
6 Competition between hospitals

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There has been an international trend over the past two decades to encourage more competition in health care by introducing market-related reforms, particularly in countries where health care is publicly financed and provided. Such reforms have included developing competition between providers; competition between insurers; the regulation of prices; greater information and choice for patients; and effective regulation of competition.

Those who promote competition in health care make an appeal to a simple economic argument: competitive pressure helps make private firms more efficient; firms cut costs and improve their goods and services in order to attract consumers, and this continual drive for improvement is good for the economy. Firms that are unable or unwilling to become more efficient will be priced out of the market, while new, more efficient, firms will enter the market. This logic is then transferred to the provision of health services. For example, giving health care purchasers or service users the ability to choose between providers applies competitive pressure to those providers and, analogous with private markets, they will raise their game to attract business.

At the same time, however, a number of studies have raised concerns about the functioning of markets in health care, particularly with regard to whether competition will deliver the socially optimal quality of care (Federal Trade Commission/US Department of Justice 2004). Quality is a major issue in health care because the effect of the quality of care on an individual's well-being can be very great.

England's National Health Service (NHS) has so far experienced two waves of policies to promote competition between suppliers of hospital care – the so-called internal market of the 1990s, and the Labour government's reforms of the 2000s – and, at the time of writing, the coalition administration is proposing to extend competition among the suppliers of services to the NHS in a further series of reforms. These will include:

- seeking to broaden the provider base
- placing the commissioning role with general practitioners (GPs) organised into GP commissioning consortia

- using pro-competitive regulation rather than central-government direction to shape the resultant system.

The interesting issue of why market-type reforms have been so prevalent is not discussed here. This chapter has a more modest aim: to scrutinise the assumption that competition between hospital providers will lead to better care, focusing on the impact of competition on quality.

The next section begins with a review of the theoretical foundations for competition in health care. We then present a brief review of the findings from the United States, not because the US experience may be the most relevant, but simply because this is the country with the most empirical evidence on the impact of competition in health care. Next, we review the evidence from the United Kingdom, and we conclude by offering some reflections for policy-makers.

The impact of competition on health care markets: what economic theory predicts

Health care markets are thought to differ from textbook competitive markets in a number of important ways. These include the fact that:

- the product is differentiated (due, for example, to a hospital's location or different styles of provision)
- the information available to consumers is imperfect
- government regulation is extensive as a result.

In addition, many organisations, even in a system like that of the United States, are not-for-profit (Dranove and Satterthwaite 2000), that is, they do not distribute profits to shareholders, but instead invest surpluses in the organisation. In these types of complex markets, standard economic theory fails to provide strong guidance about whether competition can provide beneficial results.

Theoretical models show that where there is product differentiation (as in the hospital market), competition can provide too little, too much, or just the right amount of quality or variety of services (Gaynor and Vogt 2000). The impact of competition will also depend on the responsiveness of the buyer of health care to both quality and price. This will depend on the extent to which price and quality can be measured and reported. If quality is measured accurately, but price is measured poorly, demand becomes less responsive to price, allowing providers to raise their prices. It can also give providers an incentive to increase – and possibly overproduce – quality. If price is measured accurately, but quality is measured poorly, then the levels of quality supplied will be too low. In addition, if quality has several attributes, some of which are easier to measure than others, competition may lead to overproduction of the easily measured attributes and underproduction of the others.

In markets where the buyers of health care are not very sensitive to price (for example, in a market where consumers have generous health insurance provided by employers that are not very cost-conscious) and there is no centralised price-setting (such as in the United States before the 1980s), buyers will be responsive to differences in quality. In such a market, price may be high, but quality will be correspondingly high. In markets where buyers have harder budget constraints (such as in the NHS during the internal market of the 1990s, discussed later in this chapter), price may be more important and hospitals will compete on prices, leaving quality to fall.

These predictions apply to markets where price is negotiated between the buyer and seller of health care. However, the price of health care is often fixed for all providers of a treatment by a regulator or government, as occurs under the diagnosis-related group (DRG) system used in the United States for Medicare by the federal government and by most private insurers as well (*see* Chapter 5). If prices are fixed in this way, there will be no competition on price, and competition will be based on quality. In this case, competition may lead to excessive levels of quality and excessive product differentiation (Gaynor 2004), but if the fixed price for a treatment is too low (below marginal cost), competition may lead to the quality of this treatment being too low.

