



Understanding competition and choice in the NHS

Public payment and private provision

The changing landscape of health care in the 2000s

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May 2013

The Health and Social Care Act 2012 paves the way for an extension of competition and market mechanisms in the NHS in England, with more competition for the provision of health services. To inform these developments, and help evaluate their progress, the Nuffield Trust and the Institute for Fiscal Studies have formed a partnership to conduct a joint research programme that will aim to establish a long-term expertise in the use of competition and market mechanisms in health care - both in the NHS in England and internationally. This is the second report from the programme. The first, Choosing the place of care: the effect of patient choice on treatment location in England, 2003–2011, is available from: www.nuffieldtrust.org.uk/publications/choosing-place-of-care

The Nuffield Trust is an authoritative and independent source of evidence-based research and policy analysis for improving health in the UK. The Institute for Fiscal Studies is the UK's leading independent microeconomic research institute and aims to promote effective economic and social policies by using rigorous quantitative analysis to understand their impact better.

Acknowledgements

The report has been authored by Sandeepa Arora and Anita Charlesworth, Nuffield Trust; and Elaine Kelly and George Stoye, Institute for Fiscal Studies. The views expressed are those of the authors.

The Hospital Episodes Statistics data were made available by the NHS Information Centre, which bears no responsibility for the interpretation of the data in the report.

This work was funded by the Nuffield Trust. Support from the Economic and Social Research Council (ESRC) for the Centre for the Microeconomic Analysis of Public Policy at the Institute for Fiscal Studies (RES-544-28-2001) is gratefully acknowledged.

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Executive summary

There was a substantial increase in public funding for health over the last decade. Alongside this the National Health Service (NHS) in England was reformed. The reforms included a series of measures to increase patient choice and improve access to care. The Health and Social Care Act 2012 implements a further series of measures, with new commissioning bodies and a new framework for competition and choice. This report examines trends in the public and private funding of health care across the UK during the reforms that preceded the Health and Social Care Act. It then looks at the relationship between the public and private sector in the provision of NHS funded care in England. To explore these issues in more detail, the report examines the changes in the roles of the NHS and the private sector in the funding and provision of two elective in-patient procedures: hip and knee replacements.

Key points

- Between 1997 and 2011, public spending on health grew by 5.0% a year, after economy-wide inflation. This compared to average growth of just 2.9% a year between 1975 and 1997. In contrast, growth in private health spending, which had averaged 7.2% a year between the mid-1970s and the late 1990s, slowed to just 3.8% a year between 1997 and 2011. The share of public expenditure in total health spending increased from 80.4% in 1997 to 82.8% by 2011.
- The economic crisis has had an impact on both public and private spending but thus far the impact has been greater on private spending. Public spending on health care in the UK increased both in 2008 and in 2009. Spending fell in real terms by 0.7% in 2010 and a further 1.2% in 2011. Private spending on health began to fall in 2008 between 2008 and 2011 it fell by almost 6% in real terms.
- The role of non-NHS providers in delivering NHS-funded care in England increased markedly from 2006 onward, reflecting explicit policy decisions. In 2006/07 the NHS spent £5.6 billion (in 2011/12 prices) on care provided by non-NHS providers; by 2011/12 this had increased to £8.7 billion. This spending covered a range of general and acute, mental health, community and learning difficulties services. Non-NHS providers include private, voluntary and local authority providers.
- Primary care trust (PCT) accounts data suggest that the single largest share of secondary care spending on non-NHS providers goes to independent sector providers (independent sector treatment centres (ISTCs) and other private sector providers) and that this has grown more quickly over the last five years than spending on services provided by the voluntary sector and local authorities. However, greater clarity is needed in how providers are classified as belonging either to the voluntary or private sector in these accounts.

- PCT spending on what are defined in the accounts as independent sector providers varies across the country. It was highest in 2011/12 in the Yorkshire and the Humber Strategic Health Authority (SHA) and lowest in the North East SHA. But it increased in all regions between 2006/07 and 2011/12.
- The funding and provision of hip and knee replacements follows a similar pattern to that of overall spending. The number of hip and knee replacements funded by the NHS rose by a half between 2003/04 and 2011/12. Over the same period the total number of hip and knee replacements (as measured by implant sales) changed very little, implying that NHS-funded operations were taking up a growing share of the total while the number of privately funded procedures was falling.
- More than half of the growth in the number of NHS-funded hip and knee operations is accounted for by procedures carried out by private providers, through ISTCs or the Any Qualified Provider programme. From a negligible presence in 2003/04, the share of NHS-funded private hip and knee replacements delivered by private providers rose to almost 19% in 2011/12.
- For most private providers, the rise in demand for hip and knee replacements from NHS patients has been accompanied by a fall in the number of privately funded patients.

1. Introduction

Between 2000 and 2011, UK spending on health as a share of national income grew by more than a third, from 7.0% to 9.4% (Payne, 2013). In 2000, UK spending on health as a share of national income was below the Organisation for Economic Co-operation and Development (OECD) average; by 2006, UK spending was in line with the OECD average. After the recent financial crisis, national income fell across the OECD but health spending remained relatively stable, leading to a sharp increase in health spending as a share of national income. In 2008, OECD countries spent on average 8.9% of their national income on health, compared to 8.8% in the UK (OECD, 2012).

Between 2000 and 2011, heavy investment in the NHS meant that public spending accounted for an increasing share of all spending on health in the UK. Public spending increased from 79.2% to 82.8% of total health spending (Payne, 2013).

As NHS funding increased, so did the volume of NHS activity. Between 2002/03 and 2010/11 the number of patients receiving care as an inpatient or day case increased by 35% and A&E attendances increased by over 50% (Nuffield Trust, 2013). The last decade also saw an improvement in the quality of NHS services and some improvement in health outcomes. Notably, waiting times for hospital and primary care were significantly reduced and the rates of two of the most prevalent causes of hospital acquired infections fell (Dixon and others, 2011). The increase in the volume of care provided by the NHS has three potential sources: first, demographic trends that increase demand for care; second, thresholds for receipt of care may have been lowered resulting in patients receiving care that would not previously have been provided to them, either at all or until their condition had worsened; third, substitution from the private-pay sector, with some patients having treatment funded by the NHS that would previously have been funded privately.

The health service is the responsibility of each of the devolved administrations in Scotland, Wales and Northern Ireland. The Department of Health is responsible for the English NHS. Alongside the additional investment that occurred across the UK over the last decade, England, Scotland, Wales and Northern Ireland have taken different approaches to the delivery of health care. In the English NHS over the last decade, a series of reforms were introduced to increase the role of private providers in delivering NHS-funded care. Hence, private firms may have faced a reduction in demand for privately funded treatment as NHS care improved, but an increase in demand from the NHS to deliver the same operations.

NHS reforms to increase competition and the role of the private sector were not intended to have, and have not had, a direct effect on all areas of secondary health care. Emergency care remains almost exclusively the preserve of the NHS, and for many procedures the majority of patients are still treated at their nearest NHS acute trust. However, for many routine elective procedures, such as hip and knee replacements, the market for care is now far more complicated than the traditional picture of NHS hospitals providing NHS-funded treatment, and private hospitals providing private treatment. NHS hospitals have long had private wings that treat a small number of private patients, and recent reforms have increased the role of private firms in delivering NHS-funded care. In other words, both NHS and private hospitals treat both NHS and privately funded patients.

