Primary or secondary care? What can economics contribute to evaluation at the interface?

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Abstract

**Background** The substitution of primary for secondary care is progressing at a fast pace, yet there has been little evaluation of the appropriateness of such a fundamental change in health service organization. The aim of this paper is to raise some issues for discussion about the contribution of economics to future research on the substitution of primary for secondary care. Given the central role general practitioners (GPs) will play in a 'primary care led' National Health Service, the paper concentrates on the replacement of secondary care by GP-based services.

**Methods** The existing empirical evidence relevant to the replacement of secondary care by GP-based services is summarized. From this, issues for further research from an economic perspective are identified and discussed.

**Results** The evidence comprises studies examining the efficiency or cost-effectiveness of substituting GP-based care for secondary care and studies examining the effects of incentives on the mixture and range of services provided. Cost-effectiveness evidence is scarce and inconclusive. The evidence on incentives suggests that new services are being provided in local areas which need them least. Several avenues of further research are suggested. As well as more economic evaluation, future research should concentrate on developing methods to elicit patients' and communities' preferences for GP-based care versus secondary care. Research into incentives should concentrate on assessing those factors, beyond practice characteristics, that influence GPs' decisions about whether to provide services and how much to provide. This would help to design more appropriate incentives for GPs.

**Conclusions** The appropriate balance between primary and secondary care is unknown. The transfer of services from secondary care to general practice (and other primary care providers) should be based on empirical evidence on cost-effectiveness, as should the incentives given to GPs. Although the research agenda is challenging, it is necessary in ensuring that a 'primary care led' health system is the right way forward for the NHS.

**Keywords:** economic evaluation, primary-secondary care interface, primary care, general practice

Introduction

The role of primary care in the National Health Service (NHS) is growing. This growth is being fuelled by changes at the interface between primary and secondary care, where the traditional boundaries between hospitals and primary care are being breached. At the centre of these changes is the general practitioner (GP), who is playing an ever-increasing role in the purchasing and provision of secondary care services.

Such a fundamental shift in the nature of health care provision has, however, been initiated in the absence of evidence of the effects on patients' welfare or on the use of resources. As a consequence, little is known about whether the incentives given to GPs that encourage substitution are appropriate. The purpose of this paper is to stimulate discussion about the contribution of economics to the debate on the substitution of primary for secondary care. Although the term 'primary-secondary care interface' is difficult to define precisely, and encompasses a wide range of services, professionals and locations of care, this paper focuses on issues surrounding the replacement of secondary care by general practice based services. This is because the GP will play a significant role in the future of a 'primary care led NHS' and is also the professional group most likely to be affected by such change.

A second focus of this paper is the role of economics in evaluating changes at the interface. This encompasses not only economic evaluation (which includes the measurement of benefits using economic techniques) but also the role and effects of incentives, both financial and non-financial, on the provision of secondary care by GPs.
The plan of the paper is to examine the background and nature of substitution of GP-based for hospital-based services and then go on to summarize the existing empirical evidence. The main issues for further research will then be identified from an economic perspective.

**GPs and the primary–secondary care interface**

Changes in the organization of the NHS mean that many GPs are no longer just purchasers of and gatekeepers to secondary care but are also becoming providers of secondary care themselves. Set against a trend of reduction in the size of the hospital sector owing to advances in technology, budgetary pressures, long waiting lists for out-patient appointments, and the extension and evolution of GP fundholding, many new incentives have been introduced to encourage GPs to reduce their use of secondary care and instead provide similar services in a primary care setting. These include incentives contained in the 1990 GP contract and the continuing expansion of the GP fundholding scheme.

**The 1990 GP contract**

The 1990 GP contract created financial incentives for the replacement of hospital-based by GP-based minor surgery. Subsequent revisions to the contract have introduced payments for chronic disease management programmes for asthma and diabetes. These have reduced the need for hospital out-patient care and encouraged 'shared care'.

**GP fundholding**

The main incentive that has encouraged the substitution of primary for secondary care is GP fundholding. GPs who hold a budget have a financial incentive to substitute GP-based care for secondary care referrals. Fundholding GPs are rewarded through being able to retain any savings made on their budget. Savings can be used to develop patient care but cannot be used as personal income (although they can be reinvested in the practice in various ways that might be income generating, e.g. to increase the capital value of premises, invest in equipment or staff that may attract patients and therefore income).