In sum, the guidance that comes from the theoretical analyses for policy-makers is ambiguous. Further, the precise institutional structure of the market matters. Policy-makers therefore need to turn to the empirical evidence for guidance.

The US evidence on competition and health system outcomes

Almost all the evidence on the impact of competition between health care providers comes from the US market, and much of that from one – albeit very large – market, namely California. The results of these studies show that the impact of competition depends on the ‘rules of the game’: the institutional features of the health care market.

Three periods can be identified in the US health care market (Dranove and Satterthwaite 2000). In the first, during the 1960s and 1970s, consumers were covered by generous insurance and hospitals were reimbursed retrospectively for their full costs. In the second, beginning in the early 1980s, government payers (Medicare) introduced prospective-payment schemes and utilisation reviews (ie, the scrutiny of demands for treatment and thus expenditure with the option of refusing unjustified spending). Private insurers followed their lead. The third period – ‘managed care’ – began in the 1980s and took hold in the 1990s. This saw managed-care organisations enrol an individual for a set period for a fixed capitation payment. Managed-care organisations were thus concerned about price and very active in seeking information on quality.

Quality

In terms of the effect on quality, it is the generally accepted view (although empirical evidence is quite weak) that the first period resulted in a 'medical arms race' (Robinson and Luft 1985). As buyers were not sensitive to price, hospitals competed on quality, both to attract buyers and to attract physicians to practise at their hospitals. The impact of this raised both price and quality in areas with more hospitals (Joskow 1980).

More recent evidence has focused on the impact of competition under fixed prices. An influential early study focused on the treatment of elderly patients admitted to hospital with a heart attack and covered by government insurance (Medicare). Higher competition was associated with lower death rates from heart attack after 1990 (Kessler and McClellan 2000). Similar findings were reported by Rogowski *et al* (2007), who looked at deaths across a broader range of medical conditions, and Sari (2002) who measured the quality of health care by the number of in-hospital complications. However, other studies show either no effect on quality, or, in some cases, negative effects (Shortell and Hughes 1988; Ho and Hamilton 2000; Mukamel *et al* 2001; Gowrisankaran and Town 2003; Volpp *et al* 2003).

The incentives for hospitals to increase quality when operating in competitive markets may depend on the precise mix of payers that the hospitals have. There is evidence that capitated payers, such as health maintenance organisations (HMOs), prefer higher-quality hospital care (Schulman *et al* 1997; Chernew *et al* 1998; Escarce *et al* 1999; Gaskin *et al* 2002; Young *et al* 2002; Rainwater and Romano 2003). This leads to both price reductions and quality improvements in competitive environments where HMO-penetration is high (Mukamel *et al* 2001; Sari 2002; Rogowski *et al* 2007). Not all the evidence supports this view: Kessler and McClellan (2000) find no association between the two; and both Shortell and Hughes (1988) and Shen (2003) find higher HMO-penetration to be negatively associated with the quality of care offered by hospitals.

Efficiency

Over the past 20 years, the US market for hospital care has seen a substantial rise in hospital mergers (Gaynor and Haas-Wilson 1999) aimed at achieving cost reductions through economies of scale and decreased administrative costs, increasing market power relative to other providers (Harrison 2007), or increasing influence in negotiations for contracts with payers. A growing body of evidence demonstrates that hospital mergers lead to higher prices but few, if any, cost-savings (Noether 1988; Melnick *et al* 1992; Connor *et al* 1998; Dranove and Ludwick 1999; Keeler *et al* 1999; Dranove and Lindrooth 2003; Gaynor and Vogt 2003) or short-run improvements in efficiency and productivity (Ferrier and Valdmanis 2004).

Until recently, mergers between not-for-profit hospitals had been tolerated, as it was viewed that their not-for-profit status would mean that mergers would not have

anti-competitive effects. Recent studies have challenged this view. Mergers by not-for-profits have been found to decrease competition and have an equally negative impact on outcomes as mergers by for-profits (Gaynor and Vogt 2003; Abraham *et al* 2007). The evidence on vertical mergers (for example, between primary- and secondary-care providers) is more complex (Haas-Wilson 2003).

