK health care financing system less progressive since taxation plays such an important role. But

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work in progress⁸ using the 1992 UK tax structure shows that despite this change, health care finance in the UK remains more progressive than other OECD countries. In fact, even amongst the NHS type systems, the UK is one of the most progressive. This is because it relies heavily on general taxation and not on local taxation. General taxation tends to be more progressive than local taxation, which is used in some of the Nordic NHS systems to finance a proportion of health care.

While the reforms did not alter the overall financing of the NHS they did seek to promote the expansion of private health insurance, and alongside the reforms the use of user charges has increased. Under the current financing arrangements, individuals who buy private health insurance are not entitled to a rebate from taxes paid towards the NHS (purchase for those aged 60 and over is tax-exempt, but purchase of private health insurance does not allow the individual to ‘opt out’ of contributions to the NHS). So those who buy private insurance pay for both the NHS and private health insurance. This tends to mean (as in other health care systems where private insurance is supplementary) that this source of finance is progressive. So any extension of private health insurance in its current form would, somewhat paradoxically, make the financing of health care more progressive. In fact, despite policy makers’ intentions, there has been little extension of private insurance post the reforms. However, recent evidence suggests that purchase is affected by NHS waiting lists⁹ (though these findings are not uncontroversial). As these increase so does the purchase of private health insurance. Thus any changes to NHS *delivery* which would cause lists to lengthen (such as an overall drop in funding or perhaps a decreased emphasis on waiting times as a target for purchasers and providers) may lead to a rise in private health insurance purchase. This in turn would result in a (small) increase in progressivity of finance for health care. On

the other hand, if the new Labour administration's aim to bring down waiting lists is successful, then if the waiting list findings are correct, falling lists will mean falling demand for private health insurance. This would result in a decrease in the progressivity of financing for health care, since it would reduce the importance of a source for which individuals from richer households pay proportionately more.

While not part of the creation of an internal market, charges for prescriptions have risen in real terms since the reforms and the use of charging in eye and dental care has been greatly extended. In assessing the progressivity consequences of increased user charges it should be noted that many of the poorest users are exempt. Only 1 in 5 scripts are paid for by users. Any evaluation of the equity consequences of a price change, such as the change in prescription charges will need to take into account the response of users to the price change. This may not be so important in the case of prescription charges as estimates of the responsiveness of users to prescription charges shows this to be rather small for the UK.

Finally, there is one area in which the distribution of payments for health care has probably changed considerably, but for which there is no large scale evidence. The reforms to community and social care introduced alongside the NHS reforms both increased the role for private provision of nursing home and residential care and reduced the extent of tax financing for such care. So now more will be paid out of pocket and less from tax. The effect is probably to make the payment system more progressive as the poorest do not pay, and the better off do. But to investigate fully requires knowledge of the effect of the shift from public to private finance on the distribution of tax payments as well as the distribution of direct out of pocket payments, and these calculations have not been made.

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The equity goal

It is widely accepted that the NHS has a policy goal that promotes access to and use of health care on the basis of medical need rather than ability to pay. There is rather more contention about exactly what this goal is. A relatively large body of studies have assumed, implicitly or explicitly, that this goal is used according to medical need. Others have argued that what is the legitimate goal is not 'equal treatment' for equal need but 'equal access cost' for equal need. Access costs are the costs of using health care. In a system in which people are not charged prices, this price is basically the value of time spent waiting for and travelling to get care. So access costs include, *inter alia*, the value of the time spent waiting for care, the costs of getting to care providers, the value of the time spent having care, the costs of aids and prescriptions. The argument for 'equal access cost' goes as follows. If use of care were equalised, this would override individual preferences since all individuals would be forced to consume the same amount of health care. On the other hand equalising the costs of access allows individuals to exercise their preferences whilst facing the same costs.¹⁰ In other words, the 'price' of getting care should be the same for all individuals. If this price is the same, then the system would be equitable.

However, whilst in normative terms equality of access cost might be (an) appropriate notion, it is not clear that it is the only concept embodied in policy. In terms of policy, Le Grand¹¹ has argued that some British policy documents seem to imply a commitment to equality of treatment for those in equal need, others a commitment to equality of access, and yet others a commitment to equality of health. The same appears to be true of several other OECD countries.¹²

In terms of empirical work, some of the studies mentioned below have examined whether there appears to be differential access to GPs and hospital services, so fall in the category of examinations of equality in access. However, no study has attempted to put a monetary figure on all access costs (e.g. travel time, the costs of waiting either in person or on a waiting list), nor then compared these costs across individuals with the same medical need. But there are a small number of studies¹³ that have attempted to do this for actual treatment received. They have calculated the cost of the treatment received by individuals in a year and then compared this sum across individuals with the same medical need in order to test whether the NHS is achieving the goal of 'equal treatment for equal need'.