As well as providing a further incentive to provide minor surgery and chronic disease management, fundholding has encouraged innovation and growth in other services such as specialist outreach clinics, open access services, direct referral and rehabilitation services for acute illness, e.g. stroke, pneumonia and joint replacements. GPs can also pay either themselves or other health care professionals from the fund (subject to close monitoring by regions or health boards) to provide a specified list of secondary care services. These include procedures in the areas of pathology, ophthalmology, ENT, general surgery, genito-urinary surgery, gynaecology and orthopaedics. District Health Authorities (DHAs) and Health Boards are also beginning to purchase acute care services from GPs rather than from hospitals.

This list of areas of substitution is by no means exhaustive, and further reductions in the minimum list size to qualify for fundholding status and the introduction of total fundholding (where GPs will purchase most types of care for patients, including accident and emergency care), are likely to result in the extent of substitution increasing markedly.

**Empirical evidence**

The literature concerning the appropriateness of substituting GP-based care for secondary care can be divided into two areas. The first deals with the cost-effectiveness or efficiency of substituting primary for secondary care, and the second deals with evidence concerning the effects of incentives on substitution. This section gives a summary of the published empirical evidence in each area. The literature search included empirical studies conducted in the United Kingdom only. The results of studies conducted elsewhere are based on ways of organizing and financing health care that are different from the current changes taking place in the NHS and were therefore considered not to be generalizable to a UK setting.

**Existing evidence – efficiency**

Given that many substitutable services have only recently been established, research is at an early stage. Consequently, there are no published economic evaluations (to the author's knowledge) of specialist outreach clinics, direct referral, out-of-hours care, diagnostic services (e.g. endoscopy) or rehabilitation services. The published research summarized below is primarily focused on the services provided as a result of the financial incentives in the GP contract; namely, minor surgery and chronic disease management.

For GP-based minor surgery, there has been only one controlled study examining cost-effectiveness compared with hospital-based minor surgery. O'Cathein et al. compared patients who had undergone minor surgery in hospital and in general practice. The authors found no differences in distress and disability or other treatment outcomes such as complications, healing times and cosmetic results. General practice patients were more likely to be satisfied. Patients treated by their GP waited one week for treatment (at
the median) compared with eight weeks for hospital patients, spent less time and money attending for treatment and were more likely to be able to walk to the place of treatment. Minor surgery in general practice also used fewer resources than hospital-based minor surgery. The authors therefore concluded that GP-based minor surgery is cost-effective compared with a hospital setting but only where general practice is a substitute for hospital activity.

The other areas that have been subjected to economic evaluation are GP care of asthma and diabetes. In a study of integrated care for asthma, patients were randomized to either conventional out-patient care or GP care.15 The authors found no differences in most of the outcome measures, which included pulmonary function, clinical outcomes, symptoms and psychological outcomes. Patients in the integrated care alternative were, however, not as satisfied as conventional care patients. The authors also found that the integrated care alternative used fewer resources than conventional care, with the largest saving per patient attributable to costs incurred by patients. Although the authors argued that integrated care is more cost-effective than conventional care, it is not clear whether the saving in costs from integrated care is worthwhile in terms of the reduction in satisfaction experienced. Thus, a firm conclusion about cost-effectiveness cannot be reached.

A similar evaluation of integrated care for diabetes (also a randomized trial) found that patients in GP care had similar metabolic control, psychological well being, beliefs on control of diabetes and satisfaction compared with patients in conventional care.16 The cost to the health service of GP-based care was, however, higher than the cost of conventional care, although costs to patients were lower when they attended their GP. Given that there was no change in outcomes and an increase in resources used, the study suggests that conventional care is more cost-effective than GP-based integrated care. Other studies of shared care for diabetes have shown similar findings.4

A study by Florey et al. examined the cost-effectiveness of the discharge of surgical patients to general practice rather than an out-patients' clinic.17 This study was a randomized trial that examined differences in clinical effectiveness, patients' satisfaction with, and preferences for, their follow-up care, and the costs incurred by the health service and patients. Changes in the workload of GPs and of the out-patient department were also monitored. The study found no significant differences in clinical effectiveness or satisfaction. Time costs and travel costs of patients were lower for those patients randomized for GP follow-up. The cost of GP follow-up visits was slightly higher than that for out-patient follow-up visits. Overall, out-patient care incurred an extra £5.77 per patient compared with GP-based care. The authors concluded that GP-based care is as effective as but only slightly less costly than out-patient care.