Equity

Competition may also lead to differential treatment of different types of patients, although this outcome has been studied less. Kessler and Geppert (2005) examined the treatment given to elderly Medicare patients admitted to hospital following a heart attack. They investigated the extent to which competition had an impact on patients who were otherwise sicker, compared with those who were otherwise healthier. They found that in more competitive markets, there was greater variation in medical care. Furthermore, this variation was, on average, beneficial. Healthy patients in more competitive markets received less intensive treatment than those in more concentrated (less competitive) markets, without any significant difference in health outcomes. Sick patients in more competitive markets received more intensive treatment than similar patients in more concentrated (less competitive) markets, with the former having better health outcomes. The effect of competition appeared to be that there were more appropriate treatments – with greater variety in treatment styles – across hospitals in more competitive areas, and that neither patient group lost as a result.

Evidence from the NHS internal market in the 1990s

The internal market that operated in the NHS throughout the United Kingdom between 1991 and 1997 encouraged competition between NHS hospitals for contracts for hospital care from two sets of buyers: the geographically based district health authorities; and the smaller GP fundholders. Prices could be negotiated between hospitals and the buyers, and price lists (although not including any discounts) were supposed to be publicly available.

Information on quality was very limited, although there is weak evidence that greater competition was associated with lower costs (Söderlund *et al* 1997). Two large-scale studies of the association between hospital competition and quality suggest that quality – as measured by deaths of patients admitted to hospitals with heart attacks – actually fell during the internal market (Propper *et al* 2004, 2008a). This combination of falls in price and a drop in quality fits with the predictions of economic theory: where demanders are sensitive to price and quality information is weak, both prices and quality are likely to fall as competition increases.

In addition, there is a considerable body of evidence to suggest that the two types of purchasers were differentially able to reap the benefits from provider competition. GP fundholders were able to secure shorter waiting times for their patients, were

more able to move contracts, and generally appeared to be more responsive to patients' wishes and more willing to exploit competition between hospitals for their patient referrals (Le Grand 1999; Croxson *et al* 2001; Propper *et al* 2002; Dusheiko *et al* 2004). This may have been partly due to their smaller size: district health authorities were concerned that if they removed their business, the local hospital risked failing. It was also likely to be due to self-selection among the GPs who became fundholders. Case-study evidence suggests that fundholders did not drop potentially expensive patients (known as dumping) (Matsaganis and Glennerster 1994), perhaps due to the presence of stop-loss insurance on expensive patients.

Evidence from New Labour's market reforms

The second phase of provider competition was represented by the market-based reforms reintroduced in England in the 2000s by the New Labour government. The combination of diversity of providers, patient choice and Payment by Results (PbR) (discussed elsewhere in this book) was designed to increase competition.

In theory, at least, NHS hospitals had incentives to respond to increased competition. Although NHS hospitals are public organisations, the regime they operated under gave hospital managers strong incentives not to make financial losses, although much weaker incentives to make surpluses. PbR increased uncertainty about income for hospitals, and the simultaneous rise in the availability of care from NHS and non-NHS competitors was also likely to have increased competition.

The economic literature (Gaynor 2004) suggests that an increase in the elasticity of demand, combined with a fixed-price regime, should lead to improvement in the quality of care in hospitals facing competition.

Two studies have sought to estimate the impact of the introduction of competition on both clinical and financial outcomes (Cooper *et al* 2011; Gaynor *et al* 2011). They used a very similar approach, with each looking at the behaviour of hospitals located in the markets that might be most affected by competition before and after the reintroduction of provider competition policy in the English NHS, and comparing this with the behaviour of hospitals located in markets where the policy was expected to have had less effect, using a 'difference-in-difference' research design. This approach controls for differences between urban and non-urban locations, for example, in the types of patient and hospital that are located in these different areas.

