

THE ECONOMICS OF DENTAL CARE

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Statement of interests

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1 INTRODUCTION

It has long been recognised by economists that health care as a commodity has a number of features that distinguish it from other goods and services (Arrow, 1963). Notable among these features are the often high cost and uncertain demand associated with health care, and the asymmetry of information possessed by patients and providers. The latter feature means that patients are rarely as fully informed as health care professionals about treatment options and certain important aspects of the quality of care. Taken together these features have led to the development of special arrangements for the finance and delivery of health care, such as risk pooling and insurance (through either public or private schemes), government protection of low income and vulnerable groups, and substantial regulation of the way in which health care is provided.

While these special features and responses to them have been analysed extensively in the case of health care generally (for example, see Barr, 1998), far less attention has focused on dental health care. Indeed, with a few exceptions, mainstream economists have displayed no great interest in the subject. Recently, however, in a major contribution in the prestigious *Handbook of Health Economics*, Sintonen and Linnosmaa (2000) reviewed the economics of dental services. As part of this review, they investigated whether there is a case for considering dental care as different from other goods and services in the same way as health care in general. They concluded that special features are less strongly present. In particular, they identified several aspects that distinguish dental care from more general health care; namely that:

- there are a relatively small number of dental diseases and that their occurrence is more predictable;
- individuals usually experience the same dental procedures several times during their lifetimes and are therefore able to learn from experience about the quality of service;
- dental disease is relatively easy to diagnose as almost all the relevant information can be obtained from X-rays;
- dental disease is non-communicable and so cannot be transmitted across individuals;
- except for dental accidents and toothache, dental care is seldom emergency care and untreated dental disease has less dramatic

consequences for an individual's general health compared with many areas of health care.

Not all dental specialists would agree with this analysis. They would argue that the severe nature and sudden impact of dental pain, and the compromise of facial appearance, can have greater impact on a person's overall quality of life than many other diseases. Moreover, it can be argued that the special features listed above may apply equally to some other discrete areas of health care as well as dental care. Clearly there is scope for disagreement on this issue. Nonetheless, for the reasons listed above, Sintonen and Lissosmaa concluded that individuals are better informed and can more freely plan and time dental treatment decisions. As such, market mechanisms can be expected to perform more efficiently in the case of dental care than in the case of health care in general. These observations provide at least one explanation for the greater reliance on user charges and private provision found in most dental care sectors around the world. Furthermore, emerging technologies in dental care – such as bleaching, or tooth whitening, and gum contouring – are essentially cosmetic and reinforce the consumer-good aspect of dental care.

Beyond purely economic considerations, there are philosophical and ethical aspects of health care in general that may apply with less force in the case of dental care. Debates about the nature of health care are often based upon a widely held assumption that it is more than just another economic commodity. In our relationships with doctors and nurses we place our very bodies in their care. Life and death can be involved. Of course, some other goods share this quality – every time you enter an aeroplane you place the care of your body with the pilot – but it is likely that most people attribute a different and special status to health care. Moreover, this status is often extended to the individuals and organisations that provide the service. Klein (1993) has described one view of the NHS as a church. The NHS Plan contains a lengthy preamble on the 'values' of the NHS (Department of Health, 2000). Richard Titmuss famously chose to expound his views of altruism in terms of a gift relationship for blood donations (Oakley and Ashton, 1997).

But do these considerations apply with the same force in the case of dental care? Many dental specialists would argue: yes. For them, teeth are a visible part of the body and have an important impact on psycho-social well-being (McGrath and Bedi, 2002). However, for many people, dental care does not have the same intuitive quality of life dimension as health care in general. Certainly teeth are part of the body, but they are a more narrowly prescribed part of the body. Dental care tends to be less invasive than many types of health care and its consequences for general quality of life less profound.

At the same time, though, there are important equity considerations revolving around access to dental care for vulnerable groups that a market cannot be expected to deal with adequately. Poorer dental health status among children from low income families is a longstanding source of health inequality. Vulnerable elderly people are an increasing source of dental health care need. Furthermore, dental care has a strong public health dimension. Fluoridation of water supplies is a proven method for reducing the incidence of dental disease. For all of these reasons, there is a case for population-based, government intervention in relation to certain important aspects of dental policy.

In addition, even if one accepts the view that much dental care can be left to the private market, recent experience in the UK suggests that this market does not always operate efficiently (Office of Fair Trading, 2003). As such, there is likely to be a role for government as a regulator of the private market.

Looked at overall, dental care represents a fascinating mix of the public and private spheres. It has a strong component that many people argue can be left to individual responsibility, private funding and market processes. But it also has a strong public dimension. How these areas are delineated, and how they are both catered for within the overall dental sector, poses some complex challenges. Analysing the nature of these challenges and pointing to ways in which they can be met is the purpose of this report.

Chapter 2 presents a review of the state of dental health in the UK and of the way in which it has changed over time. It shows that there

have been major improvements in dental health over the last 30 years as measured by the proportion of the population with natural teeth and the improved condition of those teeth. These improvements have affected all age groups, including children. Despite these general improvements, however, there has been a worrying persistence of inequality in dental health, with lower socioeconomic groups continuing to suffer from a poorer state of dental health than people in higher groups. Dental health inequalities among children are a particular concern. Chapter 2 also highlights the growing numbers of elderly people with some natural teeth and their expectations regarding dental care. Although the chapter does not set out to examine the causes of changes in dental health, it does consider one major area of health promotion; namely, water fluoridation. A brief account is provided of the latest research evidence and policy in this controversial area. Finally, the chapter draws attention to the rising *demand* for dental care – in contrast to the *need* for care – associated with the growth of cosmetic dentistry.

In Chapter 3 we shift our attention from need and demand to the supply-side. The chapter provides an overview of the way in which the dental sector is organised, financed and managed in the UK. It points out that the sector is labour intensive with a low degree of market concentration. Around 24,000 general dental practitioners work in around 11,000 practices across the UK. Practically all of these dentists work as independent contractors for the NHS, although most of them also undertake private work. In 2000/01 around 45% of total General Dental Service (GDS) dentists' income of £3.2 billion came from private work. Reforms of NHS organisation and management are currently being applied to the dental sector. As in the case of general medical practice (i.e. GPs), current reforms are seeking to bring the dental profession within a more corporate structure and to focus upon increased accountability in meeting patient and population dental health needs.

Chapter 4 looks at one aspect of dental finance more closely; namely, payments systems and the incentives they offer. These are considered from both the dentist's and the patient's perspectives. From the

dentist's perspective, the chapter considers the predominant form of payment – fee per item of service – and investigates the theory and evidence of its impact upon dentists' behaviour. The chapter shows that the system carries the danger of creating supplier-induced demand and that the way it is used within the NHS is unpopular among dentists themselves who see it as a treadmill threatening clinical standards. It is also poorly suited to current dental needs where preventive work is increasingly required rather than restorative treatment. Fee-for-service payments are also used in the private sector, although the higher charges there release dentists from the treadmill. However, a recent Office of Fair Trading report (2003) raises concerns about lack of consumer information in relation to the price and quality of private services and the consequent difficulty for consumers to make informed choices. As far as NHS charges for dental care are concerned, the chapter points out that these have risen steadily over the years and currently account for about 30% of the total costs of treatment. Private payments and NHS charges now amount to about 65% of the total costs of dental care (i.e. public plus private). The increasing dependence on user charges raises concerns about access to dental care for some groups.

Chapter 5 returns to the theme of the public-private mix in dental care and examines the shift towards private practice in more detail. It presents data on the rapid growth of this sector and considers the demand and supply side factors that have led to this growth. The chapter also points out that the traditional dependence on private dentists and increased dependence on user charges is a Europe-wide phenomenon. Despite major differences between social health insurance and tax-based systems, there is a striking convergence in the way that dental services are organised and financed, with many countries seeking enhanced public sector cost containment by shifting increased financial responsibility onto users.

In Chapter 6 we bring together our conclusions and recommendations for the future. We argue that the changing pattern of dental needs and the rapid growth of private dentistry raise fundamental questions about the appropriate role of the government in relation to the dental

10 sector. We argue further that there are many areas of dentistry that can be left to a private market where individual patients are free to buy services of their choosing from independent practitioners at prices determined in the market. At the same time, however, we also argue that government will continue to have an important role in relation to the dental sector in terms of finance, regulation and managing direct provision. Finance will involve price-setting in the NHS, price subsidisation and developing new systems of remuneration. Regulation of competition – in terms of price transparency and freedom of market entry – will have a role to play in relation to the rapidly growing private dental sector. Primary Care Trust (PCT) commissioning of dental services in England will pose considerable challenges in terms of managing direct provision.

2.1 Introduction

Dental health needs are changing. Standards of oral health have improved dramatically over the last 30 years. People are keeping their natural teeth longer and are less prone to dental disease. In 1968, 37% of adults in England and Wales were edentate (i.e. had no natural teeth). By the time of the 1998 UK Adult Dental Health Survey (ONS, 2000), this proportion had fallen to only 13%. Among the dentate population (i.e. those with some natural teeth), the average number of sound and untreated teeth has increased from 13 in 1978 to 15.7 in 1998. The proportion of the dentate population with 21 or more teeth – the number considered necessary for functional dentition – has grown from 73% in 1978 to 83% in 1998.

Within this overall picture, however, there have been some important component trends. These relate to patterns of child dental health, dental health inequalities and the dental health of older people. There is also the growth in what can be described as dental *demand* – rather than *need* – in the form of cosmetic dental care. In the remainder of this chapter we consider these trends in more detail. We argue that they carry profound consequences for the way in which dental care in the UK should be organised and financed in the future. We move on to consider these questions in the remainder of this report.

2.2 Adult dental health

The proportion of the population with no natural teeth is an important measure of oral health. When all teeth are lost there may be a significant impact on diet, nutrition and general well-being. Moreover, the health care implications can extend far beyond the mouth. For this reason, it is good news that the proportion of the population in this position has been falling significantly over the last 30 years. As Table 2.1 shows, the edentate population as a proportion of the total population fell from 37% to 13% between 1968 and 1998. These improvements have affected all age groups, but have been especially pronounced among people in the middle and older

Table 2.1: **Percent of edentate adults (i.e. with no natural teeth) by age, 1968-1998**

Age (Years)	England & Wales		United Kingdom		
	1968(%)	1978(%)	1978(%)	1988(%)	1998(%)
16-24	1	0	0	0	0
25-34	7	3	4	1	0
35-44	12	12	13	4	1
45-54	41	29	32	17	6
55-64	64	48	56	37	20
65-74	79	74	}79	57	36
75 & over	88	87		80	58
All	37	29	30	21	13

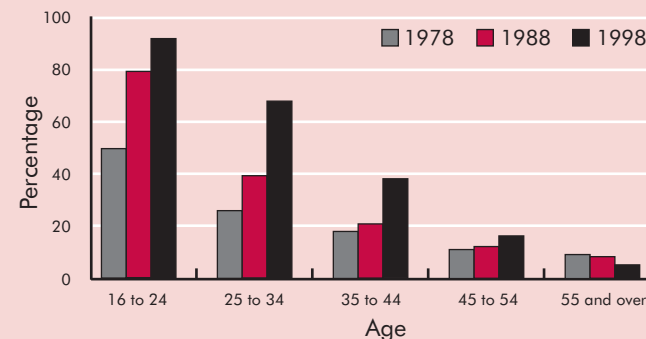
Source: Adult Dental Health Survey, 1998 (ONS, 2000).

age groups. Among 65-74 year olds, for example, the proportion of people without any teeth more than halved between 1978 and 1998 from 74% to 36%.

Similar improvements in oral health over time can also be observed among the dentate population. As Figure 2.1 shows, there were large increases in the proportion of this population with 18 or more sound and untreated teeth across the age ranges over the period 1978 to 1998. The proportion of 16-44 year olds with 18 or more sound and untreated teeth doubled. The improvement among 25-34 year olds was particularly dramatic, with the proportion jumping from 26% in 1978 to 68% in 1998. The only exception was a slight fall in the proportion of over 55 year olds with 18 or more sound and untreated teeth, but this needs to be seen in the context of more over 55 year olds with teeth, albeit not in a sound and untreated state.

A summary of the overall state of oral health in the UK, as reported by the 1998 Adult Dental Health Survey, is presented in Table 2.2. It indicates a generally good state of health – as measured by the proportion of the population who are dentate who have 21 or more natural teeth – in the age ranges 16 to 54 years, but that there is an expected deterioration in the older age groups. The table also indicates that around a third of the population have at least one artificial crown,

Figure 2.1: **Dentate adults with 18 or more sound and untreated teeth by age, 1978-1998**



Source: Adult Dental Health Survey, 1998 (ONS, 2000).

and that this proportion rises to about one half in the 45-64 years age group. Exposed, worn, filled or decayed roots affect two-thirds of the population, with the prevalence being 70% or above after the age of 35 years.