This report explores the relationship between:

- public and private spending in *funding health care* in the UK
- the public and private sectors in *providing health care* funded by the NHS in England.

The first part of the report uses aggregate spending data and consumer surveys to examine changes in public and private spending on health care. Data from primary care trust (PCT) accounts are used to explore the role of non-NHS providers in delivering NHS-funded care to patients across England.¹

In the second part of the report we turn to the specific examples of hip and knee replacements, where the markets include NHS and private hospitals, treating both NHS and privately funded patients. In order to examine both publicly and privately funded activity, NHS records from the Hospital Episode Statistics (HES) are combined with submissions to the National Joint Registry.²

Two issues are addressed in detail in this report. The first is how the level and composition of NHS-funded activity has changed over the past decade. In particular, we show how deliberate policy decisions have led to an increase in NHS spending and a growing role for private sector providers in delivering NHS-funded care. This follows on from Kelly and Tetlow (2012), who show that – for all three elective procedures they consider – there has been a rapid rise in the share of NHS-funded patients treated by private providers, matched by a corresponding fall in the proportion of patients treated by their nearest NHS acute trust.

The second is whether, and if so how, improvements in the quality and availability of NHS-funded care have affected demand for privately funded treatments. Any changes have potentially important implications for the cost-effectiveness and distributional impact of NHS reforms.

Throughout this report, figures for spending (by individuals and NHS bodies) are expressed in 2011/12 prices for financial year data and 2012 prices for calendar year data, adjusting for economy-wide inflation as measured by the Gross Domestic Product (GDP) deflator.³

^{1.} See Jones and Charlesworth (2013) for an explanation of the PCT accounts data used in this analysis.

^{2.} For a description of data contained in HES, see Kelly and Tetlow (2012). For information on the National Joint Registry, see NJR (2012).

^{3.} The GDP deflator series used is that published by HM Treasury on 27 March 2013 and is consistent with the Office for Budget Responsibility's March 2013 Economic and Fiscal Outlook.

2. How has public and private health care spending changed over the past decade?

This chapter starts by describing trends in the level and composition of public and private health spending in the UK. It uses the data provided to the OECD by the Office for National Statistics (ONS). Private spending data includes spending by households obtained from the consumer trends survey (ONS, 2012), spending by voluntary sector bodies and capital spending by private healthcare providers.

Private health spending in the consumer trends survey includes spending on:

- hospital care
- pharmaceuticals, including both prescription and non-prescription items such as vitamins
- equipment such as glasses and contact lenses
- dentistry
- paramedical services such as reflexology, acupuncture and aromatherapy.

Public spending includes all government capital and resource spending on health care, plus spending on prison and armed forces health.

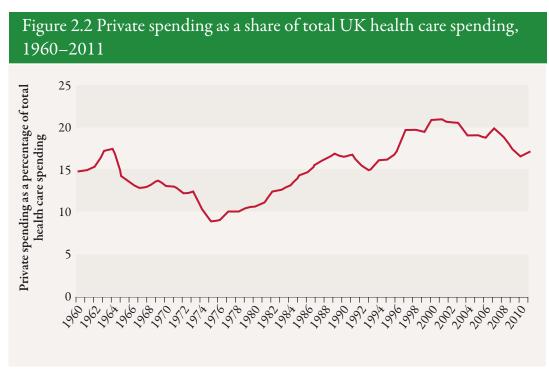
Changes in aggregate health care spending

Figure 2.1 shows the increase in aggregate health spending in the UK between 1960 and 2011. Health spending grew in real terms by an average of 4.3% a year over this period; this was faster than real growth in national income. Taking this period as a whole, public and private spending grew at very similar rates on average: public spending grew in real terms by 4.3% a year on average, compared to 4.6% a year average growth in private spending. However, comparing growth in public spending with growth in private spending, three distinct periods can be identified; these are shown more clearly in Figure 2.2, which shows private spending as a share of total UK health spending from 1960 to 2011.

Between 1960 and 1975, public spending grew more quickly than private spending (5.7% and 1.7% a year on average, respectively). This was followed by a prolonged period – from 1975 to 1996 – when private spending grew more quickly (6.9% a year on average) than public spending (3.2%). In the period between 1997 and 2007, public and private spending grew at a similar rate (5.9% and 6.0% a year, respectively), reflecting policy decisions to increase health spending. Between 2007 and 2011, when the economic crisis took hold, public spending continued to grow at an average rate of 2.1%, while private spending fell by 1.6% per year.



Sources: The data are adjusted to 2012 prices using the 27 March 2013 GDP deflator from HM Treasury. Figures for 1960 to 1996 are from OECD Health Data 2012. Figures for 1997 to 2011 are from Office for National Statistics *Expenditure on healthcare in the UK*, 8 May 2013.

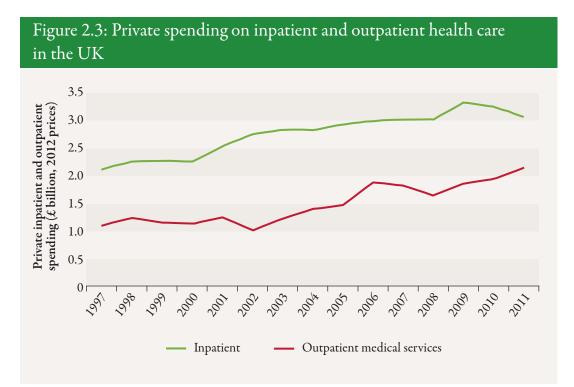


Sources: As Figure 2.1.

Changes in private spending

Both public and private health care spending cover a wide range of health services. However, there are large differences in the composition of spending in the two sectors.⁴ In 2011, total private health spending in the UK was £24.8 billion (at 2012 prices) (Payne, 2013). Household spending on hospital medical services (inpatient stays and outpatient visits) was much lower at £5.2 billion (ONS, 2012). Figure 2.3 shows the level of household private spending on both inpatient and outpatient medical services from 1997 to 2011.

Trends in private household spending on inpatient care are similar to those for private spending as a whole. Real spending on inpatient services rose by 44% across the period, with the majority of that rise taking place before 2003. Between 2003 and 2008, spending grew by just 6%. The pattern for outpatient spending is somewhat different, remaining stagnant from 1997 to 2003 before rising thereafter.



Source: Office for National Statistics Consumer Trends, 2012.

^{4.} A much higher proportion of private spending goes on services such as dentistry, which accounts for a small proportion of NHS spending. Some services included in private spending, such as reflexology, are not provided by the NHS at all.

The changing trends in public and private health care spending are also reflected in the changing rates of private medical insurance (PMI) coverage. The main source of revenue for private health care providers is privately insured patients. In 2006, one in eight of the UK population (12.5%) was covered by PMI (as shown in Table 2.1), with four-fifths of these policy-holders covered through an employer. PMI coverage remained at about the same level until 2009, before falling to 10.9% by 2012. PMI coverage is now at its lowest level for 20 years.⁵ The decline in the number of policy-holders was largest for policies paid for directly by individuals – the number of individuals holding such policies fell by 13.5% between 2009 and 2012. Over the same period, the number of individuals covered by a policy paid for by an employer fell by 8%.