At the moment, the evidence on the efficiency of providing secondary care services in a primary care setting is limited and inconclusive. It suggests that it may not always be the case that patients are better off or that resources are saved when primary care is substituted for secondary care. Furthermore, the studies evaluating minor surgery and integrated care were conducted before financial incentives were introduced for these services. It is unclear, therefore, to what extent financial incentives encouraged activity beyond activity that was a substitute for hospital care. Lowy et al. found that GP-based minor surgery was being undertaken with no decrease in hospital minor surgery workload.18 Whether this represents inefficiency depends on the opportunity costs of GP-based minor surgery in terms of the activities GPs have given up.

Existing evidence – incentives

Very little research has been conducted on factors influencing GP behaviour in the United Kingdom. Most research on the effects of GP remuneration has been carried out overseas and therefore cannot be generalized to the UK setting.19 Previous work on the effects of incentives on GP behaviour have examined the effects of changes in the level of remuneration, special payments and financial inducements, and different remuneration systems.19 These studies have concentrated on the effects of financial incentives on clinical decisions (e.g. the quantity of laboratory services, referrals, follow-ups, specific procedures) rather than on decisions about whether a new service should be provided and how much of a new service to provide. It is this latter class of decisions that are relevant to the substitution of primary for secondary care. Furthermore, none of these studies have examined the effects of incentives on the welfare of patients.

Only one study has mentioned the effects of remuneration on the substitution of GP-based care for hospital-based care.20 The authors investigated the effects on the behaviour of a sample of GPs in Denmark of a change from a capitation system to a mixture of capitation and fee-for-service payment. The study used a 'before and after' design with concurrent control groups and found that rates of referral to hospitals and specialists decreased markedly, suggesting a substitution of GP-based care for hospital services.

There have, however, been several studies in the United Kingdom that have examined factors (other than remuneration and financial incentives) influencing
decisions about whether to provide new services and how much to provide. Bosanquet and Leese attempted to identify practices that were more likely to provide new services (i.e. to innovate). They classified 260 practices into innovators, intermediate and traditional. Innovators were defined as practices that possessed at least two of the following characteristics: employment of a practice nurse (willingness to incur costs and expand services), participation in the cost rent scheme (willingness to invest in their premises) and participation in the vocational training scheme (maintenance of basic standards). Practices with none of the three characteristics were classified as traditional, and the remainder as intermediate.

Innovators were more likely to be located in affluent and rural areas and in areas of population growth. These practices were also likely to be larger (i.e. more and younger partners, more likely to employ practice managers, to have more medical equipment, including computers, and to own their own premises). Innovative practices achieved more favourable returns in affluent areas, whereas innovators in less affluent areas faced higher costs and achieved net incomes below the national average. The authors concluded that incentives given to practices to innovate have had a weak impact in industrial and lower social class areas. They predicted that the measures introduced in the 1990 contract (new fees and increased capitation payments) would favour practices in areas of affluence and population growth.

This prediction has, to a certain extent, been tested in subsequent studies that have examined variations in the level of provision of new services introduced in the GP contract (childhood immunization, health promotion and cervical cytology). Most of these studies have attempted to relate variations in the level of service provision between practices to 'need', as measured by Jarman deprivation scores and other socio-economic variables. Most studies have also attempted to control for a variety of practice characteristics. All of these studies have shown evidence supporting the prediction of Bosanquet and Leese that new services are less likely to be provided in areas of relative social deprivation.