The argument underpinning both studies is that competition in hospital markets is geographically driven as, all other things being equal, patients prefer to be treated close to home. Hospitals in more dense (urban) markets therefore generally face greater competition, and so these hospitals will be exposed to more potential competition than those in rural areas. The strategy used in both studies was to compare the difference in outcomes before and after the policy change for hospitals located in areas where the market structure was such that competition was more

likely than in areas with limited competition. The studies were therefore not based on a function of quality and measures of actual competition, as this could be hard to measure, but on the potential competitiveness of the market as measured by market structure.

In terms of the measurement of market structure, both studies based this on patient flows to NHS hospitals for elective care before implementation of the policy changes so as to pick up the pre-policy behaviour of patients and commissioners. For example, even if there is only one hospital in an area to which patients are prepared to travel, and/or buyers nevertheless place contracts with distant providers that they then force local patients to use, that hospital will still face more potential competition than one where buyers only place contracts with a single local hospital.

Both studies used elective flows to define the market structure because it was in elective care where the competition was expected to have an effect. Ideally, both studies would also have included independent-sector treatment centres (ISTCs) and private providers in these calculations, but a lack of data on patient flows made this impossible, and so market structure in both studies was defined in terms of NHS providers. In practice, this lack of private-sector data may make little difference as the role of the ISTCs was much smaller during the period than was initially expected.

Using patient flows, the two studies calculated a standard measure of market concentration, known as the Herfindahl-Hirschman Index (HHI), for each hospital. The higher the HHI, the closer the market structure was to a monopoly. The studies then examined the relationship between market structure pre-policy (as measured by the HHI), and measures of quality and other outcomes.

Impact on quality

Gaynor *et al* (2011) examined the effect of the reforms on hospital death rates after admissions for acute myocardial infarction (heart attack), and death rates after admission for any reason. Cooper *et al* (2011) examined only the effect on mortality rates for people admitted for heart attack. Gaynor *et al* used the period 2003–7 to cover before and after the reintroduction of competition; the Cooper study extended the 'after period' to 2008. Death rates were not employed because of competition for emergency patients, but rather because they are thought to be reliable markers of quality, particularly death rates for acute myocardial infarction, and they provide hospitals with the chance to improve quality by making various changes (Propper *et al* 2006).

Both studies concluded that death rates fell across the period for all hospitals, but they fell more for hospitals that were located in less concentrated (more potentially competitive) markets. This is shown in Figures 5 and 6, opposite, which plot the relationship between mortality and competition policy concentration (the extent to which competition is possible) before and after the reform. Each dot represents

Figure 5 Hospital mortality from acute myocardial infarction compared with market structure pre- and post-reform