Table 2.1: Private medical insurance coverage, 2006–2012					
Year	% PMI coverage	Membership (millions) Company policies Individual policies			
2006	12.5	4.16	1.16		
2007	12.2	4.19	1.10		
2008	12.4	4.25	1.09		
2009	12.3	4.32	1.12		
2010	11.7	4.11	1.06		
2011	11.4	3.98	1.01		
2012	10.9	3.97	0.97		

Source: Laing and Buisson Health Cover UK Market Reports, 2007–2012.

The economic downturn is likely to be the predominant force behind these falls. However, demand for PMI may have responded differently had NHS waiting lists remained at the same level as in the early 2000s.⁶

Demand for self-pay private treatment is more sensitive to NHS waiting times than demand for PMI (Laing and Buisson, 2011a; OFT, 2011). Volumes of self-pay patients started to decline from 2007, with particularly large falls for traditional non-cosmetic treatments such as orthopaedics and cataracts (Laing and Buisson, 2008).

PMI coverage rose from around 9% in the mid-1980s to 11% in the early 1990s. Between 2000 and 2006, there was a further small rise from 11.5% to 12.5%. The proportion of policies taken out by individuals fell from 1996 onwards (King and Mossialos, 2002).

^{6.} A number of clauses in PMI contracts explicitly introduce a substitution between private and publicly funded care when waiting times fall. In particular, some policies only cover private treatment when the wait for NHS treatment is longer than six weeks. Another common clause is an NHS cash-benefit option, which offers PMI-covered patients a *per diem* allowance if they choose NHS treatment instead of private treatment. Improvements in NHS waiting times could therefore reduce demand for private hospital treatment through either of these channels.

Trends in NHS spending and use of non-NHS providers

The public health care budget is used to purchase health care for NHS patients. This includes hospital and other secondary care services, primary care and prescribing. In 2011/12 in England, the majority of health care was provided by NHS-owned and -run institutions: hospital and mental health trusts or independent contractors including GPs, dentists, community pharmacists and opticians. However, $\pounds 8.7$ billion was spent with non-NHS providers. Table 2.2 shows the change in aggregate spending on non-NHS providers over the last five years.

Table 2.2: NHS spending on non-NHS providers in England, 2006/07 and 2011/12 (2011/12 prices)					
	2006/07	2011/12	Percentage change		
PCT secondary care	£4.74bn	£8.33bn	76%		
PCT primary care	£0.30bn	£0.12bn	-58%		
PCT grants	£0.19bn	-	-100%		
Total PCT	£5.23bn	£8.45bn	62%		
Non-PCT	£0.37bn	£0.22bn	-40%		
Total	£5.60bn	£8.67bn	55%		

Source: DH Annual Report and Accounts (2012); Health Select Committee (2008).

As Table 2.2 shows, in 2006/07 85% of all spending with non-NHS providers was commissioned by PCTs for the provision of secondary care. Until the implementation of the Health and Social Care Act on 1 April 2013, the majority of the publicly funded health budget in England was allocated to 151 PCTs, to commission and provide care for the population of their area.⁷

In this analysis we have used PCTs' audited accounts data to analyse trends in the types of non-NHS providers commissioned to deliver care to NHS patients, and the types of care being provided. We have analysed spending on secondary care services only.

In 2011/12, PCTs spent £91 billion on health care for their populations, of which over three quarters was used to purchase secondary care services from NHS hospitals and other providers (Jones and Charlesworth, 2013).⁸ The breakdown of this spending in 2011/12 is displayed in Figure 2.4 (page 13). By far the largest component is general and acute spending, which accounts for three fifths of all spending. Spending on mental illness and community health services account for 13% each with smaller spends on maternity, accident and emergency, and learning difficulties.

^{7.} In 2011/12 PCT spending was almost 90% of the Department of Health's resource Departmental Expenditure Limit (DEL) – the remaining ± 11 billion was devoted to medical education and training (MPET), administrative functions within the Department of Health, and arms-length bodies.

^{8.} The remaining quarter of PCT spending was on primary care.

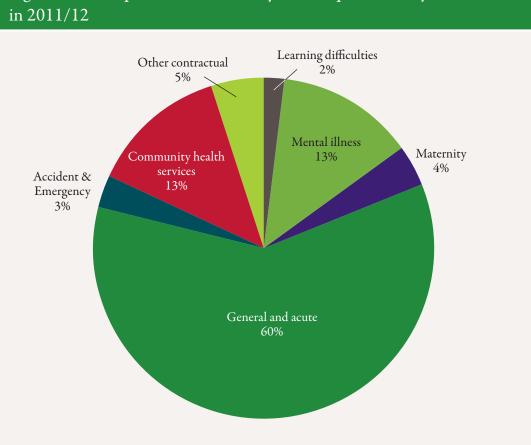


Figure 2.4: Composition of secondary services purchased by PCTs

Source: Authors' calculation using data from the Department of Health (2011/12 financial monitoring and accounts forms for PCTs).

PCTs faced, and clinical commissioning groups now face, a range of options when commissioning secondary care services. These include:

- NHS providers (including acute hospitals, specialists hospitals and mental health trusts)
- prior to 2010/11 PCTs could use their own arms-length provider organisations to deliver community health services⁹
- voluntary sector
- local authorities
- private providers.

Many non-NHS providers have long had a limited role in delivering NHS-funded care.¹⁰

^{9.} After 2010/11 all PCTs were required to divest their provider arms, under the Transforming Community Services programme (Nicholson, 2010).

^{10.} For example, private providers have provided small numbers of NHS-funded procedures for at least the past 15 years, and voluntary organisations are very active in certain areas, such as abortion and sexual health.

However, a series of reforms over the past decade has given these providers more access to the NHS market.¹¹

The formal expansion of non-NHS provision started with the introduction of independent sector treatment centres (ISTCs) in 2003 (Department of Health, 2002). ISTCs were initially introduced to reduce waiting times in the NHS (Naylor and Gregory, 2009). ISTCs are privately owned and managed units – either standalone or co-located on NHS sites – which provide services exclusively to NHS patients (Naylor and Gregory, 2009). The Department of Health procurement of ISTCs led to the establishment of 35 privately run centres providing NHS funded diagnostics and elective surgery (Naylor and Gregory, 2009).¹² ISTCs were awarded contracts to provide NHS-funded care for up to five years (Cooperation and Competition Panel, 2011). Although ISTCs were initially focused on areas with long waiting times, the stated objectives of the policy evolved. By 2008, the aims of the programme were to: provide additional capacity, increase patient choice, stimulate innovative models of service delivery, and improve productivity (Naylor and Gregory, 2009). In 2008, the role of the private sector was further expanded with the development of the Any Qualified Provider (AQP) policy. This extended patient choice for elective care to all providers registered with the Care Quality Commission, with a PCT or national contract, willing to provide services at the NHS tariff.