One study, however, examined factors influencing whether practices undertook the maximum allowable number of minor surgery sessions. The authors found that practices with a higher proportion of deprived patients were more likely to be maximizers, as were practices in rural areas and with a large number of doctors. Given that patients in rural areas were more likely to benefit from a decentralized service, in terms of reductions in access costs, the authors concluded that the provision of minor surgery in Grampian was compatible with the needs and preferences of patients.

**Issues for further research**

The existing evidence on the cost-effectiveness of substituting primary for secondary care and on the effects of incentives on GP behaviour is scarce. Thus the need for more evaluation is clear. What is less clear is the specific direction that such research should take. The assessment of published empirical evidence suggests several avenues for further research from an economics perspective.

**Efficiency**

This is perhaps the most obvious area of research for economists and, in an ideal world, should be demonstrated before GPs are given incentives to provide secondary care services. In the real world, however, services are usually introduced before their cost-effectiveness has been demonstrated. The main efficiency question to be answered is one of technical efficiency. That is, can these services be provided in a primary care setting for the same cost but with an improvement in benefit or for less cost with benefits remaining at least equivalent? There are also, however, allocative efficiency questions to be addressed if services are less costly and less beneficial or more costly and more beneficial. These questions ask whether increases in costs are worth increases in benefits and involve comparisons of efficiency across different services.

The existing evidence on cost-effectiveness does, however, raise several methodological issues about the measurement of benefits, which, although not specific to the analysis of the primary–secondary care interface, are nevertheless important. All studies used a range of outcome measures including clinical outcomes, health status, health-related quality of life and patient satisfaction. The results are easy to interpret and unambiguous if all outcome measures change in the same direction. If, however, some outcome measures improve and some are worse, then it becomes difficult to demonstrate whether an overall improvement has actually occurred.

Economic techniques for measuring benefits distinguish between measuring a benefit (e.g. the effect on health-related quality of life) and finding out how important it is to patients relative to other benefits. Studies that merely measure whether a benefit has occurred implicitly assume that the benefit is important to patients. For example, although the improvement in life expectancy is measured it might not be important to patients compared with health-related quality of life. Economic techniques for benefit measurement
therefore aim to establish the trade-offs individuals make amongst different benefits.

The use of measures of health gain, such as quality-adjusted life years (QALYs) or their counterpart, healthy years equivalents (HYEs), to measure benefits in these situations is only appropriate where length and quality of life are the most important benefits.

Given that the government’s main justification for shifting the balance of care is to improve access and reduce waiting time, then other non-health benefits become important. In particular, the government has assumed that all patients prefer short waiting times and locally based services that improve access. Patients cannot, however, have both, as local services (e.g. outreach clinics) may lead to longer waiting times – so which do patients value most? Furthermore, some patients may prefer being seen by a consultant in hospital, as they perceive this as higher-quality care and are willing to travel further to obtain it. These issues have yet to be evaluated.

Although one might think that patient satisfaction surveys are the most appropriate tool for measuring the non-health benefits of health care, they fail to measure the relative importance of the various attributes. Satisfaction surveys assume that respondents attach the same weight to each attribute, which may not be the case. For example, although the respondents may be very dissatisfied with waiting time, it may not be particularly important to them compared with the interpersonal qualities of the health professional. Thus policies aimed at reducing waiting times may make little difference to overall satisfaction. Patient satisfaction studies also suffer from problems of interpretation that have been documented in the literature.

There are two ways in which health economists have begun to measure non-health benefits that overcome some of these problems. Willingness to pay (WTP) techniques can be used to assess the preferences of individuals for particular services that are provided in different ways. This elicits individuals’ maximum willingness to pay for a particular service and is a measure of their strength of preference for that service. Although this technique is not without its problems, it is assumed to take account of all attributes of care (i.e. health and non-health benefits) in a single measure and would provide a more clear measure of users’ preferences for care that is provided in a primary care rather than a secondary care setting. An often mentioned criticism of WTP is that it may be associated with a person’s ability to pay. A recent paper, however, suggested that this may not be a problem if, in each alternative of the study, the socio-economic profiles of individuals are the same.