Reasons why delivery of health care in a tax funded system may be affected by an individual's access to resources can be divided into two potentially different sources. The first is the extent to which the income or access to resources affects individual's behaviour, and the second the extent to which a consumer's income affect the behaviour of providers. Differences faced by individuals in the actual, and perceived, costs and benefits of treatment (e.g. travel time, the costs of waiting) fall into the first category. In the second fall differences in treatment according to whether the patient is public or private. So a doctor may give quicker treatment when the patient is private (and indeed in the UK that is the purpose of 'going private'). But the second category also contains differences in treatment which arise because patients who live in different areas have differential access to resources because of geographical inequalities in funding and provision. In a system in which resources are allocated from central taxation to different geographical areas, providers or purchasers – and these allocations differ systematically by area, provider or purchaser –

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then individuals will have different access to health care depending on geographical location. If geographical location is related to the income individuals have, then health care utilisation will also be related to income by the fact that the rich live in better resourced areas, or have better resourced providers.

To the extent that individual behaviour is not changed either as a result of these allocations or in response to the behaviour of suppliers, then the second set of differences are beyond the control of individuals. But since individuals are likely to respond to these differences, say for example by moving to another area, or by putting greater pressure on their doctor if they know they are funded in one way than another, then the two sets of factors interact. Similarly, even when providers are paid a salary, they may respond differently to patients with different incomes. So the distinction between those factors which are due to patient behaviour and those which are due to provider behaviour breaks down. Most empirical studies have not attempted to distinguish rigidly between consumer-related and supplier-related behaviour, either because this was not their purpose or because it is not easy to do. But in the present context it is useful to distinguish between studies of equity in resource allocation at population level and studies of the receipt of health care resources within different populations.

Equity in resource allocation

The NHS allocates the majority of its resources to geographical area according to need, where need is measured according to a formula. Modelling need inherently brings in subjective judgements about what should constitute a good measure¹⁴ and the formula which is used has been much criticised and amended. The original Resource Allocation Working Party (RAWP) formula which was implemented in the 1970s

was based on population number, age structure, and a proxy for health care need which was derived from standardised mortality ratios (SMRs) for specific diseases. A cost factor and discretionary factor for the Thames regions were also added to the formula. Heavy criticism¹⁵ prompted a review of RAWP in the late 1980s. This resulted in changes to the formula, principally to include hospital utilisation data as a proxy for need, and change the SMR proxy for need to the square root of the all cause SMR for those aged under 75. Resources were allocated on this basis from central government to regional health authorities. But the method by which regions divided the money to districts varied widely, introducing further inequities at a local level.¹⁶

A weighted capitation formula was introduced in 1995. Essentially, the formula introduced two need weightings, the 'acute weight' for hospital inpatient services and the 'psychiatric weight' for utilisation of psychiatric inpatient facilities. However, this formula was only applied to the allocation for acute and psychiatric services. These comprise 76 per cent of government Hospital and Community Health Services (HCHS) expenditure. So no need weightings are applied to primary care and other non-hospital services components of HCHS. This had the effect of considerably diluting the redistributive effect of the formula.¹⁷⁻¹⁹ An extension of a RAWP type formula to primary care would reduce geographical inequalities. A study which applied a RAWP type formula to primary as well as acute care in the old 14 NHS regions found the Northern Region was underfunded by 9.6 per cent and the South West Region received 14 per cent more expenditure than was equitable.¹⁸ In unpublished work, Brennan and Carr-Hill¹⁶ have argued that all the zero-weighted services have a direct or indirect association with need (the unweighted elements of the health service are concerned with disease prevention, referrals, early diagnosis and

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discharge and community care). When they applied evidence based weightings for need to these services, they found that nine inner city health authorities in London, Birmingham and Manchester would be entitled to 7-11 per cent higher funding than they currently receive.