Table 2.2: **Adult oral health, 1998 (percentage with each condition)**

Age (Years)	% of all adults		% of dentate adults				
	Edentate	Dentate	Natural teeth and dentures	21 or more natural teeth	A least one artificial crown	At least moderate tooth wear	Exposed, worn, filled or decayed roots
16-24	0	100	1	100	7	2	20
25-34	0	100	3	98	24	5	50
35-44	1	99	10	94	41	8	71
45-54	6	94	20	82	49	12	86
55-64	20	80	43	57	48	18	90
65-74	36	64	54	46	39	}34	}97
75 & over	58	42	63	23	36		
All	13	87	18	83	34	11	66

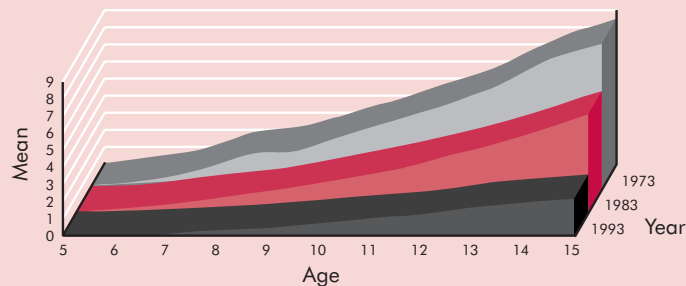
Source: Adult Dental Health Survey, 1998 (ONS, 2000).

2.3 Child dental health

Dental care starts early. Dental decay is the major cause of early loss of milk teeth. This loss can cause overcrowding in the permanent teeth, which may lead to orthodontic treatment (braces) including extractions. Infection and subsequent extraction of milk teeth can affect the development of permanent teeth. As in the case of adults, however, there has been a general decline in levels of dental decay in children over the last 30 years. For example, in 1973, 90% of 11 year olds had some teeth that were actively decayed, filled or had been extracted due to decay. This percentage fell to 70% in 1983 and to 38% in 1993 (O'Brien, 1994). Figure 2.2 illustrates the trend in improved dental health among children between 5-15 years of age in England and Wales over the period 1973-1993. It shows that, for example, among 15 year olds the mean number of teeth with any known decay experience fell from 8.4 in 1973 to 2.1 in 1993.

Despite these improvements, however, the current state of child dental health in the UK is still a cause for some concern. In 1993 over half of all children between six and 10 years of age had some form of known dental decay. There were also marked regional variations,

Figure 2.2: **Mean number of permanent teeth which are actively decayed, filled or missing due to decay, England and Wales, 1973, 1983, 1993**



Source: O'Brien, 1994.

with rates of decay found in Scotland, Wales and Northern Ireland generally higher than those in England. Moreover, there were variations by socioeconomic class (see below).

2.4 Dental health inequalities

The 1998 Adult Dental Health Survey (ONS, 2000) reveals a clear pattern of dental health inequalities between socioeconomic classes (see Table 2.3). It shows that the proportion of the population with natural teeth falls from 92% in the top socioeconomic grouping to 78% in the lowest grouping. Similarly, the proportion of the dentate population with 21 or more natural teeth falls from 86% in the top group to 76% in the bottom group. The higher the socioeconomic group, the more likely are people to have had crown restorative treatment.

There is also evidence from the same survey that these socioeconomic class inequalities have persisted over time, despite improvements in overall dental health. For example, between 1978 and 1998, the proportion of the dentate population in the top socioeconomic group with no decayed or unsound teeth rose from 44% to 63%. In the lowest socioeconomic group, the proportion also rose – from 34% to 52% but remained well below that of the top group.

Table 2.3: **Socioeconomic class and adult dental health, 1998 (percentage with each condition)**

Social class of head of household	% of all adults		% of dentate adults				
	Edentate	Dentate	Natural teeth and dentures	21 or more natural teeth	A least one artificial crown	At least moderate tooth wear	Exposed, worn, filled or decayed roots
I,II,IIINM	8	92	16	86	38	10	67
IIIM	15	85	20	79	30	14	68
IV,V	22	78	23	76	28	12	66

Source: Adult Dental Health Survey, 1998 (ONS, 2000).

16 In terms of dental service utilisation, 65% of the dentate population in the top socio-economic group attend for regular dental check-ups compared with only 49% in the lowest socio-economic group.

The pattern of adult dental health inequality appears to be replicated among children. Around half of all five year olds were entirely free of dental decay in 1993. Among the other half, higher rates of dental decay were found particularly among children in socially deprived areas and from socially disadvantaged families. Rates of dental decay were much higher in families where the head of the household was in social class IV or V, where the household was receiving welfare benefits and where the mother had no educational qualifications (ONS, 2000).

2.5 Dental health of older people

Some dramatic changes in the dental health of older people have occurred over the last 30 years. In 1968 only a small number of people over the age of 65 years had any natural teeth. By 1998 over 50% of this age group still had some natural teeth. Attitudes to dental health are both a cause and consequence of this trend. The Adult Dental Health Survey shows that older people now are much more concerned with preserving their natural teeth than was the case before. In 1998, one third of adults aged 55 and over had regular dental check-ups – this proportion was the highest for any age cohort and is more than double the level found in 1978. Over the last decade, a growing proportion of dentate 65-74 year olds considered having a tooth crowned. In addition, an increasing proportion of those aged over 55 expect to keep some of their natural teeth for life.

These improvements are predicted to continue into the future. The 1998 Adult Dental Health Survey forecasts that the proportion of elderly people with some natural teeth will rise dramatically over the next two decades. For example, it is expected that by 2018, 56% of people aged 85 and over will have some natural teeth, compared with a figure of 19% in 1998.

The growing numbers of elderly people with natural teeth is placing new demands on the dental profession. As people grow older they

17 become particularly prone to gum disease. In this connection, it is of concern that older people report that they are less likely to receive advice about tooth brushing and gum care than younger age groups. The Adult Dental Health Survey reports that only 51% of those aged 55 and over said that they had been shown how to clean their teeth or been given advice on gum care compared with 62% of the total population.

Another trend that can be expected to assume increased importance in the future is the growing number of older people who are from black and ethnic minority groups. Certain dental health risk behaviours are more prevalent among these groups, (BDA, 2000). For example, use of tobacco in any form increases the risk of oral cancer. Rates of cigarette smoking tend to be higher among Bangladeshi, Irish and Black Caribbean men than in the general population, while chewing betel quid or paan (containing betel leaf, areca nut, tobacco and slaked lime) is quite common in certain Asian communities. In addition, individuals from minority ethnic groups are less likely to visit the dentist for a regular check-up. Visits are often only made when in pain. This means that oral cancer in these groups is unlikely to be seen until the late stages when the morbidity and mortality associated with its treatment are greater.

2.6 Dental health promotion

According to most dental experts, a major cause of the marked improvements in standards of dental health in the UK over the last 30 years has been the increased use of fluoride as a preventative measure. This has been achieved through the introduction and growing popularity of fluoride toothpaste and, in a few instances, water fluoridation. However, despite the fact that water fluoridation is claimed to be one of the most cost-effective public health measures, it continues to provoke debate about its alleged harmful effects. These include fears about increased incidence of dental fluorosis (a defect that ranges from mild mottling of the teeth to more marked effects), increased risk of bone fracture and bone developmental problems and increased risk of cancer.

18 These concerns have meant that currently only 10% of the UK population receive water that is fluoridated. Several fluoridation schemes were introduced in the 1960s, but since then the process has ground to a halt. The 1985 Water (Fluoridation) Act – subsequently subsumed in the 1991 Water Industry Act – empowered water companies to fluoridate their water if requested to do so by local authorities. However, no new fluoridation schemes have been introduced since 1991. Over 60 health authorities have been through the consultation process but none have managed to get their water fluoridated.

The nature of the problem was highlighted in 1998 when Northumbrian Water refused to fluoridate its water supply. The case went to judicial review and the judge upheld the water company's position. The judge felt that the water company did not have a public duty to fluoridate and could refuse on grounds of lack of indemnity.

This state of affairs has, however, been changed by the Water Act, 2003. The passage of this Act through Parliament mirrored the controversial nature of the subject. A proposal for an outright ban on fluoridation was defeated in the House of Commons by 284 votes to 181. A further proposal that responsibility for decision-making should be given to local authorities was also defeated. Under the 2003 Act, responsibility for decisions on fluoridation in England now rests with NHS Strategic Health Authorities, although they are required to consult with local communities.

Exactly how future decisions will be made is still unclear, given the lack of definitive research evidence on the wider health effects of fluoridation. This uncertainty was highlighted by a systemic review of research evidence on fluoridation, commissioned by the Chief Medical Officer of the Department of Health, and carried out by the Centre for Reviews and Dissemination at the University of York (NHS Centre for Reviews and Dissemination, 2000).

The York report concluded that the best available research evidence suggests that fluoridation of drinking water reduces tooth decay as measured by the proportion of children who are caries free and by DMFT scores (i.e. damaged, missing and filled teeth). Conversely, the withdrawal of fluoridation increases the prevalence of caries.

19 Critics do not usually dispute the beneficial impact of water fluoridation on rates of tooth decay but raise fears about harmful side-effects. The York review did find some evidence of a relationship between fluoridation doses and fluorosis, but no convincing evidence on more serious side-effects. Thus they found no clear association between water fluoridation and bone fracture or bone developmental problems, or between water fluoridation and overall cancer incidence and mortality.

Overall, however, the York review expressed surprise about the lack of good quality research evidence on this contentious and widely debated subject. They concluded that "the research evidence is of insufficient quality to allow confident statements about other potential harms" and called for future work to be carried out with appropriate methodologies in order to improve the quality of the existing evidence base.

Following the York report, the Department of Health commissioned the Medical Research Council (MRC) to review the risks and benefits of water fluoridation and to consider what further research is required to improve knowledge about fluoridation and health (MRC, 2002).

The MRC report ruled out many of the supposed negative effects of fluoride upon health such as the link between fluoride and the immune system, and on reproductive and developmental (birth) defects. But it also recognised the need for more research. It recommended studies to investigate any differences in the way that fluoride is absorbed, to estimate the background effects of water fluoridation on dental cavities in the context of widespread use of fluoride toothpaste, the extent of fluorosis in fluoridated and non-fluoridated areas, and further studies to examine social inequalities in relation to water fluoridation, dental cavities and fluorosis.

2.7 Demand for dental care

Need is a concept that is widely used by non-economists to refer to basic requirements in relation to health care and other social goods that do not depend upon a person's ability to pay for them. A defining characteristic of a need is that it is a normative concept usually defined

20 by a third-party rather than the individual who is said to display the need. In some cases – dubbed merit goods – a third party (such as the government) may deem that an individual should consume a service, for their own good, even if the individual does not recognise this need. These characteristics contrast with the more common concept of demand. This is based upon the premise that the individual is the best judge of his or her own welfare, and that access to goods and services should be based upon price and ability to pay.

The distinction between need and demand has increasing relevance in relation to dental care. Most of our discussion so far has discussed dental health broadly as a health or health care need. As a society we accept that people should enjoy good dental health in the same way that they should enjoy good general health. This outlook is particularly pronounced in relation to the dental health of children.

However, in recent years there has been a marked growth in the *demand* for dental care, especially in relation to cosmetic dentistry. This includes bleaching or teeth whitening, new procedures for teeth capping and crowning and dental implants. These procedures are undertaken for primarily aesthetic reasons and are driven by the ability to pay. The author Martin Amis is said to have spent £20,000 on his dental implants. Gum contouring – i.e. the surgical removal of excess gum tissue thereby eliminating a ‘gummy’ smile – can be obtained for a more modest £50 per tooth. Already it has been estimated that around £3 billion per year is spent on cosmetic dentistry in the UK. According to one of the leading experts on the private sector, the growth of cosmetic dentistry is one of the major reasons for the growth of the private dental sector (Blackburn, 2003). US trends – where expenditure on cosmetic dentistry is around 15 times that in the UK – suggest that UK expenditures can be expected to grow rapidly in the future as increased incomes and fashion consciousness exert their combined effect.

3 THE ORGANISATION, FINANCE AND MANAGEMENT OF DENTISTRY IN THE UK

3.1 Introduction

In Chapter 2 we described the changing patterns of need and demand for dental care in the UK. In this chapter, we move onto the supply side and start our discussion of how these needs and demands are being addressed. The chapter provides an overview of how the UK dental sector is organised, how it is financed and how it is managed. We return to each of these themes and discuss them in greater detail in subsequent chapters.