Figure 2.5 (page 15) shows the proportion of the secondary care budget spent by PCTs with non-NHS providers between 2006/07 and 2011/12. Overall, PCT spending on secondary care provided by non-NHS providers increased in real terms from £4.74 billion to £8.33 billion (2011/12 prices) between 2006/07 and 2011/12 – an increase of 76%. Over the same period, total spending on secondary care grew in real terms by 29%. As such, the proportion of the PCT secondary care budget accounted for by non-NHS providers rose from 9.0% to 12.3%. As Table 2.3 shows, this increase is driven almost entirely by spending on independent sector providers (ISPs), which include ISTCs and other private sector providers.

	2006/07	2011/12	Percentage change
Independent sector providers (ISPs) of which:	£2.09bn	£5.22bn	150%
ISTCs	£0.26bn	£0.37bn	42%
Other private sector providers	£1.83bn	£4.85bn	165%
Voluntary sector	£0.41bn	£0.59bn	45%
Other including local authorities	£2.25bn	£2.53bn	13%
Total	£4.74bn	£8.33bn	76%

Table 2.3: PCT spending in England on secondary care provided by non-NHS providers, 2006/07 and 2011/12 (2011/12 prices)

12. Also based on personal communication with the Cooperation and Competition Panel, 2012.

^{11.} In particular, Kelly and Tetlow (2012) describe how the combined effects of introducing patient choice in 2006, and the introduction of ISTCs after 2003 led to a rapid growth of the role of the private sector in the provision of three types of elective procedure, and a decline in the concentration of all GP referrals across providers.

By 2011/12, PCTs spent £5.2 billion – almost 8% of their total secondary care budget – on care provided by ISPs. This is almost double the proportion (3.9%) in 2006/07. Spending on the voluntary sector grew by £180 million in real terms, although this still only represents less than 1% of the total secondary care budget. However, spending on other non-NHS providers, such as local authorities grew by just 12.5% in real terms. As a result the share of the total PCT secondary care budget spent on services provided by local authorities and others has fallen, from 4.3% in 2006/07 to 3.7% in 2011/12.

Figure 2.5 demonstrates that there has been a substantial rise in the proportion of secondary spending on ISPs. It is, however, worth noting that total spending includes many areas in which ISPs do not operate, such as emergency care. The share for many routine elective procedures is much larger. For example, Kelly and Tetlow (2012) show that by 2010/11 ISPs accounted for almost a fifth of elective hip replacements and unilateral hernia repairs. ISPs also perform a sizeable proportion of diagnostic tests such as endoscopies.

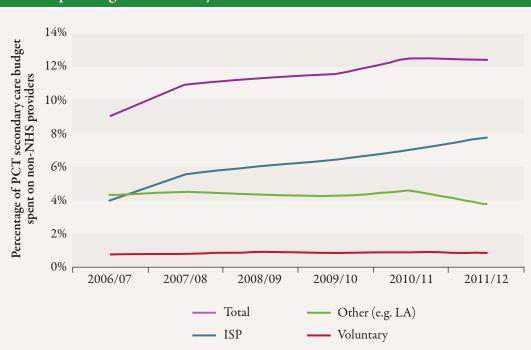


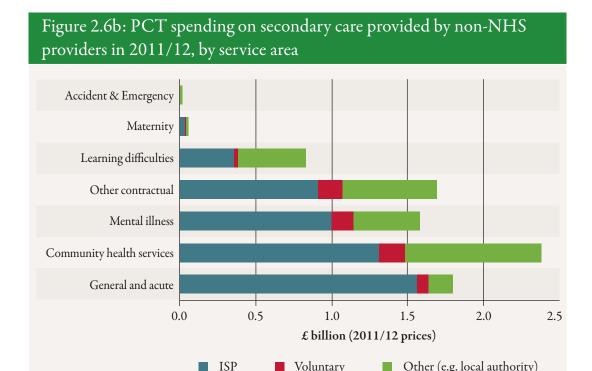
Figure 2.5: Spending on non-NHS providers as a percentage of total PCT spending on secondary care, 2006/07 to 2011/12

Source: Authors' calculation using data from the Department of Health (2006/07 to 2011/12 financial monitoring and accounts forms for PCTs).

Figure 2.6 shows PCT spending by type of non-NHS providers and service area. The figure shows that ISPs dominate spending on non-NHS providers in the general and acute sector, with minimal spending on voluntary or other providers. ISPs also have a sizeable presence in the provision of community health and mental health services.







Source: Authors' calculation using data from the Department of Health (2011/12 financial monitoring and accounts forms for PCTs).

Voluntary

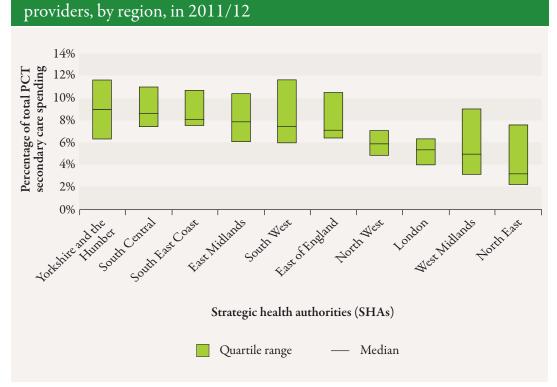
Other (e.g. local authority)

Regional variation in NHS spending on independent sector providers

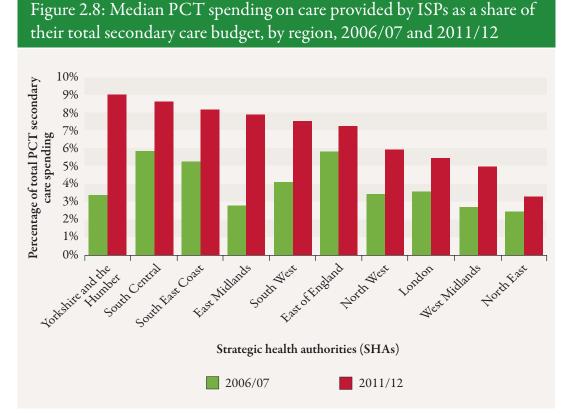
The use of non-NHS providers to deliver secondary care to NHS-funded patients varies across England. Figure 2.7 shows the variation in the percentage of PCT spending accounted by ISPs across SHA regions and between PCTs in the same SHA. For each region, the central horizontal line of the box gives the percentage for the median PCT. A comparison across regions shows that that the median ranges from 3.2% in the North East SHA to 9% in Yorkshire and Humber SHA in 2011/12. The use of independent sector providers has increased in all regions of England over the last five years. As Figure 2.8 shows, the largest increase between 2006/07 and 2011/12 occurred in the East Midlands and Yorkshire SHAs, while in the North East SHA the rate of increase was much slower.

The length of each bar in Figure 2.7 shows the interquartile range of PCT secondary care spending on ISPs by each region. The bottom of each bar represents the 25th percentile and the top the 75th percentile. In some regions – notably London and the North West – not only is the use of ISPs comparatively low overall but there is very little variation between PCTs in the region in their use of the private sector. In other regions there are wide variations in the use of ISPs.