In addition, there are issues around the distribution and the funding of GPs. Benzeval *et al*¹⁵ have developed a model of GP service utilisation which revealed that Cornwall and the Isles of Scilly have an excess of GPs of almost one fifth, whereas Rotherham is underprovided by over a third. In addition, the system for additional deprivation payments to GPs, based on a classification of deprivation in a given geographical area, is argued to discourage GPs from practising in deprived areas and to result in inequities in access to primary care.²⁰

The impact of the reforms on equity in resource allocation

The changes to RAWP could have taken place without the introduction of the internal market. But the internal market has also created two different types of purchaser, and the allocation of funds to purchasers has itself been argued to have had large effects on equity. There are two issues. The first is the repeated claim that GP Fund Holders (GPFHs) have been financed more generously than District Health Authorities (DHAs), and that this has led to a two-tier system in which patients of GPFHs get faster access to care or better care than individuals covered by DHAs. Establishing the basis for this claim or its validity has been difficult. Dixon and Glennerster¹ provide a detailed review of the evidence. They conclude that comparison of the allocations to the two types of buyer has been hindered by the poor quality of available data, and there is considerable variation between different NHS regions in the way budgets have been allocated to fundholders. One of the largest samples of fundholders found no statistical difference between the

waiting times of GPFHs and DHA patients.²¹ However, there is other evidence (cited in Dixon and Glennerster) that shows better access to hospital care for GPFH patients is more widespread. However, these differences may arise for several reasons.

First, the patients of some general practitioners may have always had preferential treatment because of informal networks between hospital doctors and family practitioners and because some family doctors have better access to these networks than others. The reforms may simply have made these differences more visible. This is not unlikely, as GPFHs were a self-selected group and those doctors who became fundholders first may not be representative of all GPs. A study of Lincolnshire FHSA found early fundholders were more likely than non-fundholders to meet a number of the various quality criteria laid down by central government after the 1990 National Services Act (for example, with respect to prescribing cost control, minor surgery and cervical screening uptake).²² The early waves of fundholders (who have been most studied) may have contained a disproportionate number of those GPs who were able to secure, both pre- and post-reforms, preferential treatment for their patients.

Second, fundholders may have more income per patient. Third, fundholders are the marginal buyer for providers who have annual budget constraints and are operating in a market in which there is believed to be excess capacity. There is evidence that, in the face of competition, suppliers lower prices to GPFHs and may also increase quality.^{23,24} This will allow GPFHs to get more and/or better treatment for their patients for a given budget. But this indicates greater market power, not greater funding. Finally, if the improvements hospitals make in their services to attract GPFHs result in improvements for services bought by other purchasers (i.e. there are spillovers in

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production within hospitals), the actions of GPFHs may have improved services for all, not just for their own patients.

The second issue is the opportunity for GPFHs to ‘cream-skim’ – to choose patients who are expected to incur the lowest net cost (that is, net of the price reimbursed per patient). The budgets of GPFHs have been based upon historic cost, which may reduce the incentives for patient selection of this type, but some incentive remains because GPFHs keep savings from their budgets. Glennerster and Matsaganis have shown that the composition of the fundholder patients is such that many of the high-cost patients could be identified with relative ease by the fundholder.²⁵ To date, there is little evidence of systematic discrimination against patients who might need high-cost care, but this may at least be partly because the issue has not been properly researched because of lack of data. The fear of cream-skimming by GPs may be one of the reasons that the move to weighted capitation, promised by the Conservative government 1992-97, did not happen under that administration.

Equity in use of services

Studies of the utilisation of services can be loosely divided into two sets. In the first set are studies of specific populations or specific medical treatments. These mainly use data on specific medical interventions or procedures. These data have the advantage that specific services can be studied in some detail. But they have the disadvantage that data are not always available on the characteristics of the service users. In some cases, there is insufficient data on the socio-economic characteristics of the individuals. So in testing whether individuals who differ by socio-economic status get different amounts, proxies for socio-economic status must be used. A common proxy for

lower income is the deprivation characteristic of the area (say the electoral ward) in which the individual lives. In other studies in this set the unit of observation is not the individual patient, but is a group average (say a rate of intervention) for a geographical area (such as an electoral ward or a health authority district). These studies compare average rates across areas with different characteristics to examine whether there are systematic differences in rates of intervention.

In the second set are a smaller number of studies which use individual level data taken from large scale non-medical surveys. These surveys provide considerable detail on the socio-economic characteristics of the respondents, some details on medical care utilisation, and a few measures of morbidity, all self-assessed. The survey which has been used most often to examine equity in health care is the General Household Survey (GHS). These studies explicitly ask the question whether medical care received varies across socio-economic or income group once need is taken into account. They use individual level data on utilisation, morbidity and income or socio-economic status to answer the question. This second set of studies is referred to here as broad-brush studies. Findings from recent examples of both types of study are reported here.