3.2 Structure and organisation of the dental industry

The dental care sector is a labour intensive industry with a low degree of market concentration. Historically, high-street dental practices have been fragmented, small-scale businesses, often single handed. During the 1990s there was some restructuring with a growth in the number of larger practices. Table 3.1 shows that that between 1992 and 2002 the percentage of surgery addresses with three or more partners rose from just under 30% to 36%. Moreover, there is an increasing tendency for dentists to work with teams of supporting professionals including dental nurses, dental hygienists, dental technicians and

Table 3.1: Practice size by surgery address (England and Wales only)

Number of dentists at the address	1992 surgery addresses	1992 (%)	1998 surgery addresses	1998 (%)	2002 surgery addresses	2002 (%)
1	3,782	41.7	3,587	38.7	3,534	37.8
2	2,588	28.5	2,446	26.4	2,455	26.3
3	1,408	15.5	1,522	16.7	1,588	17.0
4	707	7.8	834	9.0	874	9.3
5	287	3.2	380	4.1	447	4.8
6+	308	3.4	475	5.1	452	4.8
Total	9,080	100	9,274	100	9,350	100

Source: Dental Practice Board (1993, 2003).

22 dental therapists. But, despite these trends, the sector is still dominated by small-scale activity with around 24,000 General Dental Practitioners (GDPs) working as independent contractors in around 11,000 High Street practices across the UK.

In addition to the traditional practitioner-owned dental practice, however, there are currently 27 corporate dental groups which own chains of practices. Dentists may work for these groups as salaried employees or on a self-employed basis. These bodies corporate account for about 400 practices and 1,500 dentists (see Table 3.2 and Box 3.1). Corporate status is claimed to offer greater access to capital, opportunities for brand marketing and some economies of scale, particularly in relation to purchasing consumables. It is estimated that the corporate bodies currently account for about 5% of total market turnover; but this market is growing rapidly. For example, Boots Dental Care grew from six to 54 outlets between January 2001 and February 2003, and the market is predicted to continue to grow strongly in the future. This process is likely to be accelerated when restrictions imposed through the Dentists Act 1984, which effectively prevents new entrants to the corporate sector, are eventually rescinded.

Most dentists are in mixed practice in which they treat both NHS and private patients, the proportions varying with the locality, the patient base and the philosophy of the practice owner. There are only around

Table 3.2: **Major corporate dental groups with numbers of practices at 21st April 2004**

Company	Number of practices	Number of dentists
Integrated Dental Holdings (IDH)	130	623
Oasis	127	510
Boots Healthcare	54	150
J D Hull	33	138
Associated Dental Practices (ADP)	26	77
Whitecross (owned by IDH)	20	107
Orthoworld plc	18	46
BUPA Wellness	15	24

Source: Laing & Buisson (2004).

Box 3.1: Oasis Healthcare

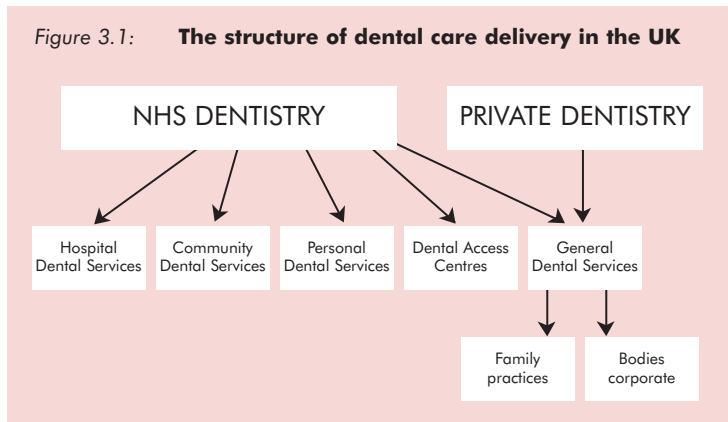
Founded in April 1997, Oasis Dental Care is the largest corporate body in dentistry in the UK. The company owns and operates 126 practices, predominantly in the Midlands and the North of England. The company's strategy has involved creating regional clusters of practices, typically around a dental school. It offers both NHS and private treatment to patients. Private treatment is provided under the Oasis dental care plan, or on a 'pay as you go' basis. The company has emphasised investment in modern technology in fully computerised practices. It reported a turnover of £22.8 million in the year 2001/02 – this more than doubled the turnover of £8.9 million in the previous year. However, Oasis made a pre-tax loss of £13,000 in 2001/02, having made a loss of £369,000 a year earlier. In the future, Oasis aims to expand its business in the South of England and to generate a higher proportion of business in the South of England and to generate a higher proportion of private patient income.

Sources: MSI (2002) and <http://www.oasis-healthcare.com>

200 practices that are totally private. However, there has been a marked growth in the private component of GDP work in recent years.

This was in large part prompted by the 1990 General Dental Service (GDS) contract. The contract led to a significant increase in dental activity during 1991/92 and hence to increased public expenditure. The government's response was to impose a 7% fee cut in 1992/93. This gave rise to widespread disillusionment among the profession and to a gradual shift from NHS provision to private work. Additional reforms to the GDS contract were introduced in 1996, and these created further incentives for dentists to shift their focus to private dental provision. The scale of this shift is indicated by the fact that in the early 1990s over 90% of GDPs derived three-quarters or more of their income from the NHS but by the end of the decade this proportion had dropped to around 60%. Taken overall, private expenditure on dental care in 2001/02 represented 45%¹ of total dental expenditure compared with only 15% in 1990/91.

¹ Blackburn (2003). These estimates for the value of the private dental market are considered by various commentators to be upper estimates.



These public and private components, together with a more detailed breakdown of the public sector, are shown in Figure 3.1.

The majority of dental care is provided by the General Dental Service as described above. Dentists practising in GDP under NHS arrangements have an obligation to provide all of the care and treatment that is necessary to secure and maintain their patients' oral health. The NHS list currently comprises over 300 treatments. GDPs can either provide treatment personally or can refer patients to colleagues who are able to provide it.

The number of GDS dentists has been rising steadily over the past decade. In September 1991 there were 18,037 GDS dentists in Great Britain; by September 2003 this figure had increased to 21,701 – a rise of some 20%. This growth has been driven by the rapid rise in the number of assistants and vocational dental practitioners, from 597 in 1991 (or 3.3% of the GDS workforce) to 2,146 in 2001 (10.0%). The number of women in the dental workforce has also been rising: from 23% of the total in 1991 to 31% in 2003 (England and Wales). Among the under 30s, women now make up about half the profession and around half of all vocational dental practitioners are female.

In addition to the GDS, dentists also work in salaried positions, i.e. in Hospital Dental Services and in the Community Dental Service.

The Hospital Dental Service (HDS) specialises in the provision of oral surgery and both advanced orthodontic and restorative care to patients who have been referred from general dental or medical practice, either as inpatients, outpatients or day cases. Patients are also admitted for treatment for dental accidents or emergencies. The HDS treats around 100,000 inpatients, 60,000 day case patients and 500,000-600,000 outpatients annually.

The Community Dental Service (CDS) consists of around 1,000 clinical dental officers employed mainly by Primary Care Trusts (other employers include Acute Trusts and Care Trusts). The CDS provides both general dental and specialist care to the community, normally outside the compass of the GDS. CDS dentists work in a number of different clinical settings with a variety of support staff. Services include school screening, dental counselling and treatment of the special needs and socially disadvantaged groups. In England the CDS annually completes on average 2.5 million patient treatments and 3 million screening programmes. The CDS also provides dental health education and preventative care programmes.

There are 13 dental schools and two postgraduate dental institutes in the UK. These institutions train undergraduates for a career in dentistry. In addition to the approximately 4,000 dental students at these institutions there are approximately 500 dental clinical academic staff. These staff educate and train dentists and students and contribute to continuing education, specialist training and research. Additionally, they deliver an NHS clinical service in the primary sector, through the students, and in the secondary and tertiary care settings. It is worth noting that some specialist services are only provided within university dental hospitals by clinical academic staff, and these institutions and their staff also undertake research in the area of health care, so contributing to the future health of the nation.

26 In recent years, the Government has introduced Dental Access Centres under Personal Dental Services (PDS) arrangements managed by Primary Care Trusts. Dental Access Centres offer access to NHS dentistry (e.g. through walk-in centres) for patients not registered with an NHS dentist or who are unable to obtain NHS dentistry. Some other PDS schemes offer more specialist services through pilot schemes based on new ways of service delivery (see Box 3.2.)

Box 3.2: Personal Dental Services pilots

The first wave of Personal Dental Services (PDS) pilots were introduced in October 1998. They use the framework set down in the National Health Service (Primary Care) Act 1997 and are the dental counterpart to Personal Medical Services (PMS) sites in primary medical care. The Act allowed Health Authorities, and now Primary Care Trusts, to move away from the national dental contract and to write local contracts with providers of dental services. PDS providers may comprise a single practice, groups of practices or an NHS Trust.

The aim is to identify local dental health needs and contract with local providers to offer services that meet these needs. Diversity of local need means that PDS sites can take many forms. An NHS Trust may offer a drop-in service for people who are not registered with a GDS dentist. A PDS site may offer specialist services where these are a local priority, such as orthodontic services provided in collaboration with a local hospital. Different skill mixes may be pioneered through a PDS site with, for example, greater use being made of dental therapists. In areas with an established patient base, there may be a need for high quality diagnostic and preventative care – capitation payments may be specified in the local contract to encourage this rather than fee-for-service payments.

PDS sites can also offer salaried employment opportunities to those dentists who wish to concentrate on clinical practice and be free of the burden of management.

The scale of PDS pilots has, however, been modest. In 2001/02, they covered just over 350,000 patients, less than 1% of the population. No additional pilots are to be created, although the thinking behind them is a central theme of the Government’s *Options for change* agenda which sets out the future vision of NHS dental care delivery in the UK (see section 3.4 below).

3.3 Finance of the dental sector

Government expenditure on the GDS represents about 3.2% of total NHS expenditure. In recent years the share devoted to dental care has been falling. In 2000/01, total government expenditure on the NHS was around £53 billion and had risen by 90 per cent since 1990/91. Over the same period government expenditure on the GDS in the UK had risen by only 50%. Consequently the proportion of total NHS expenditure on the GDS fell over this period from 4.2% to 3.2%. It is important to note, however, that there is a considerable amount of dental spending also incorporated in community health and hospital spending figures – thus the actual spend on NHS dentistry is certainly higher than that.

Table 3.3 shows the value of the UK dental market (excluding hospital, community and PDS). In 2000/01 this market was estimated to be worth around £3.2 billion. As the table shows, NHS expenditure on the GDS is still greater than private expenditure,

Table 3.3: **Value of general dental practice in the UK (£ millions)**

	Public Sector – GDS	Private Sector	Total Market – General Dental practice	
	Total	Total	Spending by patients	Total
1990/91	1,174	206	635	1,381
1991/92	1,456	274	761	1,730
1992/93	1,497	316	788	1,813
1993/94	1,403	340	784	1,744
1994/95	1,466	388	850	1,855
1995/96	1,482	423	883	1,905
1996/97	1,503	533	993	2,036
1997/98	1,538	775	1,244	2,313
1998/99	1,637	990	1,497	2,637
1999/00	1,686	1,197	1,718	2,883
2000/01	1,761	1,440	1,987	3,201

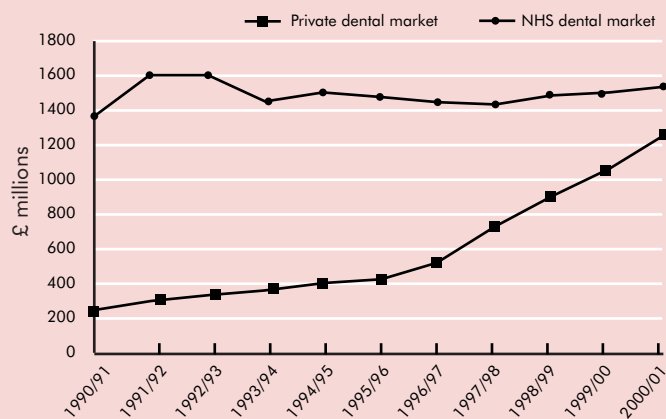
Source: Blackburn (2003).

28 although it is clear that the private component increased far more rapidly over the 1990s. By 2000/01, private expenditure (i.e. NHS patient charges plus private charges) accounted for 62% of the total market; this figure was 46% in 1990/91.