Figure 2.7: PCT secondary care spending on independent sector



Source: Authors' calculations using data from the Department of Health (2011/12 financial monitoring and accounts forms for PCTs).



Source: Authors' calculations using data from the Department of Health (2006/07 and 2011/12 financial monitoring and accounts forms for PCTs).

Key findings: public and private spending over the past decade

- UK public health care spending increased by almost 70% between 2000 and 2011. Over the same period, private spending grew by just 33%. As a result, public health expenditure as a percentage of total UK health care spending rose from 79.2% in 2000 to 82.8% in 2011.
- Private health expenditure grew at the same rate as public spending on average between 1997 and 2007, but started to fall in 2008 strongly associated with the economic downturn.
- As public expenditure on health care rose, a series of reforms to promote patient choice and competition increased the role of non-NHS providers in delivering NHS funded secondary care in England. PCT spending on secondary care services provided by non-NHS providers increased from 9% of their secondary care budget in 2006/07 to 12% in 2011/2012. Accounts data show that this rise is almost entirely explained by a growth in the role of private providers, through the ISTC, AQP and competitive tending programmes.
- According to account data, between 2006/07 and 2011/12 PCTs continued to spend less than 1% of their secondary care budget on care provided by the voluntary sector. Over this period the share of PCT secondary care budgets spent on care provided by local authorities and others fell.
- Although accounts data show spending disaggregated between private, voluntary and local authority providers, it is not clear exactly how organisations have been categorised.
- PCT spending on secondary care services provided by independent sector providers varies across the country but it has increased in all regions.

3. An example of public-private substitution: hip and knee replacements

The analysis presented in Chapter 2 shows that public health care spending grew much faster than private healthcare spending between 2000 and 2011. Over the same period, public policies designed to increase the use of private providers in delivering NHS-funded care mean that private providers now treat a growing share of NHS patients through ISTC and AQP contracts, and the NHS is now a major customer for many private health care providers. This aggregate picture suggests the possibility that growth in public spending on health care may have crowded out some private spending – that is, improvements in NHS care mean that some individuals are now receiving care from the NHS that they would otherwise have paid for privately.

Lack of data means that it is difficult to examine this hypothesis in relation to aggregate health spending. However, this chapter looks at the specific case of publicly and privately funded hip and knee replacements, where richer data allows us to shed further light. The focus on specific procedures provides a more accurate picture of the relationship between the funding and provision of public and private health care, given the differences in the composition of overall public and private health spending. Hip and knee replacements are chosen because: first, the procedures are conducted by both NHS and private hospitals, which treat both NHS and privately funded patients in large volumes; and second, there are few other procedures for which data on private patient volumes are available. These are among the most common procedures to be delivered by ISPs, and therefore provide a useful and important care study, but are not necessarily reflective of the independent sector provider activity as a whole.

Changes in publicly funded hip and knee replacements

Growth in publicly funded hip and knee replacements: 2003 to 2011 Figure 3.1 (page 20) shows the volume of NHS-funded knee and hip replacements conducted between 2003/04 and 2011/12, and distinguishes between procedures provided by the NHS and ISPs.

The total volume of NHS-funded knee and hip replacements increased between 2003/04 and 2011/12, by 52% and 45%, respectively. The number of knee replacements carried out grew from 50,438 to 76,817, while the number of hip replacements grew from 50,107 to 72,703. The volume of operations performed increased in both NHS trusts and ISPs between 2003/04 and 2007/08. Volumes continued to grow in ISPs after 2007/08, but fell in NHS trusts.

Figures 3.2 and 3.3 (pages 20 and 21) examine these trends in more detail by showing the absolute change in procedure numbers by provider type. Figure 3.2 indicates that the number of knee replacements conducted by NHS acute trusts rose rapidly between 2003/04 and 2007/08, with 13,857 (28%) more procedures conducted in 2007/08 than in 2003/04. The annual number of procedures fell thereafter, but remained 11,980 higher in 2011/12 than in 2003/04. The number of operations performed by ISPs rose across the period, with the fastest increases after 2006/07. By 2011/12, the total increase in

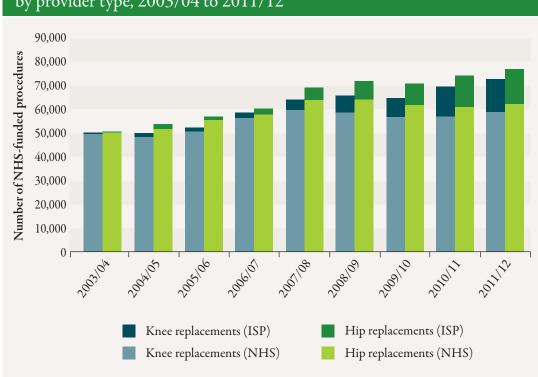
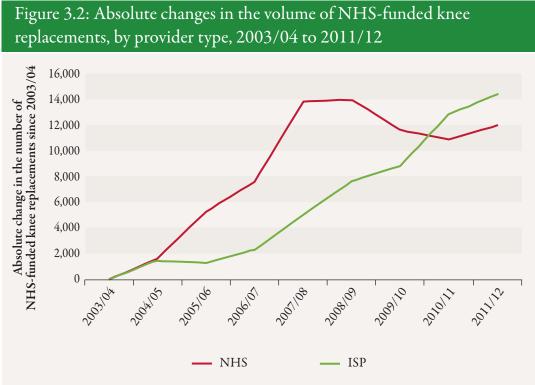
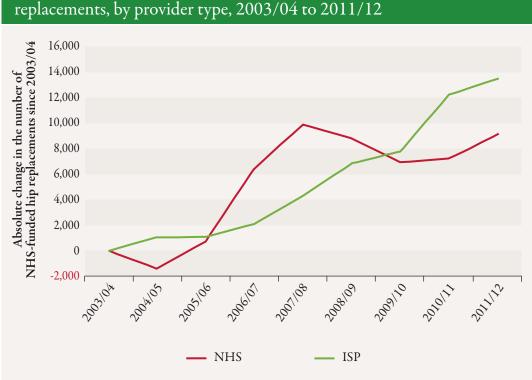


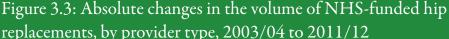
Figure 3.1: The volume of NHS-funded knee and hip replacements, by provider type, 2003/04 to 2011/12

Source: Authors' calculations using HES data.



Source: Authors' calculations using HES data.





Source: Authors' calculations using HES data.

operations performed by ISPs exceeds the total rise accounted for by NHS trusts. In other words, ISPs account for more than half of the increase in the number of knee replacements between 2003/04 and 2011/12.

The patterns for hip replacements, presented in Figure 3.3, are similar: procedures conducted by NHS trusts rose until 2008/09 before falling thereafter, while operations performed by ISPs rose across the period. Again, by 2011/12 ISPs account for more than half of the rise in procedures. In 2006/07, ISPs performed 4.0% of NHS-funded knee replacements and 3.8% of hip replacements, rising to 18.9% and 18.7%, respectively, by 2011/12.