Studies of specific interventions or populations

Results from studies in this first set indicate both considerable variation in the health care received by different individuals, and some systematic patterns in this variation.

First, there are studies which indicate that individuals of different ages and sexes are treated differently. In a study of North East Thames region Ben-Shlomo and Chaturvedi²⁶ suggest there are differences in the provision of Coronary Artery Bypass Grafts (CABG) operations

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for men and women in that region. In other regions, women have been shown to be treated at lower than expected rates for CABG when compared with men.²⁷ This sex bias has also been found at district level.²⁸ This has been investigated further in the South West Thames Region where it was found that women with ischaemic heart disease are just as likely as men to be admitted to hospital but once admitted they are less likely to be investigated or offered revascularisation treatment.²⁹ Whether this represents inequity, in that the differences in treatment regime are not clinically justified, was not investigated by the study.

The changing demographic structure of the UK has had implications for provision and prioritisation of health services. One-fifth of coronary care units in the UK operated age related admissions policy and two-fifths operated an age related thrombolysis policy.³⁰ A study in South West Thames Region found that elderly patients with ischaemic heart disease are less likely to be admitted to hospital for treatment and that, after admission, they are less likely to undergo further investigation or revascularisation.²⁶ Whether this represents differential treatment for individuals with the same need is however unclear, as elderly people may be less likely to present with heart conditions and are also more likely to die before reaching hospital and, once admitted, high levels of co-morbidity may prevent further treatment.

Second, there is some indication that individuals of different ethnic origin may receive different levels of health care.³¹ Routine NHS data on ethnicity has only been collected since 1995 but there is evidence that in the West Midlands Region, there was a referral delay for cardiology clinics for patients of Indian origin.³² Indian patients have also been shown to be less likely to receive

thrombolysis after admission for ischaemic heart disease.³³ But Benezeval *et al*¹⁵ report that being Asian is positively associated with GP service utilisation.

Third, there is a group of studies that indicate that distance from providers is related to treatment received. A study of CABGs in the North East Thames region²⁴ indicated that individuals living in wards that were far from the specialist cardiothoracic service had lower treatment rates than those living in wards which were closer. Although this finding was attenuated by deprivation, the difference still existed after adjusting for deprivation measured at ward level. The same study also demonstrated that geographical proximity to a provider site for cardiothoracic investigations affects the sex-specific CABG rate ratios. A study of the North West Region supported this evidence. It found wide variations in CABG rates at district level, and that access to this service depended on the proximity of the provider district rather than on medical need.³⁴ Hull *et al*³⁵ found in a densely populated urban area, the distance of a GP practice from an A&E site has been shown to have a negative correlation with attendance at A&E.

This ‘distance decay’, in which consultation rates drop with increasing distance from the provider site, has also been demonstrated at general practice level.³⁶ Two studies have showed that home visiting did not increase to compensate for this.^{37,38} Poor uptake of cervical screening services in general practices in Norfolk was shown to be associated with a rural remoteness index.³⁹ A review of the evidence on quality of care in rural areas found that service accessibility was a central problem and that rural populations have poorer access than others.⁴⁰

There is some evidence that differential access to an appropriate health

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service professional is a further source of differences in treatment. Survival from breast cancer has been shown to be 9 per cent higher at 5 years and 8 per cent better at 10 years post surgery for women treated by a specialist breast cancer surgeon.⁴¹ For menstrual disorders, a survey in the Oxford Region found that women were more likely to be referred on for surgery if they consulted a male GP and more likely to be offered a conservative treatment regime if they consulted a female GP.⁴²

Fourth, a group of studies have examined the relationship between specific forms of treatment and socio-economic status. For GP care, using the second national GP morbidity survey, Blaxter⁴³ found differential GP consultation behaviour by social class (where social class is defined by occupation). She found individuals from social class IV and V were heavier users of the service than those in the social classes I and II. Ben-Shlomo *et al*,⁴⁴ using the third national GP morbidity survey, found GP consultations increased with increasing social deprivation (using the Townsend deprivation score for a ward in which a patient lived as an indicator of deprivation).

The evidence on the effect of deprivation on operations rates is more mixed. Chaturvedi and Ben-Shlomo⁴⁵ found rates of varicose vein operations increased with increasing rates of ward deprivation, there was a non-monotonic relationship (inverted U) for operations for cataract and tonsillitis, but an inverse relationship between total hip replacement and increasing deprivation. Elective surgery in Preston for hysterectomy, hip and knee replacements, cataract, hernia repair, cholecystectomy, tonsillectomy, TURP and middle ear drainage during 1990-92 was found to be equitable,⁴⁶ However a recent survey in Sheffield⁴⁷ found that the rate of service utilisation for coronary artery revascularisation was inversely proportional to deprivation.