In real terms (after deflating by the GDP deflator) the average annual growth of the total market was 5.4% during the 1990's. The engine for this growth has been the private sector. The private sector has risen by an annual average rate of around 17%, whilst the public sector has risen by only 1.3%. Consequently the private sector now accounts for around 45% of the entire market; in 1990/91, the private proportion of the dental market was considerably lower at 15% (see Figure 3.2).

Although the proportion of the dental market attributed to private care has risen sharply over the last ten years, the NHS component still dominates in terms of the proportion of patients and courses of treatment undertaken. Focusing on the adult dental market only, the

Figure 3.2: Real value of the UK dental market at constant 1995/96 prices



Source: Derived from Blackburn (2003).

29 BDA estimates that in 2000/01 private care accounts for 48% of the total market by value, but for 37% of the number of adult patients and only 27% of adult courses of treatment. In short, there is a sharp contrast between the monetary value of private dental care and the number of patients and courses of treatments undertaken.

3.4 Management of the NHS dental sector

The task of managing the NHS dental sector in many ways mirrors the task of managing general medical practitioners (GPs). Both dentists and GPs have traditionally been independent contractors responding to patient demands within a non-cash limited system. Reforms of general medical practice since 1990 have sought to bring the profession within a more managed structure and to focus on financially accountable ways of meeting patient and population health needs. A similar path is now being pursued in relation to dentistry, although there is the added complication of a growing private sector not present in general medical practice.

The traditional structure of the GDS contract has meant that NHS dentistry is demand-led rather than subject to planned needs assessment. Although the Department of Health in England and its counterparts in Northern Ireland, Scotland and Wales have sought to exercise some control over aggregate expenditure, the system is not formally cash limited and individual dentists are reimbursed for whatever work they undertake. Provided that the dentist provides satisfactory treatment to the patient, the Dental Practice Board cannot refuse payment. Moreover the situation is complicated by the fact that general dental practitioners are still bound to a nationally negotiated NHS contract and a national fee scale. This sets the NHS price for specific dental treatments, containing an element of patient charges. Dentists are free to undertake as much or as little NHS work as they wish and free to choose any mix of NHS treatment.

These arrangements have resulted in an inconsistent mix of national incentives, professional autonomy and weak local management. They have also resulted in numerous policy weaknesses. For example, at the

30 national level, objectives such as the Prime Minister's pledge that 2 million additional NHS patients would be registered by September 2001, had to be addressed through peripheral measures, such as the creation of Dental Access Centres. These peripheral measures may well meet the narrow policy objective, however the lack of management leverage at the local level did little to encourage wider oral health objectives such as addressing oral health inequalities or improving access to NHS dentistry for rural residents and those living in neglected inner city areas.

The lack of effective management levers in the delivery of NHS dentistry was one of the reasons for the creation of the Personal Dental Services (PDS) described earlier. The philosophy behind the PDS is that local needs should be met at the local level, through commissioning of services between the Primary Care Trust and dentists. Such a system aims to establish new ways of delivering and paying for dental care. PDS can cover the full range of dental care currently provided under the GDS or can focus on specialist services only, thus retaining clinical freedom for practitioners working within the service (see Box 3.3).

How successful these PDS pilots have been is unclear. A national evaluation commissioned by the Department of Health (Hill et al, 2002) investigated the impact of two different remuneration systems: capitation versus salary. It found that both systems increased the range and availability of services, compared with fee for service. But, beyond this, the evaluation was only able to measure self-reported progress against diverse objectives at individual sites. It was not possible to measure relative cost-effectiveness.

Whatever the merits of the PDS pilots, they remain small scale. As far as mainstream services are concerned, the NHS Plan published in 2000 and the subsequent policy document *Modernising NHS dentistry: implementing the NHS Plan* (Department of Health, 2000) set out to address a number of the problems of the sector. However, the House of Commons Health Select Committee felt that problems remained (see Box 3.4).

Box 3.3: **Examples of PDS pilot schemes**

Birmingham PDS – Information Technology Pilot

Aim

To reduce the inequalities in access to NHS dentistry (particularly for families living in socially deprived areas of the city of Birmingham), enhance efficiency and modernise the running of dental clinics through a computerised dental network.

Overview

The scheme involves the installation of a fully computerised, networked dental computer system in the Birmingham area. The pilot went live in March 2001 and is the largest area-wide, networked dental computer system in the UK. The system covers the whole of Birmingham, comprising 17 sites and includes three mobile units supplying daytime clinics, together with evening and emergency services from approximately 30 dentists.

The networked system allows patients to be seen at short notice at any one of the clinics providing that there is availability.

Wapping PDS – Skill Mix Pilot

Aim

To employ an alternative skill mix in order to increase access to dental care, especially for children in the area, many of whom are not registered with a dentist and suffer a relatively high incidence of dental decay.

Overview

The Wapping PDS scheme opened in 1998 and to date has four surgeries. A key feature of the pilot scheme is the employment of dental therapists who are employed both as clinicians and dental health educators. This yields benefits for patients and also frees up dentists' time for more complex clinical procedures.

Every six months a children's day is held to encourage parents to bring their children into the surgery. Every child in Wapping who attends school, nursery or a playgroup has received an invitation to these events.

Sources: Personal communications.

Box 3.4: House of Commons Health Select Committee (2001)

"*Modernising NHS dentistry* aims to bring dentistry into the mainstream of the NHS and reduce inequalities in oral health. We welcome this and the key role it gives to health authorities. However we are concerned that health authorities do not possess the levers they require to meet the objectives of the strategy. We recommend that, with their help, a study should be undertaken of the levers (formal and informal) which health authorities are currently able to apply to fulfil the objectives of *Modernising NHS dentistry*. This should examine the limitations that impede the achievement of these objectives and, in conjunction with findings from the remuneration and workforce reviews, advise on how these limitations might be addressed. We recommend that in all these exercises the profession and the patients it serves should be fully consulted in a timely fashion. However we reiterate that such consultation should be a prelude to action rather than an excuse for inaction, and follow a strict timetable for implementation." (Paragraph 44)

Soon afterwards the then Chief Dental Officer for England examined options to modernise NHS dentistry, building on the Government's *Modernising NHS dentistry* strategy document. In 2002 *Options for change* (Department of Health, 2002) was published and was built around three axioms: a new deal for patients - national standards; new systems of delivery of dental care; and the education, training and development of the dental team. *Options for change* offered a blueprint for the modernisation and reform of NHS dentistry. The Health and Social Care Act, 2003 has provided the necessary legislative framework for the planned reforms.

Under these plans, Primary Care Trusts (PCTs) in England will commission services from general dental practitioners through local contracts, drawn up according to national frameworks. In addition, some PCTs may seek to employ salaried general dental practitioners. Whereas previously Health Authorities effectively just held a list of dental contractors, the new system will allow PCTs to select dentists or groups of dentists who will deliver NHS dental work locally and be bound by specific terms of service. In this way, it is intended that the PCT will be able to influence:

- the location of dental delivery sites;
- the type of treatment undertaken by the dentist, within national guidelines;
- NHS delivery locally, including a secure system of access for those people with special dental needs.

The priority for PCTs in their new commissioning role will be to focus upon improving access and working with dental practices to ensure a smooth transition to the new arrangements. Budgets amounting to around £1.5 billion in total will be devolved to PCTs in 2005/06. The allocation of this funding will be made to individual PCTs, based on historic allocations in the first instance. There are currently no plans to move towards needs-based formula funding, however PCTs will have the option to identify local needs and to apply for additional resources. Allocation of further funding will be considered on a case-by-case basis.

The PCT dental care budget will be allocated by the PCT across all dental services, i.e. general dental services, community dental services, hospital dental services, etc. In this way, it is intended to offer PCTs the financial leverage necessary to secure services that meet local needs. It is intended, however, that this local freedom will take place within the context of national policy objectives designed to improve oral health and address inequalities.

Under these arrangements, the direct association between payments to dentists and the treatment to patients will, in some cases, be removed. It is anticipated that a menu of methods of remuneration will be tested, including salary, capitation and simplified, modernised fee scale options. The PCT (acting as the agent of the NHS) will have the management leverage to facilitate changes through local level incentives.

However, no doubt mindful of the problems surrounding the dental contract negotiations in the 1990s, the Department of Health has assured all dentists currently holding an NHS contract that they will receive a contract under the new arrangements, and that remuneration will be based on historic earnings and will be protected for three years from 1 April 2005. In return, practitioners are expected to provide care

34 for a similar number of patients as at present and have their NHS activity monitored to measure any variations from contract. Salaried dentists, such as those employed in the community dental services, will continue to work under unchanged contracts.

The management of dental services at the local level will mean that PCTs will need to develop new skills in this area. Very few PCTs have much knowledge of dental matters. As far as commissioning is concerned, lead PCT arrangements – whereby one PCT commissions on behalf of several – are likely to develop. Beyond this, there has been discussion of managed clinical dental networks as a mechanism for improving service delivery in the face of currently fragmented services. These networks build upon the concepts of managed clinical networks, which aim to link groups of health care professionals and organisations from primary, secondary and tertiary care, to work in a coordinated manner without the constraints of geographical and management boundaries. It is envisaged that managed dental networks could be responsible for dental service delivery to the population of a group of PCTs, via a lead PCT. Additionally, these networks could also have links with other local clinical network groups and could thereby help to deliver other national priorities, e.g. care of older people and children, as well as helping to address the problems of poverty and social exclusion.

4.1 Introduction

In this section, we take a closer look at one important aspect of dental finance; namely, payment systems. The way that dental services are paid for offers incentives that can be expected to influence the behaviour of both dentists and their patients. Accordingly, we consider theory and evidence on: (i) how different payment systems for dentists influence the volume, quality and types of treatments they offer; and (ii) how user charges influence patients' behaviour.

4.2 Paying the dentist: theory and research evidence

It is well known that the ways in which health care professionals are paid can affect their clinical practice. Both the volume and quality of services can be influenced by payments systems. The three main ways in which dental practitioners are paid are fee-for-service, capitation and salary. A considerable body of work has been carried out by economic theorists and applied researchers on the incentives offered by these three methods of payment (see Donaldson and Gerard (1993) and Sintonen and Linnosmaa (2000) for reviews of this work).

Paying dentists *fees per item of service* rewards them according to the amount of work carried out. While this might seem a logical method of payment, rewarding hard work, it has a potentially major flaw. In common with many areas of health care, patients have less knowledge about the treatment they require than does the dentist. There is a problem of asymmetric information. As a result the dentist is placed in the position of both defining need or demand and providing services to meet this demand. Where dentists' incomes are dependent on the volume and mix of services they supply, as in a fee-per-item-of-service system, there is a financial incentive to over-treat. This is the well known phenomenon of supplier induced demand.

Several researchers have tested for the existence of supplier induced demand in dental markets. The preferred approach has generally been to look for a positive correlation between the number of dentists in an area and the utilisation of dental care (Manning and Phelps, 1979; Mueller and Monheit, 1988; Birch, 1988), on the assumption that more dentists generate more demand (Evans, 1974). In a variation on

36 this approach, Sintonen and Maljanen (1995) distinguish between general and individual inducement. General inducement refers to regular dental visits, while individual inducement refers to specific dentist initiated recalls.

The results from these various studies do not provide conclusive evidence of the existence or extent of supplier induced demand. A major problem is that the existence of a positive link between dentist density and the level of demand for dental care, while being consistent with supplier induced demand, is also consistent with other explanations. For example, the presence of more dentists may reduce access costs and thereby increase demand without any additional supply side inducement. Similarly, if dentists ration care, the positive correlation may mean that with more resources, more need can be met. Despite these methodological difficulties, however, the major UK study of the subject (Birch, 1988) concluded that a positive correlation between the numbers of dentists per capita in an area and content per visit (measured by average cost per visit) provided strong support for the inducement hypothesis.

In addition to the impact that fee-for-service payments have upon the volume of services offered by dentists, there is also the question of their impact upon the type of service provided. In particular, it is likely that fee-for-service provides incentives for restorative rather than preventive dentistry. As Davis (1980) argues, it reinforces a professional culture that: 'took a pride in its ability to transform unpromising oral conditions into gleaming bridgework and crowning' (p. 103). As we pointed out in Chapter 1, however, new preventative techniques call into question the traditional emphasis on restorative care. Of course, price differentials within fee-for-service schedules can be adjusted to reinforce policy objectives. For example, in the early years of the NHS, fees favoured conservation rather than extraction. But the calibration between fees and policy aims is often poor.