Can the growth in NHS-funded operations be explained by demographics? One possible explanation for the growing number of hip and knee replacements over the last decade is that there are more older people in England. Hip and knee replacements are more common among people aged 60 and over, with the average age of patients having these operations in 2003/04 of 68 and 70, respectively. Between 2003/4 and 2010/11 the number of people aged 60 and over grew by 13.1%. One would therefore expect a rise in the total demand or need for joint replacements. We therefore use data on changes in population size and competition to compute the expected 'natural' increase in numbers.

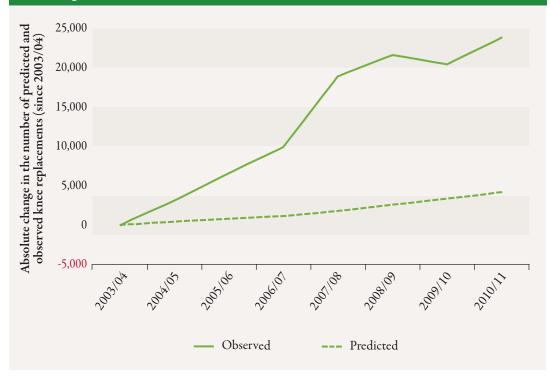
Predicted levels of knee and hip replacements are forecast by combining hospital admissions data from 2003/04 with PCT-level population data in the following way. First, hospital data from 2003/04 are used to calculate the number of admissions by age, sex and PCT of residence. Second, procedure rates are calculated using population data from 2003/04. Third, these procedure rates are applied to the observed population size

of each sub-category in each year between 2004/05 and 2010/11. Fourth, predicted volumes are summed across each age–sex category to produce PCT-level projections, and across PCTs to produce national forecasts by year.

Figures 3.4 and 3.5 (page 23) compare the predicted and observed changes in the volume of NHS-funded knee replacements and hip replacements between 2003/04 and 2010/11.¹³ Had procedure rates remained at their 2003/04 levels, changes in the size and the composition of the population would have resulted in 4,122 additional knee replacements. This accounts for approximately one sixth of the increase in NHS-funded hip replacements.

For hip replacements, we estimate a natural increase of 4,015, or one fifth of the actual increase.

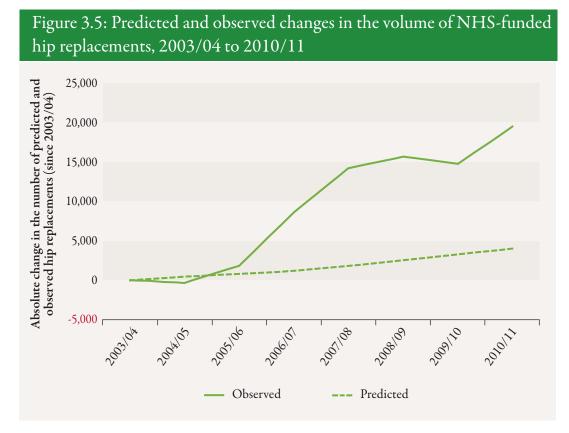
Figure 3.4: Predicted and observed changes in the volume of NHS-funded knee replacements, 2003/04 to 2010/11



Source: Observed hip and knee replacements are drawn from HES. Predicted procedures are estimated using PCT/sex/quinary age group admissions as a percentage of PCT population in 2003/04, and ONS PCT population estimates for 2004/05 onwards.

Three conclusions can be drawn from these descriptive results. First, the role of the independent sector in the provision of NHS-funded elective hip and knee replacements has increased significantly over time. This increased role drives much of the observed rise in activity, particularly after 2007/08. Second, the volume of procedures undertaken by the NHS has also increased, although these now account for a smaller share of NHS-funded knee and hip replacements. Third, only a small proportion of the change in the total number of NHS-funded procedures is explained by demographic changes.

13. Population estimates for 2011/12 are currently unavailable at the PCT level.



Source: Observed hip and knee replacements are drawn from HES. Predicted procedures are estimated using PCT/sex/quinary age group admissions as a percentage of PCT population in 2003/04, and ONS PCT population estimates for 2004/05 onwards.

Changes in privately funded hip and knee replacements

Analysis in the first part of this chapter has demonstrated that there was a substantial rise in NHS-funded hip operations after 2003/04, with only a relatively small proportion explained by demographic trends. The remainder of this chapter examines whether some proportion of the rise could be explained by substitution from the private to the NHS-funded sector. Information on private patients treated in NHS facilities comes from the Hospital Episodes Statistics (HES). Data on the total number of hip and knee replacements conducted by both private and NHS providers is available through the National Joint Registry (NJR), which has collected information about joint replacements since 2003.¹⁴ The NJR is funded by a levy on joint replacement sales, with income from that levy providing near complete information about the total number of hip and knee replacements that took place. The overall completeness of provider submissions to the NJR, or compliance, is measured by comparing the total number of submissions to the total number of implants sold.

Aggregate hip and knee replacements

The NJR is funded through a levy on implant sales. Aggregated over a suitable period, these sales provide the most accurate information on the total number of hip and knee

^{14.} These data cover all providers in England and Wales, whereas HES data only covers NHS-funded care in England. Providers are required to submit all information on hip, knee, ankle (since 2010), and shoulder (since 2012) replacements.

replacements that are conducted.¹⁵ Implant sales are not given by hospital or provider, so just provide a national figure for the number of joint replacements.

Figure 3.6 compares three-year aggregates of hip and knee replacement levies to the number of hip and knee operations conducted by the NHS, from HES. The figure indicates that the overall number of hip and knee replacements, as measured by the joint levy, was static over the period considered, while the number of NHS-funded replacements rose by 29.5%. This is consistent with some substitution from private to publicly funded care.¹⁶

Figure 3.6: Three-year aggregates of hip and knee replacements recorded in the National Joint Registry (NJR) and Hospital Episode Statistics (HES), 2004/05–2006/07 to 2009/10–2011/12



Source: NJR figures are taken from NJR (2012) Figure 1.1, p.28. HES figures are calculated using publicly funded hip and knee replacements in HES.

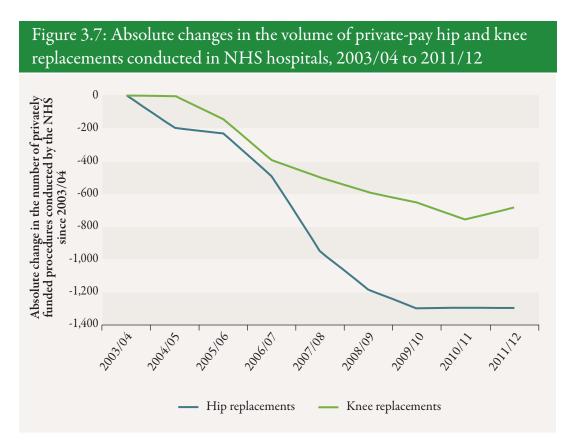
- 15. Joint replacements might not take place at the same time as the joints are purchased. To take into account fluctuations in purchasing patterns, the NJR chooses to aggregate over a three-year period.
- 16. As described in Chapter 2, rates of private medical insurance remained steady until 2009 (Laing and Buisson, 2012). However, there are at least two reasons why we might nonetheless expect volumes of private hip and knee replacements to change. First, rates of insurance are lower among older people, who are the group most likely to require joint replacements, than among people in middle age. A significant proportion of private hip and knee replacements are therefore self-funded. Data from the English Longitudinal Study of Aging (ELSA) in 2010 show that only half of those who had private joint replacements also had private health insurance, indicating that at least half self-funded. Laing and Buisson (2008) note that the most significant fall in self-pay demand in 2007 was for "traditional non-cosmetic treatments, such as orthopaedics". Second, not all privately insured patients receive treatment privately. ELSA data suggest that more than a third of those with private insurance have joint replacements on the NHS. It is unclear whether these patients had insurance that did not cover private treatment or whether they chose NHS treatment as their preferred option.