Broad brush studies

Early studies using large scale data sets which sample the whole population and which attempted to control for medical need found some evidence that health care utilisation varied by socio-economic class. Le Grand,⁴⁸ using the General Household Survey for 1978, found that the top two socio-economic groups received 40 per cent more health care than the bottom two groups after individual specific need had been taken into account. On the other hand, Collins and Klein⁴⁹ used a similar approach to study the distribution of GP care adjusted for self-reported morbidity and found no indication of social class difference.

The results from the more recent crop of broad brush studies suggest less systematic variation. Studies using General Household Study data for several years from the late 1970s to the late 1980s which examined both GP consultations, outpatient treatment and inpatient treatment found relatively little evidence of differential treatment once need, measured by individual self-reported morbidity, age and gender, is controlled for.^{50,51} The methodology used in these studies is described in Propper.¹³ These studies conclude that the distribution of NHS care, after controlling for need, does not appear to be systematically influenced by either income or socio-economic class. The distribution of all health care (i.e. including use of private facilities) is slightly more pro-rich than that of NHS care alone (as would be expected given that access to such care is a function of income), but the differences across income groups are neither large nor statistically significant.

Results for four years between 1974 and 1987 are presented in Table 4. The columns present the share of NHS expenditure received by each income quintile after standardising for self-reported morbidity (need). In 1974 the lowest income quintile received nearly 25 per cent of total

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NHS standardised expenditure. The comparable figure in 1987 was just under 23 per cent. The last line in each column of the table presents the concentration index. This is a measure of the departure of the averages from proportionality. So it can be used as a measure of the departure of equal treatment for equal need.¹² The index is bounded between -1 and +1. A negative number indicates a pro-poor distribution, a positive number a pro-rich distribution. The concentration indices in the table indicate a mildly pro-poor distribution of NHS expenditure for all four years. The similar signs across the four years indicates that there was little change in the distribution of health care over the 13 year period.

TABLE 4: Percentage shares of NHS expenditure standardised for need: 1974-1987

Income quintile	1974	1982	1985	1987
Bottom	24.6	22.5	22.7	22.7
2nd	21.6	20.3	22.7	21.2
3rd	19.3	21.1	19.7	19.9
4th	17.9	21.7	18.9	19.8
5th	16.6	14.5	16.1	16.3
Concentration index	-0.083	-0.092	-0.070	-0.062

Note: The concentration index presented at the bottom of each column is a summary measure of the extent of departure from proportionality. It is bounded between -1 and 1, a positive value indicating a regressive distribution.

Source: Propper C and Upward R⁵⁰

These findings have been compared with those for several other OECD health care systems. The countries compared were Denmark, France, Portugal, Ireland, Italy, The Netherlands, Spain, UK and the USA. For all the countries, the researchers used the same

methodological approach. They used similar household surveys and common definitions of need and utilisation. They found¹² that the UK distribution of health care, after controlling for need, is in fact less 'pro-poor' than that of several of the other European countries in the study, and is similar to that of the USA. However, the study found no obvious relationship between the distribution of health care across income groups and the health care financing or delivery systems. As an example of this lack of link, similar distributions of expenditure controlling for need were found for the UK and the USA. Yet the former is a publicly financed system where health care is mainly free at the point of delivery, while the latter is a mixed system where only 40 per cent of care is publicly financed and most provision is private.

Accounting for differences in results between the two types of study

There are clearly differences between the results of the more detailed studies and the larger broad brush studies. These might arise from the different methodological approaches taken. First, some of the differences can be explained by the fact that some of the studies which use medical data only aim to describe. So the finding that medical care varies by age and gender is a finding from the first set of studies. But this difference is assumed to exist in the second type of study. These standardise health care received not only for self-assessed morbidity but also for age and gender on the grounds that the latter are valid dimensions of need along which medical care might be expected to differ. Second, studies which use medical data often do not have direct measures of an individual's socio-economic status. So as a proxy they often use characteristics of the area in which the patient lives. So the variable of interest, socio-economic status, is proxied by an area average. This introduces measurement error which will attenuate the

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effect of socio-economic status. This will mean that where socio-economic status is important, measurement error may mean it appears not to be so. This may account for some of the conflicting findings across studies which proxy individual socio-economic status with an area average.