If fee-for-service payments carry the danger of the over-supply of services, then a *salaried* system carries the opposite danger. While a salaried system makes financial planning easier - because the costs are known in advance - in itself, it provides little incentive for good practice. Dentists are paid no matter how much work they undertake

and whatever the quality of this work. Of course, it would be wrong to conclude that under-performance will necessarily arise. Financial incentives are not the only ones to motivate professional behaviour. Professional ethics and a desire to advance ones career through recognised high standards are both powerful drivers of performance. Moreover where salaried payment systems are used, they are normally supplemented by additional features designed to encourage good practice. The most obvious one is managerial control. Through line management, standards of professional practice are usually defined and monitored. Merit awards, special payments for good practice and target payments are other instruments that can be used alongside a salaried system.

The third main way in which dentists may be paid is through *capitation* payments. Under this arrangement, dentists receive a fixed annual payment in advance for every patient who registers with them. The advantage of this system is that it encourages dentists to compete for patients - as it is in their financial interest to attract patients - but it does not have the disadvantage of linking payments to the quantity of services provided, as in the case of fee-for-service. Another advantage over fee-for-service claimed for a capitated service is that it encourages preventive services because the dentists' future income does not depend on further treatments. On the contrary, effective prevention will reduce future workloads but not income.

This brief review of payments systems suggests that there is no perfect method of payment. Each system has advantages and disadvantages. In the light of this judgement, there is a strong case for using a mix of the above methods in order to achieve a range of service outcomes. For example, within a public system, a fixed payment unrelated to the number of patients registered or the volume of services supplied may be justified in order to fund basic practice requirements, including capital equipment. A particular form of fixed payment could resemble loans of the type offered to GPs who work in deprived areas. Beyond this, a capitation system may be used in order to encourage responsiveness to patients' preferences within cash-limited budget, but elements of fee-for-service may be offered to encourage performance in relation to specific services. Alternatively, a primarily salaried

38 service may be developed with target payments and/or elements of fee-for-service in those areas where performance is in need of particular incentives.

It is also important to reiterate our earlier point that performance is not only governed by financial incentives. As in other areas of health care, dentistry is subject to an extensive range of regulatory instruments designed to assure quality and contain costs.

The General Dental Council (GDC) is the registration and regulation body for the dental profession throughout the UK. It is responsible for the regulation of the practice of dentistry in the interest of the general public. The Dentists Act 1984 provides the principal legislation on the provision of dental care in the UK. The 1984 Act covers the constitution and general duties of the GDC; dental education; registration of the dental profession; professional conduct and fitness to practise (poor performance, fraud and misconduct); visiting European Economic Area practitioners; restrictions on the practice of dentistry and on carrying on the business of dentistry; and dental auxiliaries.

Future changes in the GDC's work are likely to focus on the registration and regulation of growing numbers of professionals complementary to dentistry, developing regulations for the corporate dental providers, and developing an independent complaints scheme to cover both NHS and private dental care.

In addition to the GDC, dental work within the NHS is subject to monitoring through the NHS Dental Practice Board (DPB). The DPB is responsible for payments to dentists and for auditing dental treatment in England and Wales. It is a statutory body and is accountable to the Department of Health and the National Assembly of Wales. Dental care provided under the NHS is subject to random inspection. In Northern Ireland the equivalent of the DPB is the Central Services Agency and in Scotland it is the Scottish Dental Practice Board. The DPB's other main function is to provide statistical information and analysis on the activities of GDS dentists. It is important to note, however, that there are currently no comparable procedures for the inspection of private dental treatment.

4.3 Unfulfilled plans: payment of dentists in the UK

Dentists working in the hospital dental services and in the community dental services are salaried employees paid by the relevant NHS Trust. Their salaries are determined by nationally negotiated pay scales and can be supplemented by performance-based increments, discretionary points and distinction awards.

For the overwhelming majority of dentists in general dental practice, however, the largest element of their income comes from fee-for-service payments. This system has been subjected to considerable criticism over many years.

The traditional NHS fee-for-service system operates with a list of items (currently comprising over 300 separate treatments), with individual items priced in a way designed to yield a target income. In practical terms, the fact that dental services can be divided up into relatively precise and measurable items of service – more so than in the case of much general health care – goes some way to explaining the traditional reliance on this form of payment in dentistry. However, as long ago as 1964, the Tattersall Report claimed that the payment system offered no incentives for improved efficiency; that it placed a premium on speed of work and took no account of quality; and that it led to a 'treadmill effect' among dentists – the only way to earn more was to increase the number of treatments.

This state of affairs has been criticised for encouraging excessive and unnecessary treatment. The Audit Commission drew attention to evidence of unnecessary orthodontic work, excessive fillings and the fitting of crowns and similar work that was more cosmetic than dental health care (Audit Commission, 2002).

The picture is reinforced by the research of Birch (1988) referred to earlier, which suggests that fee-for-service payments may well have resulted in supplier induced demand. He used census population data and NHS statistics to measure the average cost per dental visit by NHS district (with cost acting as a proxy for content per visit in a fee-for-service system). The variation in cost per visit between districts was investigated in a multivariate, regression model using explanatory

40 variables such as population dental health, demographic mix, income level, access costs, supply characteristics and the population/dentist ratio. The results showed that population/dentist ratio exerted a strong, statistically significant, negative effect on average cost per treatment; that is, the content per visit went up as the number of dentists per unit of population increased.

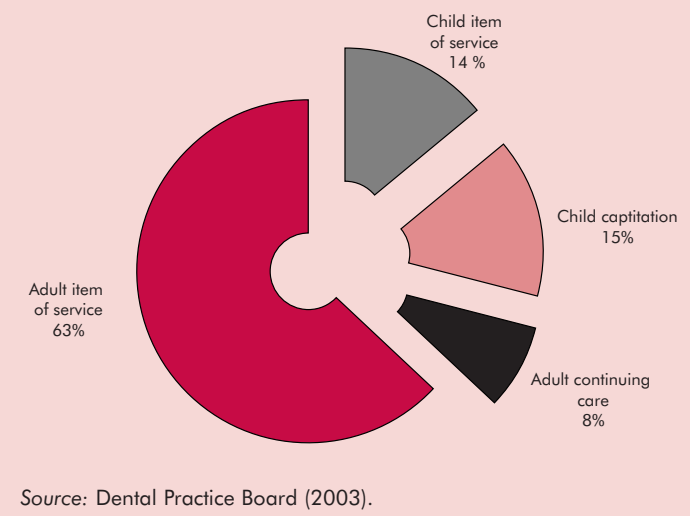
Moreover, as we have argued already, this fee-for-service system is poorly geared to the need for preventive rather than restorative treatment. Indeed it offers perverse incentives: effective prevention should reduce the need for treatments and thereby lower dental incomes. Recognition of the incompatibility of the payments system and the needs of preventative health care had been documented in a series of reports from the 1970s onwards. For example, the Court Report (1976) pointed out that capitation payments would meet the needs of preventive dentistry better than fee-for-service payments. The Schanschieff Committee (1986) re-iterated this message.

A major official response to these and other criticisms came with the introduction of a new NHS dental contract in 1990. This represented the most significant contractual change since the introduction of NHS dentistry in 1948.

The main changes resulted in dentists receiving fixed capitation payments for children, where preventive care was considered to be of particular importance. Fee-for-service was retained for adults although a continuing care payment was introduced to encourage preventive care. Continuing care payments were designed to produce about 20% cent of dentists' gross income (Figure 4.1). Taken overall, the new contract placed increased emphasis on the maintenance of oral health by encouraging regular dental visits and by allowing dentists to practice more preventive care.

However, the fees set for 1991/92 seriously underestimated the number of patients that dentists would register, so that outturn average incomes exceeded target incomes by about £12,500 per dentist (Taylor-Gooby et al, 2000). In 1992/93, fees were cut by 7% in order to recoup some of the 'overpayment' the previous year. This claw-back led to widespread ill feeling among the dental profession.

Figure 4.1: **Gross NHS dental fees for England and Wales in 2002/03**



John Renshaw, Chairman of the Executive Board of the British Dental Association, told the House of Commons Select Committee on Health (2001) that the 1992 fee cut is still seen as: "a scar running through the profession that has never been put right".

Subsequent government initiatives in the 1990s sought to improve fee scales and attempts to recoup overpayments were dropped. However, these moves failed to win over the profession. There is currently a widely-expressed view that NHS dentistry has broken down for both dentists and patients (see Box 4.1.). Capitation payments for children and for continuing care for adults make up 23% of GDS income. But fee-for-service remains the mainstay accounting for about 77% of GDS income (Figure 4.1). However dentists report that NHS fee scales are insufficient to enable them to offer high-quality care or sustain a successful small business (Taylor-Gooby et al, 2000). A recent survey carried out on behalf of the Doctors' and Dentists' Review Body reported that two-thirds of dentists thought that their workloads prevented them from providing a standard of care that they were

Box 4.1: A payments system that works for neither dentists nor patients

"It is easy to blame dentists for the problems, but they are working within a system that makes it very difficult for them to do better. The more activity, and the quicker it is done, the bigger their annual income will be. Dentists are increasingly angry at how hard and fast they have to work with NHS patients to earn the sort of incomes that they need to pay for their premises and staff costs, which they must meet themselves – they call it the 'treadmill'. Many dentists use very robust language when describing the adverse effects of the fee system, and some patients, who know about the piecework system, seem to distrust their dentist because of it".

Renshaw (2001)

happy with for their NHS patients (Audit Commission, 2002). This disenchantment has led to the shift away from the NHS and a rapid growth in private dental work in recent years.

These are the long-standing problems of NHS remuneration that the latest government proposals set out in *NHS dentistry: options for change* (Department of Health, 2002) seek to address. We discuss these proposals in our final, 'Conclusions and recommendations', chapter.

4.4 Paying for private dental care

The overwhelming majority of private dental treatment is paid for directly by the patient on a fee-for-service basis. There has been a growth in dental capitation schemes whereby patients make regular monthly payments in order to spread the costs of treatment over time. Denplan is the largest company offering dental capitation schemes, with 1.1 million registered users (see Box 4.2). Private health insurance companies such as BUPA and PPP Healthcare have also entered the dental market. But these financing mechanisms do not alter the dependence on fee-for-service payments. This system gives rise to the potential problems discussed in relation to NHS services, but to other problems as well. These have recently been highlighted by a report from the Office of Fair Trading (OFT) on the private dental market in the UK (OFT, 2003).

Box 4.2: Denplan

Denplan was founded in 1986 and is a subsidiary of AXA PPP Healthcare (part of the AXA group). Its principal activity is to provide an independent capitation plan to the dental profession and its patients, together with the administration of the plan on behalf of dental practitioners. With over one million registered patients and around 6,500 dentists participating in their capitation schemes, Denplan is now the leading dental healthcare company in the UK. Office of Fair Trading estimates (2003) found that 58% of UK dental practices reported being involved in some form of private payment system, the largest provider being Denplan (used by 30% of practices).

The strategy adopted by Denplan has focused on improving the quality assessment of dental care supplied by its participating dentists. The company has a Denplan Practice Quality Programme which participating dentists must undergo every three years, and further still has a Denplan Excel Accreditation Programme. The purpose of the latter programme is to ensure that practitioners are abreast of current legislation and recognised 'good practice', such as patient information record and oral health scores, a dental health 24 information line and patient satisfaction surveys.

In January 2001 Denplan acquired BUPA Dental Cover and its associated capitation business, thereby strengthening Denplan's position as market leader within the dental plan sector. Total premium income generated by Denplan in the year to 31st December 2001 was £184.8 million and in 2002 the average monthly payments by patients to Denplan was £15.18.

Source: MSI (2002).

The OFT suggested that the private market for dentistry is not working well for consumers. They conceded that some imbalance of information between patients and dentists is inevitable in a science-based, clinical activity but felt that consumers were not provided with even the basic information on the price and quality of services offered by different dental practices that would be necessary in order to make informed choices. To some extent the problem was seen as one of market adjustment. The OFT argued that the rapid growth of private dental care from a small market over a short space of time has meant that it has not yet adjusted to the consumer needs inherent in the switch from NHS to private care. In particular, it pointed out

44 that it is not always clear to consumers which services are available under the NHS and which ones need to be paid for privately.

The situation is further complicated by the rapid growth in cosmetic or aesthetic dentistry. Most people accept that this is a lifestyle, consumer good to be paid for privately and not eligible for NHS funding. But the fact that these services are often offered by dentists who also offer NHS treatment, contributes to the ambiguity of the public-private distinction.