The extent of any substitution between public and private funding cannot be inferred directly from the figure, for at least two reasons. First, the HES figures we use only cover operations conducted in England for residents of England, whereas the NJR data include both England and Wales. Second, reporting of NHS-funded ISP procedures to HES improved over the period we consider, so that the overall increase in HES procedures, relative to the NJR figures, is probably overstated.

To provide more evidence on the extent of substitution, we examine information on private-pay activity from HES and submissions to the NJR from private companies.

Private sector hip and knee replacements

One component of the private-pay market is privately funded patients treated in NHS hospitals. Records of these treatments are recorded in HES. While this excludes privately funded activity that took place outside NHS hospitals, we can at least be certain that the activity recorded is funded privately, and the submissions to HES are probably more accurate than submissions to the NJR.



Source: Authors' calculations using HES data.

Figure 3.7 displays the absolute change in the volume of private-pay knee and hip replacements conducted in NHS hospitals between 2003/04 and 2011/12. The number of both knee and hip replacements fell across the period. There were 685 fewer knee replacements and 1,298 fewer hip replacements in 2011/12 than in 2003/04. These falls occurred during a period of rapid expansion in NHS-funded knee and hip replacements, which is consistent with substitution between private and public pay activity.

To examine the number of privately funded joint replacements conducted by the private sector, we must rely on submissions to the NJR. There are a small number of private

providers that operate solely in the private sector and therefore appear in the NJR, but not in HES. All the large private providers now treat both NHS and private patients as ISPs. For these providers, the NJR should record all procedures, with HES covering just those procedures paid for by the NHS.

Table 3.1 displays the number of knee and hip replacements that take place at independent private hospitals (that is, private hospitals treating only private patients) and NHS private facilities between 2004/05 and 2010/11.¹⁷ For all these procedures, we can be almost certain that the activity was privately funded.¹⁸ Knee replacements conducted by independent private hospitals fell by 22.8%, and hip replacements by 25.5%, between 2004/05 and 2010/11. A similar pattern is seen in the number of private-pay patients treated in NHS hospitals (also displayed in Figure 3.7), and again is in contrast to the increased volumes observed in the NHS-funded sector.

nospitals and 1115 private wings					
	Knee replacements		Hip replacements		
Financial year	Independent private hospital	NHS private patients	Independent private hospital	NHS private patients	
2004/05	508	1,180	943	2,165	
2005/06	416	1,178	883	1,967	
2006/07	440	1,036	759	1,934	
2007/08	402	786	724	1,671	
2008/09	359	681	741	1,213	
2009/10	324	589	688	979	
2010/11	392	526	703	864	
Change 2004 to 2010	-116	-654	-240	-1,301	

Table 3.1: Number of hip and knee replacements at independent private hospitals and NHS private wings

Source: Authors' calculations using NJR and HES data. Independent private hospitals include those hospitals that submit data to the NJR but are not registered with the NHS (from the NJR). NHS patients treated in private wing include hip replacements that take place in NHS hospitals but are paid for privately (from HES).

Table 3.2 shows submissions to the NJR and the number of procedures recorded in HES for companies that operate in the private market and as ISPs. The NJR data include all procedures, whether publicly or privately funded. HES records cover just operations funded by the NHS. The potential for substitution is measured by comparing relative growth in the two measures. For both procedures, growth in the number of NHS-funded procedures recorded in HES is greater than the growth in the total number of procedures recorded in the NJR. NHS-funded knee replacements increased by 9,064 between

^{17.} Reliable NJR data are available from 2004/5 onwards only. As a result, figures for 2003/4 are not included.

^{18.} This is because independent hospitals do not treat NHS patients, and HES data identifies NHS private patients.

2004/05 and 2010/11, compared to an increase in the NJR of 7,219. The differences are even greater for hip replacements, where NHS-funded procedures increased by 8,775 in comparison to an overall rise of 4,344 procedures.

The relative changes in HES and NJR recorded joint replacements suggest that private companies that also acted as ISPs performed fewer privately funded procedures in 2010/11 than in 2004/05. Again, these numbers should be treated with caution, due to improvements in the accuracy of recording in both data sets. However, this is further suggestive evidence of substitution from the private to the publicly funded sectors. This substitution appears more apparent in the later years, with the increase in HES records for hip replacements exceeding the rise in NJR submissions after 2007/08; for knee replacements, this does not occur until 2010/11.

	Knee replacements		Hip replacements		
Financial year	NJR	HES	NJR	HES	
2004/05	14,410	705	16,256	520	
2005/06	15,964	880	17,314	768	
2006/07	14,391	1,218	16,045	1,253	
2007/08	16,793	1,717	17,494	1,642	
2008/09	19,015	4,288	19,132	4,059	
2009/10	20,722	5,460	19,455	5,053	
2010/11	21,629	9,769	20,600	9,295	
Change 2004 to 2010	7,219	9,064	4,344	8,775	

Table 3.2: Number of hip and knee replacements recorded in the NJR and HES: firms that treat NHS and private-pay patients

Source: Authors' calculations using NJR and HES. Data include hip replacements conducted by Ramsay Health Care, Nuffield Health Care, BMI, UK Specialist Hospitals and Horder Healthcare. Care UK are excluded due to some inconsistencies in coding across the two data sources.

All the evidence presented in this chapter is consistent with substitution between private and NHS-funded joint replacements. This fits with both the slowdown in private spending described in Chapter 2, and reports from private health care companies operating as ISPs that revenues from NHS patients have compensated for falls in revenue from the PMI and self-pay markets in recent years (BMI, 2011; Laing and Buisson, 2012a; Spire, 2009). Our analysis does, however, have a number of limitations and raises several unanswered questions. First, concerns over data quality mean that we are unable to quantify the extent of substitution. Second, the economic downturn since 2008 makes it hard to distinguish the impact of a cyclical decline in private demand from the effects of NHS reform. Third, it is unclear how specific our results are to joint replacements. It would be interesting to compare joint replacements to procedures where rates of self-pay are much lower, and to treatments, such as cosmetic surgery, where NHS coverage is limited. Key findings: the provision and funding of hip and knee replacements by the public and private sectors.