Third, many of the first type of study – which show differences across individuals in care received – do not directly shed light on the question whether, for a given level of need, individuals are treated the same irrespective of the irrelevant characteristics, be these ethnicity, social class, distance to GP, and so on. They simply show that (typically) one of these characteristics sometimes influences the care received. Many of these studies take being referred for a particular treatment as a measure of need. If it is assumed that all those who are referred are in similar need, any differences across individuals can be interpreted as differences once need has been taken into account. But the data will only indicate real differences across individuals to the extent that the assumption of equal need is correct. Those studies which examine rates of interventions across geographical areas of different deprivation status have no separate measure of need and socio-economics status. Thus they cannot directly examine whether equal treatment for equal need is being given.

On the other hand, the broad brush studies are expressly designed to control for need, and are able to separate out the relevant characteristic – need – from the irrelevant characteristic – socio-economic status – in these studies. But they require the assumption that the level of self-reported morbidity is not affected systematically by socio-economic status. If this is not the case – for example within each need category poorer individuals are in fact sicker – the fairly flat distributions found in the broad brush studies may mask a pro-rich bias. This is because

the measure of need will be artificially good for the poorer groups. O'Donnell and Propper⁵¹ examine data from the Health and Lifestyle Study. This contains both the broad self-assessed health measures of a type collected within the General Household Survey and more detailed measures of health. They find that poorer individuals do appear to be sicker *within* self assessed morbidity categories; one of the results that appears to emerge from the broad brush studies for a number of countries, including the UK, is that a failure to take into account the extent of pro-rich inequalities within morbidity categories tends to result in an underestimate of the inequality in the delivery of health care that favours the well off, or an overestimate of the extent to which it favours the less well-off.

In addition, most of the broad brush studies have had to make the assumption that the costs of utilisation of a particular service are the same for all individuals. So all individuals who record a GP visit with a prescription are assumed on average to use the same amount of NHS resources, and all individuals who record a night in hospital are assumed (on average) to get the same treatment and so get the same NHS resources. Clearly this assumption may be incorrect. The direction of the bias imparted by this assumption depends on whether, for any treatment type (a GP visit, an outpatient visit, an inpatient stay), richer individuals get more resources than poorer, or poorer individuals get more than richer. If those who are richer get more, then the broad brush studies results will indicate departures from equality that are more pro-poor than is actually the case. On the other hand, if the poor get more, then the results will indicate departures from equality that are less pro-poor than is actually the case. There is some (now rather old) evidence that middle class individuals spend longer talking to their GP and get more

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information from the consultation.⁵² If this is the case then studies which indicate a pro-poor distribution will overstate the extent of pro-poor inequality in the distribution of resources.

Finally, the broad brush studies use household data. They therefore exclude those not living in households, that is those who live in institutions or are homeless. Exclusion of these individuals, who are more likely to need services than other groups, may impart bias.

Essentially, the existing evidence is still mixed. While inequalities in receipt of NHS health care clearly exist, the extent to which these inequalities are a result of systematic differential treatment of individuals in the same need is a good deal less clear. What seems likely is that inequalities exist in the treatment of certain conditions and not for others. What is needed are studies which focus at the level of particular illnesses and which use data on the individuals with those illnesses. This will combine the strengths of a study based on treatment for a particular condition (the ability to hold constant for differences in the actual treatments received, the more detailed measures of need), with the strengths of one that use data on individuals (the ability to identify separately the effect of need and socio-economic status).

The impact of the NHS reforms on equity in the delivery of health care

The studies discussed above are mainly pre-reform. The reforms may have caused inequalities in receipt of health care to rise through at least two routes. The first route is by a change in funding arrangements. Altering the funding to purchasers or to areas may change access to care. The potential impacts of such changes have been discussed above. The reforms were also accompanied by

increases in prescription charges and user charges for eye and dental care. An increase in these causes the price of use to change for those users who are not exempt. There is little evidence on the take up of eye and dental care in response to the changes in charges. In a small study Laidlaw *et al*⁵³ found that in the three years following the introduction of charging for eye tests in 1989, referrals to the Bristol Eye Hospital for glaucoma fell by up to 19 per cent, suggesting that those not able or not willing to pay for the test were putting themselves at risk of a preventable form of blindness.