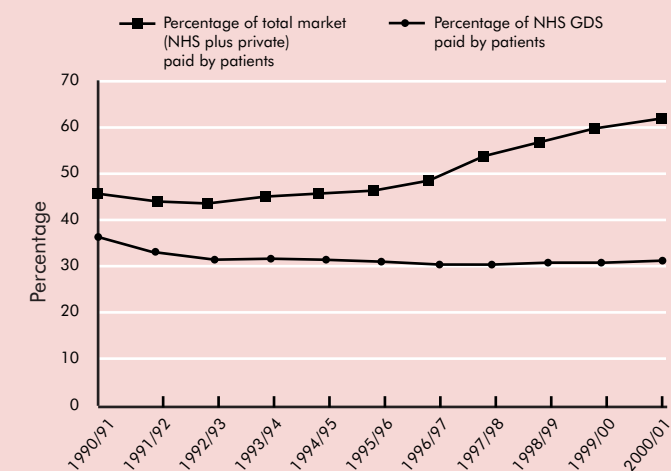
We discuss the growth of the private sector more fully in Chapter 5.

4.5 Patients and charges

User charges represent a highly controversial aspect of health care finance. Advocates of charges see them as a means of encouraging individual responsibility, of discouraging frivolous or unnecessary demand and as a useful means of raising revenue. Opponents argue that they are inefficient – in the sense that they do not distinguish between appropriate and inappropriate demand – and inequitable because they impact disproportionately on low-income and disadvantaged groups (Chalkley and Robinson, 1997; Robinson, 2002).

Within the NHS generally, little use has been made of user charges. Only about 2% of total NHS income is derived from user charges. In the dental sector, however, charges were first introduced in 1951 and, since 1971, have become quite substantial. Currently patients are required to pay 80% of the costs of examinations and treatments up to a maximum of £372 (or £354 in Wales) for one course of treatment. Exemptions for children under 18 years of age and certain other groups, e.g. people receiving income support, mean that not everyone pays. In total, patient charges meet about 30% of the costs of the GDS. To these costs must be added the estimated £1 billion paid by the seven million users of private dental care who meet their costs in full. This means that overall just over 60% of the total costs of dental care (i.e. public plus private) are met directly by users, compared with around 45% in the early 1990s (see Figure 4.2).

Figure 4.2: Patient charges in the UK general dental practice market 1990/91 – 2000/01

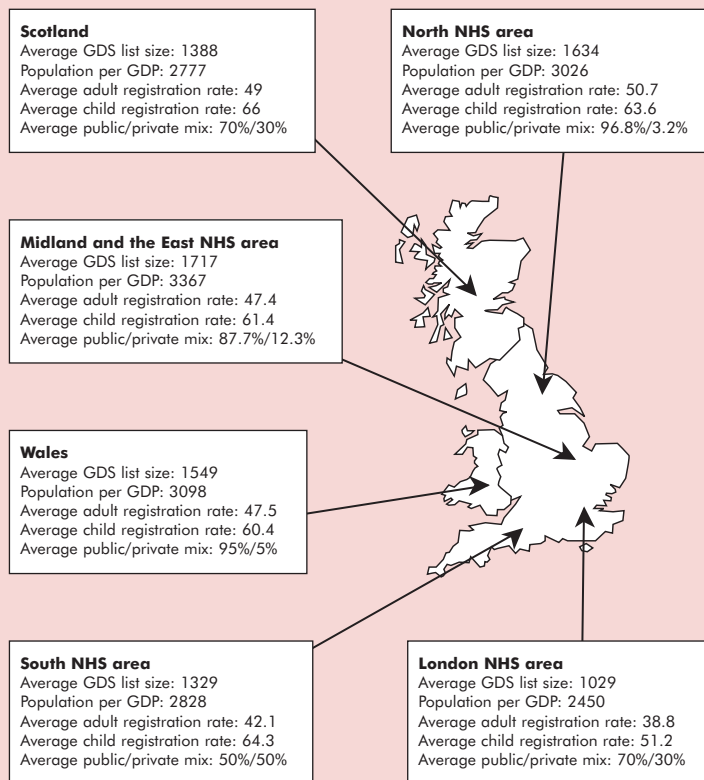


Source: Derived from Blackburn (2003).

The combination of increasing user charges for NHS dental treatments and the growth of private dental care – with full cost charging – has given rise to concerns about access to dental care for certain low income and vulnerable groups, such as elderly people, people with disabilities and people living in care homes. Several research projects have confirmed that cost is a major reason cited, especially among low income groups, for not seeking dental treatment (Lipsey, 2003).

The access barrier to dental care is, of course, far higher if a patient cannot register for NHS dental care and therefore needs to bear the full cost through private treatment. Nationally less than half of the adult population is registered with an NHS dentist. There are, however, marked regional variations. As Figure 4.3 shows, adult registration rates vary from 38.8% in the London area to 50.7% in the Northern England area. Figure 4.3 also shows that the volume of patient care undertaken privately tends to be highest in

Figure 4.3: Variations in NHS dental registrations and rates of private practice



Note: Average public/private mix is based on the volume of patients

Sources: Dental Practice Board data (<http://www.dpb.nhs.uk/>), Audit Commission (2002), Scottish Dental Practice Board (<http://www.show.scot.nhs.uk/psd/dental&ophthalmic/dental/sdpb.htm>), Information and Statistics Division (NHS Scotland) (http://www.show.scot.nhs.uk/isd/primary_care/dental/pcare_dental.htm).

Source: Driffield and West, 2003.

Box 4.3: Dental costs impact on low-income elderly people

"I went to have my dentures and paid about £65 basic. When I came home they were so bad, my son said 'Mum, why haven't you got your teeth in?' They looked terrible, so I went back to the dentist and said I'm not happy. She said that there is nothing that you can do about it, now they're made ... They went in the bin and I put my old ones back in."

Audit Commission (2002)

the South of England where NHS registration rates are the second lowest. This was an issue highlighted by the House of Commons Health Select Committee, which noted that the growth of private practice in the South of England was making it difficult for patients to gain access to an NHS dentist (House of Commons Health Committee, 2001).

A prime ministerial pledge that everyone would be able to find an NHS dentist by October 2001, by phoning NHS Direct, has undoubtedly improved the situation. More recently the introduction of NHS on-line has added to this source of information. Dental Access Centres have also improved access, although these tend to specialise in the provision of emergency care.

Access to dental care is a particular concern among elderly people who have more complex dental needs but are not exempt from payments in the way that they are for NHS pharmaceutical prescriptions and eye tests. The costs of dental care can be a significant barrier to access for them. (BDA, 2003). For example, nearly 50% of people over 65 years of age have no natural teeth and need properly fitting dentures in order to eat and talk normally, and to be confident socially. But many elderly people do not have adequate dentures and cost is cited as a major obstacle to obtaining them (see Box 4.3.).

We suggest, in the final chapter, some policy reforms that may address problems encountered by elderly people.

5 THE CHANGING PUBLIC-PRIVATE MIX IN DENTAL CARE

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5.1 Introduction

The UK health sector is undergoing some fundamental change in terms of the public-private mix of services. In October 2000 the then Secretary of State for Health signed a concordat with the Independent Healthcare Association. This concordat set out the parameters for a completely new partnership approach between the NHS and private and voluntary sector providers of health care. It was based on the premise that there should be no organisational or ideological barriers to the delivery of high quality health care free at the point of delivery. Since then there has been a whole raft of new policy initiatives designed to draw upon private sector capacity and expertise in the provision of NHS funded services. These have included NHS contracts placed with private hospitals and, most recently, decisions to set up independent sector treatment centres offering diagnosis and elective surgical services for NHS patients. Clearly it is the government's intention that there should be far more pluralism in the supply of NHS-funded services (Robinson and Dixon, 2003).

One important motive for the move towards a more plural delivery system is the government's desire to offer more patient choice. This policy started with the offer to patients of choices between hospitals, and over dates and times of treatment, and looks set to be extended to include more choice in primary care.

This commitment to pluralism does not, however, extend to the way in which health care is financed. To date, the government has set itself against greater reliance on private finance for funding health care. In fact, public expenditure plans for 2003/04 to 2007/08 envisage unprecedented rates of growth in health spending of over 7% per year in real terms. Proposals for increasing private expenditure on health – through, for example, tax concessions on private insurance premiums – are presently confined to an assortment of right-of-centre think tanks and the opposition Conservative Party that have very limited, if any, impact on current policy.

Within this context, the dental sector stands out as rather different. On the supply-side, the GDS has always comprised independent,

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private practitioners, albeit with close contractual relationships with the NHS. Moreover, these practitioners have engaged in dual practice, treating both NHS and private patients. (This is similar to many NHS hospital consultants but not GPs). Patients have also been able to exert more choice in decisions about dental consultations, although this has been limited by access problems in some areas in recent years. On the finance side the differences are even more stark. As we have shown, there has been an increasing dependence on private finance through user charges in the dental sector. This has applied to non-exempt NHS patients who now only receive a 20% price subsidy and, of course, to the growing numbers of private patients who bear the full costs of the services they receive.

The dental sector poses some distinct problems in terms of the management of a mixed economy as well as some possible lessons for the future of health care more generally.

5.2 The mixed economy of dental care

The mixed economy of dental care is summarised in Figure 5.1. As we have described earlier, hospital and community dental services are provided by NHS salaried dentists and are provided mostly free at the point of use. This combination of public finance and public provision is depicted in the top left hand quadrant of the Figure 5.1. Most dentists, however, work in the GDS where they engage in dual

Figure 5.1: **The public-private mix in UK dental care**

	Public Finance	Private Finance
Public Provision	Hospital and community dental services	
Private Provision	NHS general dental service (not subject to user charges).	NHS general dental service (user charges). Private dental services.

50 practice. They provide services to both NHS and private patients. Services to NHS patients are depicted in the two bottom quadrants, i.e. private providers and services covered by a mix of public (approximately 70% of the total) and private finance. The final part of Figure 5.1 depicts private dentistry; that is, private providers and patients paying privately. It is this sector that has grown rapidly over the last ten years.

5.3 The shift towards private practice

As we described earlier, the fee level dispute surrounding the 1990 dental contract, and its aftermath, was the proximate cause of the subsequent major shift to private practice. However, some more general demand and supply side changes have also contributed towards this shift. On the supply side, surveys of dentists have identified their desire to:

- reduce the increasing workloads associated with NHS treatments and thereby alleviate growing levels of stress;
- spend more time with patients;
- offer a wider range of treatments than is available through the NHS;
- reduce the administrative burdens associated with NHS work;
- undertake investments in order to modernise practice facilities with up-to-date technologies (BDA, 2002a).

A recent econometric study by Lynch and Calnan (2003) confirmed many of these findings. They carried out a national postal survey of dentists practising in England in 1997. From a sample of 2,000 dentists, 895 full responses were obtained and used in a cross section regression analysis in order to investigate the factors explaining variations in the percentage of patients treated privately by individual dentists. Attitudinal factors that were associated with higher amounts of private work were: 'provision of better quality dentistry'; 'more control over clinical decisions'; 'more patients who value dentistry'; 'maintain financial security'; and 'more time for further study and keeping up-to-date'. Conversely, factors leading to lower levels of private work were partly based on egalitarian values (i.e. 'access to

treatment for all who require it'); partly on financial considerations (i.e. 'reliable source of income', 'preservation of pension rights'); and partly demand determined (i.e. 'insufficient demand to increase private practice').

The constraint on the expansion of private work posed by variations in the demand for private dentistry between different parts of the country was also reported by Taylor-Gooby et al (2000). They carried out a national survey of 2,000 dentists in May-July, 1997 and received responses from 1,011 dentists. They also carried out 56 in-depth interviews with dentists in order to probe their values and perceptions more fully. On the basis of their work, they concluded:

"Most dentists do have some commitment to the NHS principles of care and to a professional ethic that values a high quality of treatment. However, they are also strongly aware that a dental practice can only succeed as a business and is subject to the same constraints as other small businesses. In the context of the early 1990s both professional and commercial orientations combined to support the oft repeated view that it was increasingly difficult or impossible to provide high quality care within the NHS for reasons that are essentially financial."

In those areas where there has been growth in the demand for private dental care, this has been fuelled by rising incomes and patient expectations, including increased consumer spending on health, fitness and personal appearance. Growth in demand for cosmetic dentistry has been a part of this trend. There has also been an increase in the availability of private dental insurance and capitation schemes.

In their study of the factors determining the demand for private dentistry from the patient's perspective, McGrath et al (1999) confirmed the importance of income as the most significant factor, but their results indicated that area of residence was also important. They drew a random probability sample of 2,668 addresses from the British Postcode Address File. In total 1,865 adults aged 16 years or older took part in face-to-face interviews in their homes about their use of dental services – a response rate of 70%. Information about the respondent's age, gender, social class, marital status, area

52 of residence, gross income, education and pattern of work was also collected. The study adopted a modelling approach.