It may not, however, be enough to know that one alternative is preferred to another and by how much. It might also be useful to know why such a preference exists and which attributes of care are valued more highly than others. This would allow treatment to be organized in ways that concentrate on those attributes of care that are valued most highly. Conjoint analysis would seem to be the most appropriate technique to establish individuals’ values for different attributes of care. This technique has been used widely in market research and transport economics, and is only beginning to be used by health economists. Early methodological work suggests it could be used successfully in the health care field.

For example, a pilot study examining preferences for the provision of local versus central orthodontic clinics found that waiting time was more important to patients than clinic location. This suggests that future changes in orthodontic services should concentrate on reducing waiting time rather than having local clinics. It was also possible to examine how much longer individuals are willing to wait for an appointment so as to have a local clinic. Such an analysis could easily be applied to the analysis of GP-based versus hospital-based services (e.g. minor surgery or outreach clinics) and, if similar results were found, could have major implications for shifts in the balance of care.

Another issue for further research relates more broadly to the resource consequences of shifting the balance of care. The cost advantages of economies of scale and scope may also be lost in a primary care setting. Economies of scale refer to the reduction in average cost per case of treating more patients, given a fixed capacity. In a primary care setting, it may be difficult to maintain throughput to justify the fixed costs of providing a service (or to maintain the skills of GPs in certain procedures). Economies of scope refer to the cost advantages of sharing overhead and administrative costs with other specialties in a hospital. Where they exist, costs per case are generally lower than if treatment were undertaken in several smaller units. Although some general practices have handled this (and economies of scale) by sharing resources and patients with other practices, it is still unclear how scale and scope economies have been (and will be) affected.

**Incentives**

The influence of incentives on GP behaviour is also an important area of research for economists. Ideally, the incentives GPs face (both financial and non-financial) should encourage GPs to maximize patients’ objectives (e.g. health) and also to maximize their own objectives. In terms of financial incentives, this equates with GPs being able to maximize their income while at the same
time maximizing the health and welfare of their patients. This is known as incentive compatibility (i.e. where incentives make the attainment of patients' objectives compatible with those of GPs). A rare example of such an incentive is target payments for childhood immunization and cervical cytology. These go some way towards the goal of linking GP remuneration to the health status of patients.

Applied to the substitution of primary for secondary care services, incentive compatibility requires, first, that services provided by GPs are more cost-effective (i.e. technically efficient) compared with providing these services in a secondary care setting. If such services are not cost-effective, then financial incentives should not be offered to GPs. Assuming that cost-effectiveness has been established, the second requirement is that incentives be designed to encourage GPs to provide the range and mix of these services that maximize the welfare of the community at least cost (allocative efficiency) and which also enable GPs to meet their own objectives.

At present, the nature of the financial incentives facing GPs (particularly fundholders) means that they have a large degree of freedom to develop services as they see fit. The existing evidence suggests that new services are being provided in areas which need them least. Thus, the current incentives may not be compatible with the needs and preferences of patients. This raises questions about factors influencing decisions concerning, first, whether to provide the service at all and, second, how much to provide. These decisions will involve the GP or practice making judgements about the marginal benefits and marginal costs of providing the service. Such judgements are likely to include the benefits and costs to the GP (i.e. changes in income, investment in capital and equipment, workload, stress, autonomy) as well as those to patients (i.e. health status, access, waiting time, travel costs). It is therefore important to find out what factors influence these decisions and whether such decisions are compatible with the needs and preferences of patients.

The published evidence on incentives has several implications for future research. First, although the research has attempted to relate the provision of services to some practice and GP characteristics, it is unclear what these characteristics are supposed to measure and how they could be used to change incentives. For example, the identification of 'innovative' practices (i.e. practices that were most likely to expand service provision) by Bosanquet and Leese is useful for being able to predict the likely pattern of provision for new services, but is not helpful if policymakers wanted to change the pattern of provision through the use of incentives. This would require information about the reasons why some practices are innovative and some are not. If more appropriate incentives are to be designed it is important to find out what, apart from income, is important to GPs, and why some practices choose not to provide certain services or provide them at a low level.

This raises broader questions about our lack of knowledge about GPs' professional objectives. As well as income, GPs have other professional objectives and consequently it is not just financial incentives that are important. Many other non-financial incentives, such as continuing education, professional development, and a less stressful working environment, become important when attempting to change the behaviour of GPs, and are often ignored when incentives are designed.