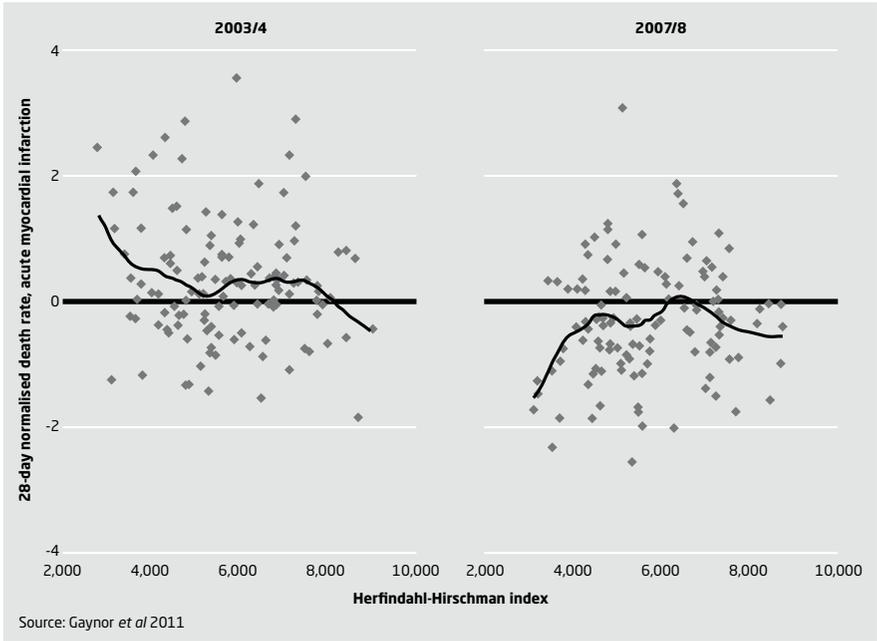
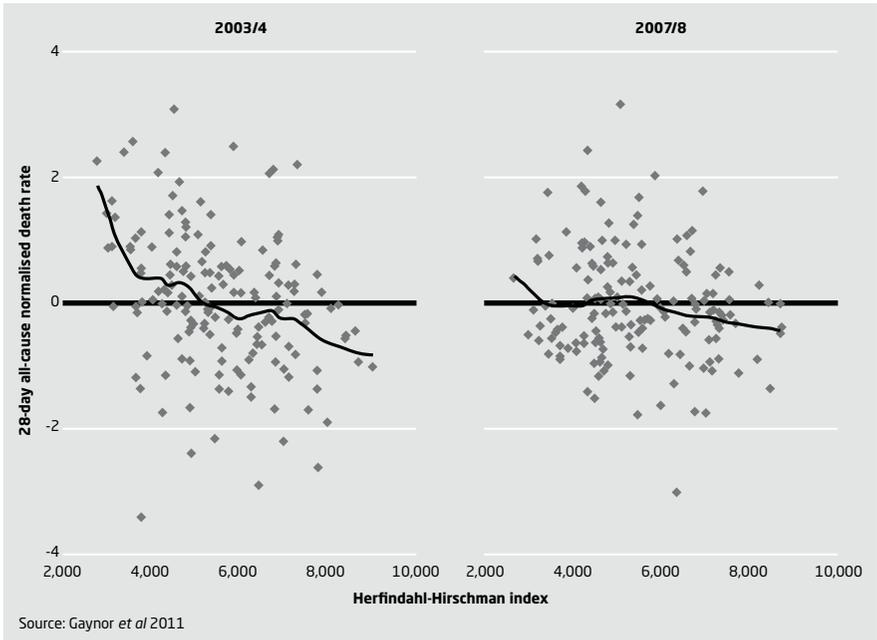


Figure 6 All-cause hospital mortality compared with market structure pre- and post-reform



a hospital. Hospitals on the left hand side of each graph were in less concentrated markets before the policy was implemented – in other words they faced more potential competition once the policy came into force. Figure 5 (from Gaynor *et al* 2011) shows the relationship between the mortality rates of patients admitted following an acute myocardial infarction and market structure. The left hand panel shows that mortality was clearly higher in the less concentrated markets before the reform. But post-reform the direction of the association has been reversed, and mortality was lower in markets where more competition was possible.

The same pattern can be seen in Figure 6, which plots all-cause hospital mortality rates against market concentration. These plots show that quality increased more in hospitals that were more exposed to competition than those that were not. This is confirmed by statistical analysis in both studies.

Impact on efficiency

Gaynor *et al* (2011) also examined other clinical outcomes, including methicillin-resistant *Staphylococcus aureus* rates and length of stay, as well as simple measures of productivity and expenditure. They found that there were no differential effects of competition on these outcomes, except in the case of length of stay, which fell more in hospitals located in more competitive markets. Gaynor *et al* controlled for measurable differences in casemix using a range of indicators (although they acknowledged that there may still be selection on factors that cannot be measured).

The conclusions from both these studies is that patients discharged from hospitals located in markets where market concentration was lower – that is, markets in which the policy could have had a bigger effect – were less likely to die, had shorter length of stay, and were treated at the same cost.

Conclusions

The US evidence broadly suggests that inter-hospital competition has led to substantially lower prices since the 1990s. The impact on quality, however, is more mixed, with the general conclusion being that quality increases where prices are fixed, but may decline where they are not.

In England, the quantitative evidence on the impact on health outcomes of competition between hospitals in the health sector since 1997 rests on the two studies outlined above. Further research is needed to fully understand the implications of these findings for future policies on the role of competition and markets in health care as, inevitably in studies that rely on administrative data, both have limitations that affect their interpretability.

A number of other points must be borne in mind when reviewing the evidence.

- First, the English findings rely mainly on one measure of clinical quality – namely mortality rates. It will be important to assess the effect of competition on a wider

set of process and outcome measures in future as data improve (eg, patient-reported outcomes related to the elective treatments for which competition is most relevant).