Twenty-three per cent of respondents reported using private services when they last visited the dentist. Level of income was identified as the most important determining factor in the use of private dental services when age, social class, level of education, marital status, area of residence and level of income are examined. The next most important factor was the region of residence. Residents in London and the South East were most likely to pay for dental services privately. In contrast, people resident in the North of England and the Midlands/East Anglia were least likely to use private dental care.

These regional variations were sufficiently large to offset income differences in some cases. As the authors put it: "It is interesting that area of residence was also identified as a determining factor in private dental service use for those on middle or low income. Residents in London and the South East, despite being of low income, were as likely to use services as those from the North or Midlands/East Anglia on middle incomes. They may be a reflection of the wide availability of private care in London and the South, or the market forces leading to a reduced availability of NHS care in these areas."

Table 5.1: Most common private treatments

Treatments	Number of times stated by respondents (Base = 1,127)	As a percentage of all responses (%)
Composite fillings	265	23%
Bonded crowns	202	18%
Examinations	190	17%
Tooth whitening	24	2%
Other (including veneers, dentures, periodontal treatment)	446	40%

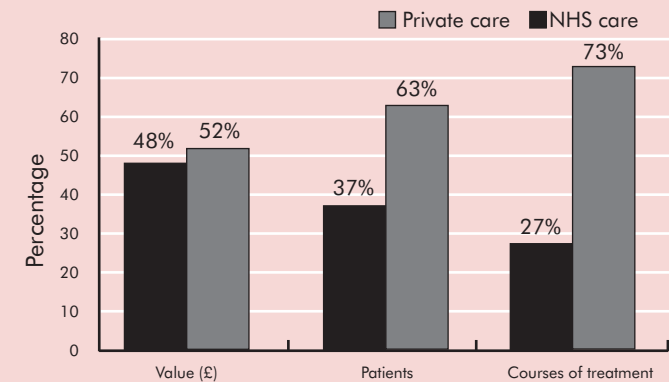
Source: BDA (2002a).

53 Research by the BDA (2002) indicates the services that are most commonly received as part of private treatment (see Table 5.1). These findings were obtained in a postal survey of two thousand dentists randomly selected from the BDA membership database. This was followed up by a cluster sample postal survey of 600 additional dentists and 80 telephone interviews.

As the table shows, composite fillings and bonded crowns were the most commonly cited procedures. Significantly, the former is not generally available through the NHS and the latter is not available through the NHS when treatment is undertaken on molar teeth.

Despite the move towards private dental practice, there are no more than an estimated 200 dental practices that are totally private (approximately 2% of all practices in the UK) and provide absolutely no NHS dental care. Dual or mixed practice is the norm with the overwhelming number of practices providing both NHS and private care. As we pointed out earlier, the OFT has identified this as a

Figure 5.2: The NHS/private composition of the adult dental market in Great Britain, 2000/01



Source: BDA (2002b).

54 source of some confusion to patients who are sometimes unaware whether they are receiving NHS or private treatment.

It is also worth bearing in mind that although the share of the dental market accounted for by private expenditure has risen sharply over the last ten years, the NHS still dominates in terms of the proportion of patients treated and its share of courses of treatment. Figure 5.2 presents BDA data for 2000/01. These indicate that the private sector accounts for 48% of the total market by value (slightly higher than the Laing and Buisson estimate of 45% cited earlier), but for only 37% and 27% of patients and courses of treatment respectively.

5.4 The public-private mix: international evidence

European health care systems display considerable diversity in terms of both finance and provision. On the finance side, the main distinction is between those countries that rely upon funding from social health insurance schemes (e.g. Austria, France, Germany and the Netherlands) and those that rely upon general taxation raised primarily at the national level (e.g. U.K and Italy) or local level (e.g. Sweden, Norway and Finland). Generally, those countries that have relied upon social health insurance or local taxation have had more generously funded health care systems. These countries have also tended to develop greater supply-side diversity. In Germany, for example, only 39% of hospitals are in public ownership, 40% are private not-for-profit and 21% are private for-profit organisations. In the Netherlands, practically all hospitals are private institutions, albeit not-for-profit organisations.

Higher spending on health care tends to be associated with higher spending on oral health care. The UK devotes about 0.3% of its gross national product to oral health care compared with France (0.5%), Sweden (0.8%) and Germany (0.9%). These figures are reflected in higher population-to-dental practitioner ratios in the UK than in these countries (Driffield and West, 2003).

However, despite these differences in health care systems and funding levels, there are a number of broad similarities across Europe in the

55 ownership, organisation and micro-finance of dental care. In most European countries, for example, non-salaried, individual (private) practitioners predominate. As Table 5.2 shows, in France, Germany, Belgium, Italy and the Netherlands between 90 and 100% of dentists practise in this way. Only in Denmark, Finland and Sweden are there sizeable proportions of dentists employed in the public sector. In Denmark, for example, approximately 30% of dentists are employed by the government and work in public clinics.

Moreover, all European countries levy charges for dental services (see Table 5.3.). In several countries, dentistry is mainly funded privately (such as Belgium, Italy and Portugal) and patients pay full cost prices. Elsewhere, basic preventive services are frequently provided free of charge and children are exempt from payment, but a variety of user charges are applied to other services and users. These are often levied at quite high rates.

Table 5.2: **Dental practice in Europe – practitioners in public and private sectors, 1996**

Country	Private Practice (%)	Hospitals (%)	Public Dental Service (%)
Belgium	97	3	0
Denmark	64	5	29
Germany	95	4	1
Spain	93	5	2
France	94	n/a	n/a
Greece	92	n/a	n/a
Ireland	65	3	26
Italy	97	3	5
Luxembourg	100	0	0
Netherlands	100	n/a	0
Austria	80	8	5
Portugal	100	5	0
Finland	53	6	39
Sweden	44	4	52
UK	82	12	8

Source: Mossialos and Le Grand (1999).

Table 5.3: **User charges for dental services in European countries**

Country	User Charges
Austria	Co-insurance rates of about 20% for most of the population, with payments of up to 50% for special services such as fitting crowns.
Belgium	Large co-payments or full cost pricing for most groups. Limited services are free for those under 18 years of age.
Denmark	Co-insurance rates ranging from 35% to 100%, some age differentiation. Free treatment for those under 18 years of age.
Finland	10% for dental examinations and preventive treatment, 40% for other treatments. No charges for children under 18 years of age.
France	30% co-payment for preventive care and X-rays. Up to 80% for dentures and orthodontic treatment.
Germany	Basic and preventive care free of charge. Co-insurance rates of 35% to 50% for operative treatments, such as fitting crowns and dentures. Exemptions for those under 18 years of age.
Greece	Co-insurance rates of 25% for dental prostheses. Extra billing commonplace among private dentists who comprise 95% of the total. No charges for children under 18 years of age.
Ireland	No charges for lower income patients and schoolchildren. Other people covered by social insurance receive examinations at subsidised rates. Those outside the social insurance scheme pay full cost. Private expenditure accounts for about two-thirds of total expenditure.
Italy	Most dentistry is private and subject to full cost pricing. Low-income groups may receive free treatment at NHS health centres.
Netherlands	No charges for children under 17 years of age. For adults, preventive care and specialist surgical care are also free. For all others, there is full-cost charging, although there are fixed and capped private fees.
Portugal	Mostly private with full cost charging.
Spain	Free regular check-ups for those under 18 years of age. Free extractions in the public sector. Full cost pricing for all other services.
Sweden	Preventive care provided free for everyone under 20 years of age. For the rest of the population, full cost pricing up to ceilings and then high co-payments. User charges represent about 50% of total expenditure.

Source: Robinson (2002).

In France, for example, most oral health care is provided according to an agreement known as the *Convention*. Under this agreement, dentists charge set fees and patients are required to meet 70% of the cost. Many patients take out supplementary insurance that covers these and other co-payments.

In Germany, the dental sector has been a test bed for market-based pricing policies. This was an important subject of debate during the 1998 Federal election campaign and probably contributed to the defeat of the Conservative-Liberal coalition. Currently, co-payments in Germany range from 35-50% for crowns and denture treatments and 20% for orthodontic treatments.

In Norway, even more radical reforms of dental pricing have been implemented. From 1996, fees have been largely determined by market forces. Dental care is free for those under 18 years of age, while 19 and 20 year olds pay 25% of the charges. For everyone else, there are no subsidies to reimburse any of the costs of private dental care.

In many European countries there have been strenuous efforts to contain rising health care costs in recent years. These efforts have given rise to debates about health care rationing and what services should be provided through public funding. This has often led to a view of dental care as being marginal to the public health system and, for this reason, subject to higher rates of user charges than in most other areas of health care. This has led to a considerable degree of convergence in dental care policy in relation to the public-private mix. Treatment is overwhelmingly provided by private dental practitioners and, increasingly, patients are being called upon to meet a large part of the costs of routine care. Exemptions from charges tend to be confined to groups with special needs, such as children and those on low incomes. Beyond these aspects of the public-private mix, there are other features of the dental sector that are also similar throughout most European countries. The most notable of these is the almost universal reliance on fee-for-service payments. These similarities mean that the strengths and weaknesses of the UK system are unlikely to be unique.

6 CONCLUSIONS AND RECOMMENDATIONS

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6.1 Introduction

Almost everyone agrees that policy on dental health care in the UK needs to change. Our analysis has identified four key areas that require attention.

- the changing pattern of dental health care needs, especially the shift from a need for a curative service to one with a far larger preventive component, and the need for a payments system that is geared to this change;
- the appropriate role for government in the light of changes in the public-private mix in terms of both finance and provision;
- the way that NHS dental care services are managed as the NHS Plan reforms are implemented;
- the challenge presented by the rapid growth of a the private dental market, in particular the need to ensure that this market works efficiently and in the interests of patients.

The good news is that many of these issues have been identified by others and change is underway. The Audit Commission, the OFT, the House of Commons Select Committee on Health and the BDA have all set out recommendations and proposals for reform of dental policy. Most recently, many of these recommendations have been taken up in the Department of Health's paper *NHS dentistry: options for change* (Department of Health, 2002). Below we review these proposals and make a number of suggestions of our own. We do this by considering the general question of the appropriate role of government in relation to dental care.

We have described how the dental health of the population has improved dramatically over recent years. We have also described how an increasing proportion of the population is now financing dental care privately and many view it as a life-style, consumer-good. This is a trend observable in many other countries where large areas of dental care are outside the publicly or collectively funded bundle of health care services. When these empirical observations are combined with the type of theoretical reasoning outlined in the introduction – which queries the extent to which dental care is 'different' from other goods

6 CONCLUSIONS AND RECOMMENDATIONS

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and services in the way that health care is generally conceded to be – the question arises: why cannot dental care be left to the private market? Do we really need government involvement any more?

Our view is that there are many areas of dental care that can quite legitimately be left to a private market where individual patients are free to buy services of their choosing from independent practitioners, and where prices are set through the normal interaction of demand and supply. At the same time though, we believe that there is an important role for government in improving the efficiency of the sector, ensuring safety and quality standards, and in making sure that equity objectives are not neglected. These aims can be pursued through three main policy instruments: (i) finance; (ii) regulation; and (iii) direct provision.

6.2 Finance

The government's financial role covers price-setting, price subsidisation and the remuneration of dentists providing NHS services.

As long as the NHS enters contractual arrangements with independent dental practitioners, there will be a case for it using its monopsony power to set a national tariff of prices. We have described how this is currently done through a list comprising over 300 separate items paid for on a fee-per-item-of service basis. This fee scale has not been fully examined since 1998 and clearly needs review both in terms of the level of fees and its unnecessary complexity. Moreover, with the growth of private practice, many dentists are now charging two sets of prices – NHS prices and higher private prices. This has clear incentive effects in terms of the mix of NHS and private work. Private work is both more remunerative and offers dentists more time to practice their clinical skills. Government needs to recognise these competing demands in setting NHS fee levels, particularly as, in contrast to medical practice, large scale exit from NHS work is already a reality in the dental sector.

The second finance role of government is to decide upon the level of NHS charges that patients should be required to meet. At the

60 moment, approximately 70% of NHS patients are liable to charges and pay 80% of the cost of treatment up to a maximum of £372 per treatment. The government therefore provides a price subsidy equal to about 20% of the bill. This arrangement is clearly arbitrary – a leftover from a 40 year period in which patient charges for dental care have risen steadily. We see no logic in an 80% charge and suggest we move towards a system of full-cost charging for the non-exempt population with a more closely targeted and generous system of subsidies for exempt groups. (In passing, it is relevant to note that as long as NHS prices are below private sector charges, the non-exempt group will still be receiving an element of price subsidy).