The second implication of existing research is that the results of studies which establish negative associations between service provision and various measures of 'need' should not automatically imply that resources, in the form of financial incentives and cost subsidies, should be directed at these practices. This is for two reasons. First, the measures of socio-economic status and social deprivation used measure the need for health rather than the need for health care. Given that health is influenced by many other factors, such as housing, education and the environment, as well as health care, the influence of GP services may be relatively small. Second, and most important, the implicit definition of need used in these studies suggests that needs should be met regardless of whether they can be met through increased service provision (i.e. whether effective treatments and preventive strategies exist) and regardless of the opportunity costs of meeting need. Thus, it is not necessarily the case that identifying low levels of service provision in areas of high relative 'need' should lead to higher rewards for GPs or subsidization of the costs of service provision in these areas. The identification of needs does not mean that it will be efficient to meet them.

Thus, finding a negative association between need and the level of provision does not in itself help in the design of GP incentives that encourage the most efficient mix of services. It may, however, be appropriate to provide information about whether incentives are promoting equity. If this is the case, then these studies should be more explicit about whether they are addressing efficiency or equity. If these studies are about equity then they should also state what definition of equity they are using.

Finally, and related to the issue of designing incentives, is the most appropriate mechanism through which incentives should be designed and the role of information on patient's and doctor's objectives in
designing incentives. Although it is important to find out what patients and doctors want, it is also important to be able to use this information to design more appropriate incentives for GPs. The incentives embodied in the GP contract and GP fundholding are negotiated nationally between a third party representing the views of members of society (the government) and third parties representing the views of GPs (the British Medical Association and Royal College of General Practitioners). Given the imperfections in the voting mechanism, problems in aggregating preferences, the fact that third parties may have their own objectives that differ from those they are representing, and that GPs do not have a single ‘voice’, it is questionable whether these third parties can effectively represent the preferences of their members at a national level. This raises the possibility of local contract negotiation where remuneration is tailored to meeting the preferences and needs of the local community at least cost, while also accounting for the preferences of local GPs. Local pay bargaining for GPs has already been suggested by Bosanquet. This is being introduced for pharmacists in 1995–1996 and is the government’s preferred option for paying dentists and hospital doctors.

If this were to be introduced for GPs, contract negotiation would presumably take place between local GP representatives and the purchasers of GP services (e.g. health authorities). However, it would still be unclear how preferences would be incorporated into incentive design. Would patient and GP preferences need to be measured in the community or would it be enough to have patient and GP representatives on negotiating bodies? It is, however, also likely that transactions costs associated with local contract negotiation would increase. This might not be acceptable if no gains in patients’ welfare are forthcoming or if third parties at the local level are as unrepresentative as third parties at a national level.

It is therefore important not only to measure the preferences of patients and GPs but also to explore how such information should be used in the design of incentives.

Conclusion

The purpose of this paper has been to raise some issues for discussion about the contribution of economics to future research on the substitution of primary for secondary care. Two broad areas of research were identified: efficiency and incentives. The evidence is inconclusive, and it may be possible that GPs are providing new services of unproven cost-effectiveness and in local areas which need them least. The economic evaluations that have been undertaken so far suggest that providing secondary care in a primary care setting is not guaranteed to be an efficient use of resources. Thus, the need for more economic evaluation is obvious.

Although resource use is important, so is the valuation of benefits in economic evaluations. The preferences of patients for substitution have yet to be assessed. In developing and promoting substitution, the government has placed great weight on the benefit of reduced waiting times and better access to secondary care services. Although these are important, it is still unclear how these benefits are valued by members of the community compared with other benefits, such as being seen by a specialist and having access to other hospital services if they are needed.

There is also little work about the effects of financial and non-financial incentives on the range of services provided and on patients’ welfare. It therefore becomes important to assess factors influencing decisions about whether to provide services and how much to provide. This research needs to go beyond examining associations between practice characteristics and provision and examine GPs’ motivations in more detail. This would help to design incentives (at either a local or national level) which, as well as encouraging GPs to provide services which are efficient, would also enable them to meet some of their own professional objectives.

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