- Second, as mentioned, the economics literature is weak with regard to exactly how competition between hospitals for elective patients might result in the staff within them (particularly the clinical staff) improving the quality of care in non-elective areas such as myocardial infarction. One interesting English study found that increasing competition among NHS hospitals was associated with better management practices within them (Bloom *et al* 2010), findings that replicate results found throughout private-sector businesses. This is one potential pathway; others need to be explored (*see* Chapter 9 for more on this).
- Third, the impact of competition is heavily defined by the environment in which it is operating, eg, the features of the local market, the extent and types of regulation, the nature of price-setting and so on, and the interaction between these. While the studies reviewed above used techniques that tried to control for these and to identify the effect of competition, the fact that a range of more and less pro-competitive policies were introduced simultaneously means that more research is needed on precisely which aspects of reform led to change.
- Fourth, the evidence reviewed in this chapter comes mostly from the United States. It is worth while speculating about what factors might be at work in that setting and how those may translate to England and the NHS. In the United States, price-sensitive insurers negotiate prices. These insurers have strong incentives to obtain lower prices, since their customers, typically employers, are responsive to price differences. Insurers, however, do not engage in sole-source contracting. They contract with sets or networks of hospitals. Patients are thus free to exercise choice of hospital within a network (which is often quite broad). As a result, hospitals have an incentive to compete on quality in order to attract patients within a network. There are both price and quality incentives in play that are very different from the situation in the English NHS market, in which many prices have been fixed and competition is between NHS trusts not between networks of hospitals.

Implications for future policy in the English NHS

The current coalition government is keen to increase the pace and scope of market-oriented reform in the English NHS (Department of Health 2010a). The research to date suggests that policy-makers should reflect on several issues in pursuing this agenda.

- First, while the literature suggests that competition with regulated prices may bring benefits, the findings from settings where prices are deregulated are far more mixed, and for England in the 1990s were not encouraging. This suggests that any move to deregulate prices is at best premature. Even if quality information

has improved, there is a danger that cash-constrained buyers operating within a tight fiscal environment will focus on cost-reductions at the expense of quality. Furthermore, in the NHS in England, many hospitals do not have adequate information about their costs to know if the price they are negotiating is above marginal cost.

- Second, if purchasers themselves do not benefit from lower prices, their financial incentives will be weak and they will not drive price competition. The arrangements for GP commissioning consortia to keep surpluses are not yet spelled out in detail, although it is likely that they will be able to keep at least some. They will therefore have financial incentives to seek lower-cost providers, which is another reason to maintain fixed prices, at least until the behaviour of the consortia can be studied.
- Third, competition for patients could also provide an incentive for GPs to be price-sensitive and, to the extent that patients can observe quality, be sensitive also to that in their choice of health care provider. The extent to which GP commissioning consortia will compete for patients is not yet clear. At present, competition for patients between GP practices is still limited.
- Fourth, GP consortia may have an incentive to direct patients to lower-cost, as opposed to higher-quality, providers. GPs are often the ones providing advice and referring individual patients. In this context, it might be better to separate the functions of price negotiation from supporting patient choice and referral within the consortia in order to minimise the conflict between profits from lower prices and selecting the best-quality hospital (or other care) for patients.
- Finally, competition between hospitals has been encouraged over the past decade largely in response to the need to reduce waiting times for elective treatments. The far greater challenge facing society and health care systems in future is caring for larger numbers of older people, the dying, and people with chronic conditions. The extent to which competition for elective care will have an impact on the quality of care for these people is not clear, and nor indeed is whether competition for chronic-care provision would work at hospital level. For this type of care and patient group, high-quality integrated care that promotes care closer to home is the objective, which is more likely to be achieved through vertical associations, or mergers, between primary care, social services and hospital care, which should reduce avoidable hospital costs (Commonwealth Fund Commission on a High Performance Health System 2006; Minott *et al* 2010). If competition, under the right conditions, is a means to extract better quality for the cost, it may be that the optimal unit of competition, at least for chronic and long-term care, is not a hospital, but a vertically integrated provider organisation.