The second route is the effect of differential behaviour of the two types of purchaser. The intention of the reforms was to introduce competition on the supply side, through the mechanism of contracting. While the evidence on efficiency gains at a global level is limited, it appears that competition may have had some impact on pricing behaviour. Prices appear to be lower where market competition is higher, and there is anecdotal evidence that hospitals are charging GPFHs less by cost-shifting from their GPFH buyers to their more passive DHA buyers.^{23,24} This means that those populations covered by DHAs may get poorer quality, more expensive, or less timely care.

There has been limited testing of these hypotheses, not because of lack of interest, but because access to relevant data is difficult. The evidence on GPFH behaviour reviewed in Dixon and Glennerster shows that GPFHs have made changes in prescribing and referral patterns, but the global impact of these has not been quantified. Nor is the direction of the impact on equity clear, as discussed above. Furthermore, it is not clear how much of the change is due to self-selection into the scheme. If more GPs enter the scheme the size of the changes, and so their impact on equity, may decrease.

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There is not sufficient data to test the effect on equity in the distribution of health care of each change brought about by the reforms. But what can be done is to see if the broad trends in equity in the delivery of health care services have changed post-reforms. The British Household Panel Data set contains a number of questions on health status, some questions on GP and inpatient service utilisation (it excludes outpatient consultations) and detailed questions on household income. It can therefore be used to carry out analyses which are comparable to earlier broad brush studies which used General Household Survey data. As a panel data set, the BHPS contains data which is asked of the same people each year. So each year the same individuals are asked about their health service utilisation and their health status. Wave 1 of the BHPS was in 1991 and the health utilisation data refer to 1990 and 1991. Wave 4 was in 1994, and the data refer to 1993 and 1994. Wave 1 is essentially pre-NHS reforms, Wave 4 post-reform. So a comparison of the data for these two waves may indicate whether any changes the distribution of health care resources have taken place following the reforms. Large changes could then be seen as the result of changes in the health care system. *Inter alia*, these include changes in funding and the different behaviour of purchasers.

Table 5 presents a replication of the methodology used to analyse the GHS in earlier broad brush studies using instead the data in the BHPS. Unlike the GHS, the BHPS contains no data on outpatient utilisation, so the data can be used to examine only the average number of GP visits and inpatient stays (these include both private and NHS health care). These data on utilisation are standardised for need by a subset of the self-assessed morbidity measures contained in the BHPS. These were selected to be most comparable to the earlier

TABLE 5: Health care received pre- and post-reform by income group: standardised for age, gender and self-assessed health status

Equivalised household income decile ³	Pre-reform (1991 BHPS)		Post-reform (1994 BHPS)	
	Average use standardised for morbidity ¹		Average use standardised for morbidity ¹	
	GP visits	Inpatients visits ²	GP visits	Inpatients visits ²
Lowest	3.70	1.60	3.60	1.30
2	3.80	1.60	3.80	1.60
3	3.60	1.50	3.50	1.20
4	3.10	1.20	3.40	1.20
5	3.10	1.07	3.10	0.90
6	2.90	0.89	2.80	0.70
7	2.70	0.79	2.70	0.60
8	2.70	0.73	2.60	0.50
9	2.60	0.66	2.60	0.50
Highest	2.50	0.63	2.50	0.50
Concentration index	-0.08	-0.20	-0.08	-0.23

Notes: 1. Health status is self assessed health (3 categories) plus a dummy variable indicating whether limited in one of a set of ADLs.

2. Inpatient stays truncated at 60 days per annum. Results are similar without truncation.

3. Equivalisation of gross household income by McClements equivalence scale.

research on the GHS. They are a measure of overall health plus one which indicates whether an individual has any conditions which limits their daily activities.

The rows of Table 5 give the average utilisation of each of the two services by individuals in each (equivalised) income decile. Equivalisation allows for the fact that the income needs of households of different sizes differ. The table shows that average GP visits decline by income decile. Individuals with a household income in the lowest

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decile in 1991 have an average of 3.7 visits per person per annum. Those with an household income in the highest decile have an average of 2.5 visits per person. With the exception of a small increase between the first and second decile, GP visits fall as income rises. Similar patterns are clear in the 1994 data.

Inpatient visits also fall with income decile. The average number of inpatient visits is slightly lower in the 1994 data than the 1991 data, perhaps as a result of increased rates of day surgery. The distribution of GP care is very similar to the analyses which use GHS data, and the inpatient data are more pro-poor. The relative ranking of the two services is the same in the BHPS as the GHS, so providing confidence in the use of the BHPS data for this analysis.