The patterns of funding and provision for hip and knee replacements mirror those for overall health care spending. In particular:

- The relative volumes of public and private spending and activity have changed.
 - The total number of hip and knee replacements funded by the NHS rose by a half between 2003/04 and 2011/12.
 - Over a similar period, the number of hip and knee implants sold changed very little, indicating some substitution between the private and publicly funded sectors.
- The composition of NHS-funded care has changed, with a large growth in the role of private providers.
 - More than half the increase in the number of NHS-funded hip and knee replacements is accounted for by procedures conducted by private providers. From a negligible presence in 2003/04, the share of hip and knee replacements conducted by NHS-funded private providers had risen to almost 19% by 2011/12.
- An increasing share of provider income is derived from public funding.
 - As implied by the small change in overall number of joint sales, the increase in the demand for joint replacements from the NHS, through the ISTC and AQP programmes, was accompanied by a fall in the demand from privately funded patients.
 - After 2003/4, the number of NHS private hip and knee replacement patients fell, as did the number of procedures conducted by hospitals that never treat NHS patients.
 - There is also evidence of falls in the volume of privately funded procedures for companies that treat both private and NHS-patients (under ISTC or AQP contracts). These patterns are all consistent with the annual reports of private health care companies.

4. Discussion and policy implications

How has NHS spending and activity changed?

The last decade saw a significant increase in UK health spending and, more specifically, government health spending. Real public expenditure on health doubled between 1997 and 2011. The rise in spending led to increased consumption of health care and a substantial reduction in waiting times in the NHS (Dixon and others, 2011). Trends in overall spending are mirrored in our case study of elective hip and knee replacements, where volumes rose by a half between 2003/04 and 2011/12.

As public expenditure rose, a series of reforms opened up the NHS to non-NHS providers. By 2011/12, within the English NHS, many more patients were having their care provided by ISPs funded by their local PCT. This expansion in provision started with the introduction of ISTCs in 2003, which were privately owned but treated only NHS-funded patients (Department of Health, 2002). Although initially intended to help reduce waiting times, the aims of the policy later expanded to cover increasing patient choice, stimulating innovative models of service delivery, and improving productivity (Department of Health, 2006). In 2008, the role of the private sector was further expanded with the development of the AQP policy, which extended patient choice for elective care to all providers registered with the Care Quality Commission, holding a PCT or national contract, that is willing to provide services at the NHS tariff. By 2011/12 PCTs were spending around 8% of their secondary care budget on care provided by ISPs, principally through the AQP programme or competitive tendering, so the ISTC programme remained very small. The activity conducted under AQP contracts depends on both NHS demand and private provider spare capacity. Future growth of ISPs may therefore be limited by both the NHS spending squeeze and a recovery in individual private spending.

The shift towards independent sector providers in the markets for hip and knee replacements was even more pronounced. By 2011/12, ISPs conducted almost one in five elective hip and knee replacements, compared to a minimal presence eight years earlier.

What has happened to private-pay activity?

The UK has historically spent a smaller share of national income on health care than other industrialised countries but more of this has been publicly, rather than privately, funded than in other countries. During the 2000s, the Labour Government had an explicit objective to increase UK health spending to the EU average level, and public spending on health care grew significantly. However, this was accompanied by a slowdown in the growth of private health spending compared to the previous 25-year period. During the recent recession and financial crisis, private health spending fell in real terms and private medical insurance coverage declined, while public health spending continued to grow. It is not, however, clear whether this trend will continue in the UK given the ongoing squeeze on both health and social care spending. Aggregate spending data are, therefore, consistent with some degree of substitution between publicly and privately funded health care.

Falls in privately insured and self-pay patients coincided with the introduction of the AQP policy and the subsequent increase in demand for privately provided treatment from the NHS. A number of private hospital groups note in their annual reports that this new income from the NHS was used to compensate for falls in private patient numbers (BMI, 2011; Spire, 2009). Between 2005 and 2012, the share of private hospital revenue accounted for by the NHS rose from 14% to 25%. Over the same period the share from privately insured patients fell from 65% to 59%, while the contribution of self-pay fell from 18% to 14% (Laing and Buisson, 2012a).¹⁹

Together, aggregate spending data, consumer spending patterns, and information on the income sources of private health care providers indicate that rapid increases in public spending on health coincided with a slowdown and then a fall in private health care expenditure. Reports from private health care firms themselves indicate that demand from the NHS was used to compensate for falls in other sources of revenue. However, it is hard to gauge from aggregate figures how large this substitution was and for which procedures or service types. The fact that the AQP policy and extended patient choice were introduced at the same time as an economic downturn adds a further layer of complexity. It seems likely that the revenues of private hospitals over the past five years would have been lower without demand from the NHS, but the changing quality and availability of NHS-funded care may in turn have affected demand for PMI and self-pay treatment.

While data limitations make it difficult to examine substitution between publicly and privately funded care in great detail, we were able to look more closely at two specific treatments: hip and knee replacements. Our analysis was conducted using data from HES and the NJR. Overall, the volume of hip and knee replacement implants remained stable after 2004, despite large growth in the volume of NHS-funded operations. This is consistent with some degree of substitution from the private to publicly funded sector. Where we are sure that operations are funded privately (in NHS private wings and private hospitals that do not treat NHS patients), volumes have fallen. However, these form a small minority of total procedures. In the main, privately funded procedures are conducted by the same firms that also operate as ISPs for the NHS. Comparing total activity of these private firms in the NJR to NHS-funded operations in HES is consistent with some substitution away from private care.

The evidence in this report all points towards some degree of substitution between privately and publicly funded care. However, quantifying that substitution is hard given data constraints. That some substitution has occurred should be unsurprising: patients value shorter waiting times and high-quality care, among other things (Beckert and others, 2012; Sivey, 2011). As NHS waiting times fell and quality improved, the relative incentives to choose private care diminished.

^{19.} The remaining revenue is largely comprised of income from overseas patients.

Public and private health care under the Health and Social Care Act

The Health and Social Care Act 2012 has established new bodies to commission health care in the English NHS. From April 2013, the role of Monitor has been expanded to become the sector regulator for the NHS, with responsibility to uphold – in the interest of patients – the rules and rights on NHS procurement and choice, as set out in the procurement, patient choice and competition regulations. As part of this, the Act bans the government, the NHS in England or Monitor from pursuing a policy to favour one type of provider over another. But the recent debates over the Section 75 regulations show that there is considerable speculation that the effect of these policies will be to extend competition and the role of the private sector (Competition Commission, 2013).

Our analysis shows that in the five years prior to the Health and Social Care Act, PCT real-terms spending on independent sector providers more than doubled. But for much of this period spending on the NHS as a whole was increasing. Whether spending on private providers will continue to increase as NHS spending is essentially frozen is less clear, particulary if the economy and private health care spending start to recover. Monitor recently commissioned a review of 'the matters that may be affecting the ability of different providers of NHS services to participate fully in improving patient care', the so-called Level Playing Field review (Monitor, 2013).

The potential for competitive distortions between NHS and non-NHS providers needs to be taken into account when designing procurement practices and the terms of AQP contracts. It will also be important to consider whether distortions exist between different types of non-NHS providers. It will be important to take these potential distortions into account in order to ensure that health care commissioned by CCGs achieves maximum value-for-money – in terms of providing the greatest possible improvement in patient outcomes with the available budget.

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