The last line in each column of the table presents the concentration index. The sign of the index in all four columns indicates a pro-poor inequity. In other words, the distribution of health care allowing for need is slightly in favour of the poor. The size of the concentration indices indicate that this departure from complete equity is greater for inpatient than outpatient services.

Comparison of the 1991 and the 1994 data indicates little difference between the two years. The concentration indices for GP care do not change across years and the concentration index for inpatient services increases slightly in 1994 compared to 1991, but the difference is not significant statistically. By these measures, the aggregate distribution of health care adjusted for need does not appear to have changed in the first three years of the operation of the internal market. In other words, whatever the small scale evidence, the larger picture is of little change in equity in the delivery of care as a result of the reforms.

These empirical results are of course subject to the same methodological caveats as those raised with respect to the broad brush studies above. To the extent that pro-rich inequalities within morbidity categories exist, the result will overestimate the extent to which the less well-off do better than the better-off. Nevertheless, because these data are for the same individuals in both years, unless variations of morbidity within self-assessed morbidity groups have changed between the two years, the bias in the distribution will remain the same across the two years. So the two years can be directly compared and any change between them will not be due to the operation of this source of bias.

The data indicate that there has been little change in the equity of health care standardised for need between the first and fourth year of the operation of the NHS market. In other words, those changes in delivery which have occurred do not seem to have had a major impact on the overall access to resources. This may be for a number of reasons. First, the NHS reforms were only designed to change the way in which secondary care is delivered. So unless GPs are altering their patient population in response to fundholding, we would not expect much change in access to GP care. And the figures in the table do not show any change in GP visits. Second, the reform changes may not have had much impact at this macro-level in just three years. Third, the changes that have occurred may not be measured in number of visits to providers, but may be in terms of quality of care or timeliness of care. If this is the case, counting the number of visits will not show any of the changes. Finally, the survey examines only the household population. If equity changes have particularly affected the non-household population then these data will not pick them up.

CONCLUSIONS

This paper has reviewed a considerable body of evidence, even restricting its focus to recent publications. The amount of evidence is indication of the interest in, and importance of, the topic of equity in health care. The conclusions on the finance side seem fairly robust. The dominance of public finance in the UK health care system, coupled with the fact that a sizeable proportion of taxes are raised from income tax, makes the financing of health care in the UK one of the more progressive health care financing systems. The NHS reforms have not made major changes to the finance arrangements for health care in the UK, but if further direct out-of-pocket payments are introduced then this will make financing more regressive. However, any shift towards more indirect taxation will probably have a greater impact, as indirect taxes account for a far larger proportion of health care finance than out-of-pocket payments.

On the delivery side, the picture is more mixed. Detailed studies of particular interventions and populations appear to indicate that the NHS is not achieving its goal of equal treatment for equal need. But studies using nationally representative data from household surveys contradict these findings. The impact of the reforms on equity on the delivery side is also unclear. While various studies show that GP Fund Holders have achieved change in service delivery, the effect of these changes on equity has not been systematically charted. New analyses presented here using data from the British Panel Data Survey appear to show that at a very aggregate level, there has been little impact of the reforms on equity in the delivery of care, after controlling for need, in the first three years of the operation of the internal market.

What is also clear is that there is very little data with which to examine equity on the delivery side. We have had to rely too much on anecdote and limited case studies. The BHPS data are illuminating, but the puzzle of the discrepancy between medical data and large scale household survey based data remains. What is needed are studies that bring the strengths of these two approaches together, a concerted effort to use existing data to analyse the internal market reforms, and a willingness on the part of policy makers to use such evidence.

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The current Government stresses the importance of equity in health and health care. The purpose of this paper is to illustrate the effects of recent NHS reforms on the payment for and receipt of health care.

Professor Propper concludes that on the funding side the UK-NHS remains one of the most progressive health care financing systems in the world due to the retention of public financing (tax) methods. If the Government wishes to continue to fund the UK-NHS in relation to ability to pay, then it must retain the tax finance system which was practically unaltered by the Thatcher reforms.

The picture of equity in health care provision is mixed. The data appears to indicate that the NHS is not achieving its goal of equal treatment for equal need. However representative data from household surveys when adjusted for differential morbidity across social groups seem to indicate that income does not affect the receipt of care. Furthermore recent reforms seem to have had little impact on the equity of delivery.

Whilst the data available is limited, this analysis indicates that the Thatcher reforms have had little effect on equity in financing and delivery in the UK-NHS. Whether Labour policies will improve equity, only time and better data will tell.