Driffield and West (2003) have estimated that the withdrawal of the 20% subsidy would save about £153.7 million per year in public money, if consultation rates remain unchanged. However, as 70% of adult claims are for treatments costing less than £25, for most people, little financial hardship is likely to ensue. Additional public sector savings would accrue through reductions in administrative costs associated with processing subsidy claims and if consultation rates fell through, for example, less frequent check-ups, scaling and polishing.

Future exemptions should be closely linked to the aim of ensuring access to care for deprived and vulnerable groups, and those with special needs. Our discussion of dental needs indicates that health inequalities persist. A Department of Health task force summed up the situation: "Dental disease is related to socio-economic factors and at present those in greatest need are least likely to access the service and often pay most for their dental care" (Department of Health, 2002). This situation persists despite existing exemptions from charges. We recommend that the operation of the system is reviewed to ensure that finance does not constitute a barrier to access for deprived and vulnerable groups, and for groups with special needs. Savings from the elimination of the 20% price subsidy could be used to increase subsidies to these groups with no net budgetary effect.

Our discussion of dental health needs also indicated that large numbers of elderly people have special needs but many receive no financial assistance. In contrast to prescription charges, there is no

61 general exemption for adults over 60 years of age, and 82% of this age group receive no assistance with the costs of dental care. Cost deters many elderly people from receiving necessary care and, as a consequence, their general health suffers as well as their dental health (National Association of Citizens Advice Bureaux, 2001). To address this problem, we recommend that exemptions from charges should be extended to certain groups (especially some elderly people) who have exceptional needs in relation to tooth decay and gum disease.

Whether these exemptions should be income related is a subject for serious debate. As we have pointed out above, exemptions are not income-related in another area where increased need is closely correlated with age, i.e. pharmaceutical prescription charges, although many commentators argue that in the light of rising affluence among increasing numbers of retired people with company pensions, there is a strong case for withdrawing these blanket exemptions. In this case, the rising costs associated with pharmaceutical prescriptions for elderly people have been a major factor leading to proposals for reform. On balance, we do not envisage that non-income related exemptions in relation to dental care for elderly people would lead to an explosion in costs because entitlements could be specified in terms of the type and cost of treatments that are eligible. Everyone could be entitled to exemptions in relation to basic care with eligibility subject to income when a cost threshold had been exceeded.

Beyond the needs of special groups, we have also argued that there is a general need to encourage a far more prevention-based approach to dental health. We believe that the proposals set out in *Options for change* for the introduction of standard oral assessments, comprising prevention, diagnosis and treatment planning, represent a significant step in this direction. The case for making this available without charge to the vulnerable and deprived groups discussed above is clear. However, we believe that all other groups should be subject to full-cost charging at a price set by the NHS. We concede that there is a case for subsidised pricing to encourage take-up in an area where a change in user attitudes towards dental care is seen as desirable, but we believe that these changes can be brought about by patient education and do not merit subsidies to those groups who are able to pay.

62 To summarise, we believe that exemptions from NHS charges for dental care should be carefully targeted on deprived and vulnerable groups to ensure that no financial barriers to necessary care exist. Children should remain exempt from all charges. Our proposals in this regard involve an extension to existing exemptions in the case of elderly people with special needs. For everyone else, we recommend full cost charging rather than the 80% cost charge currently levied.

This brings us to the subject of paying dentists for NHS work. The need to shift from a primarily curative service towards one based on a greater element of prevention, suggests a move from fee-for-service towards capitation. This would break the link between income and throughput. Evidence on managed health care from the US confirms that capitation-based health plans place greater emphasis on health promotion than fee-for-service plans (Robinson and Steiner, 1998). We believe that a similar response could be expected in the UK dental sector.

This proposal is hardly new. Oliver (2002) argues that this policy could be adopted through the allocation of needs-based capitated budgets to general dental practitioners and points out that this is similar to the approach being adopted in relation to primary medical care services. Sheiham and Batchelor (2001) adopt a similar line of argument, but suggest a mixed payment system: a capitation element to cover high volume items, such as examinations and simple restorations, and a fee-for-service payment system for low volume, high cost items. *Options for change* echoes many of these sentiments. However, it argues that no one remuneration system is likely to meet the needs of all circumstances. It is also against sudden change. For these reasons, it recommends that a variety of payment systems including salary, capitation and fee-for-service – including mixes of all three – should be tested at a series of demonstration sites. Close monitoring could measure performance and establish the necessary evidence-base for wider roll-out.

We support this approach. We believe that a mixed payment system involving capitation and fee-for-service is likely to be the way forward. Capitation has a number of advantages but the growth of private

63 practice – paid on a fee-for-service basis – cannot be ignored. The NHS must be in a position to offer some comparable incentives. Furthermore, if NHS fee-for-service, tariff prices are set at sensible levels and greater transparency is introduced in relation to the full-cost prices paid by patients (see proposals on regulation below), we believe that the threats of the treadmill effect and supplier induced demand can be avoided. However, there are likely to be some situations and some dentists where a salaried option is favoured. The use of properly monitored and evaluated demonstration sites should provide better information on which choices could be based.

6.3 Regulation

According to the World Health Organisation, the ultimate responsibility for the performance of a country's health system must always lie with government (WHO, 2000). However, as governments increasingly withdraw from direct involvement in health care delivery, the way in which they relate to the health sector must change. The new role of government has been described as a stewardship function or, as Hunter et al (2004) put it, a move from "rowing to steering".

Stewardship has a number of components. One of these is the effective regulation of the health care sector, both public and private. In the case of the UK dental sector, this regulatory role has recently been highlighted by the OFT in connection with the rapid growth of the private dental sector (OFT, 2003).

As we have described earlier, the private dental sector has grown by about 17% per year over the last ten years and now accounts for over £1 billion annually. Following a complaint about trading practices from the Consumers' Association in October 2001, the OFT undertook an investigation and reported in early 2003. Their findings suggested that the market is not working well for consumers in a number of important respects. They pointed to several areas of concern. The most significant ones were:

- lack of information that is necessary for consumers (particularly relating to prices) to be able to make informed choices;

- procedures for dealing with complaints that were frequently inadequate;
- unnecessary restrictions on the business of dentistry.

On information, guidance from the General Dental Council indicates that dentists should inform patients about treatment choices, indicate the probable costs of treatment, ensure patients receive itemised accounts and offer clear information about whether patients are being charged under the NHS or privately. However, the OFT found that compliance with these guidelines was not routinely monitored and that many dental practices were not following it. To address these failings, the OFT recommended: stronger and broader regulation to ensure that consumers are made aware of those services that are available through the NHS and those that are available privately; the prominent display of indicative prices for the range of relevant services; and itemised costings in written treatments plans.

On the question of patient complaints, the OFT recommended that each practice should have an in-house complaints procedure and that patients should be made fully aware of this. For those disputes that cannot be resolved in-house, the OFT recommended the establishment of an independent complaints procedure.

On restrictions of trade, the Office recommended that certain professions complementary to dentistry (e.g. dental hygienists and dental therapists) should be able to provide services directly to consumers rather than simply through general dental practices as at present. In this connection, it is relevant to note that the UK presently has a rather smaller proportion of dental hygienists and dental therapists, per dentist, than in many other European countries (Driffield and West, 2003). Liberalisation could lead to changes in skill mix, more consumer choice and wider access. The OFT was also critical of restrictions placed upon the entry of corporate bodies to the dental sector under the Dentists Act 1984. Some of these restrictions are due to be removed by government but the OFT felt that trade liberalisation was not going far enough.

We believe that all of the OFT proposals are well founded. Better consumer information, more effective complaints procedures and reductions in barriers to entry should improve market efficiency. Effective regulation will, however, require appropriate mechanisms to be put in place in order to monitor market behaviour and address failings when they occur. At a time when the new Commission for Healthcare Audit and Inspection is about to get underway – with a remit to cover both public and private sectors – there is a case for investigating the scope for either it, or a comparable body, carrying out a similar function in relation to the dental sector.

6.4 Direct provision

The most far reaching way in which government can intervene in any sector of the economy is through taking responsibility for the direct provision of goods and services. This involves owning and operating provider organisations, including employing the relevant staff. This is, of course, the model for most of the NHS secondary care sector. In the case of the dental sector, however, as in the case of most general medical services, the government does not actually own most of the capital assets nor does it directly employ dental practitioners. Rather they work for the NHS as independent contractors.

As we have described earlier, proposals set out in *Modernising NHS dentistry: implementing the NHS Plan* and *NHS dentistry: options for change* envisage greater integration of dentistry within the local NHS through the commissioning of services by PCTs. By April 2005, PCTs will take control, in England, of the £1.2 billion dental services budget from central government (Department of Health, 2003). PCTs will be able to commission primary dental care through local contracts or provide dental services themselves, possibly through an extension of salaried dental services.

The Chief Dental Officer for England, Professor Raman Bedi, has described PCTs as the "main powerhouse for change" within "the greatest change in dentistry since the foundation of the NHS" (Bedi, 2003). We agree. We believe that bringing all local health services

66 under the umbrella of the PCT offers major new opportunities for more effective planning and integration of services. The main question mark concerns the ability of PCTs to carry out these wide ranging functions. At the moment, PCTs are newly formed organisations with a serious lack of management capacity. They are grappling with a host of problems, most notably managing budget deficits and responding to a widespread lack of medical involvement. Many PCTs have hardly got to grips with their new commissioning role in relation to health care, and this is shortly to be extended to dental care. In the short term, it is likely that most PCTs will depend upon the simple 'base contract' being developed centrally. This should serve to simplify the process and reduce the scale of transaction costs. Beyond this, we believe that lead PCT arrangements in relation to commissioning and the development of managed dental networks (as outlined in Chapter 4) offer ways of realising the potential of the new model of dental care within what is likely to be a fast moving, and possibly unstable, environment.

REFERENCES

- Arrow K (1963) 'Uncertainty and the welfare economics of medical care' *American Economic Review*. 53: 941-73.
- Audit Commission (2002) *Dentistry. Primary dental services in England and Wales*.
- Barr N (1998) *The economics of the welfare state*. 3rd edition, Oxford: Oxford University Press.
- Bedi R (2003) 'New model offers the greatest change to NHS dentistry for over 50 years'. *Policy into Practice*. Bath: Medical Management Services.
- Birch S (1988) 'The identification of supplier induced demand in a fixed price system of health care provision'. *Journal of Health Economics*. 7: 129-150.
- Blackburn P (2003) *UK dental care market sector report, 2003*. London: Laing and Buisson.
- British Dental Association (BDA) (2000) *BDA response to Department of Health's tackling health inequalities – consultation on plan for delivery*. London: British Dental Association.
- British Dental Association (BDA) (2002a) *OFT enquiry into private dentistry: evidence from the BDA*. London: British Dental Association.
- British Dental Association (2002b) *GDS RIP? Presentation at the LDC Conference*. London: British Dental Association.
- British Dental Association (BDA) (2003) *Oral health for older people; 2020 vision*. London. British Dental Association.
- Chalkley M and Robinson R (1997) *Theory and evidence on cost sharing in health care: an economic perspective*. London: Office of Health Economics.

REFERENCES

- 68 Court S (1976) *Fit for the future: the report of the Committee on Child Health Services*. Vol 1 (The Court Report). London: HMSO.
- Davis P (1980) *The social context of dentistry*. London: Croom Helm.
- Dental Practice Board (1993) *Dental review of general dental services of the NHS*.
- Dental Practice Board (2003) *Dental review of the general and personal dental services of the NHS (2002-03)*.
- Department of Health (2000) *The NHS Plan. A plan for investment. A plan for reform*. Cm 4818-I. London: The Stationery Office.
- Department of Health (2000) *Modernising NHS dentistry: implementing the NHS Plan*. London: Department of Health.
- Department of Health (2002) *NHS dentistry: options for change*. London: Department of Health.
- Department of Health (2003) *2,645 more patients can now access an NHS dentist under a pilot scheme*. Press release: reference 2003/0304. London: Department of Health.
- Donaldson C and Gerard K (1993) *Economics of health care financing*. London: MacMillan.
- Downer M (1994) 'The 1993 national survey of children's dental health: a commentary on the preliminary report'. *British Dental Journal*. 176, 209-14.
- Driffield T and West (2003) *Oral health and dental care- a new agenda*. York: York Health Economics Consortium.
- Evans R (1974) 'Supplier induced demand: some empirical evidence and implications' in Perlman M (ed.) *The economics of health and medical care*. London: MacMillan.

REFERENCES

- Hill K, Goodwin N, Morris J, McLeod H and Burke T (2002) *Final report of the national evaluation of Personal Dental Services*. University of Birmingham: School of Dentistry/ Health Services Management Centre.
- House of Commons Select Committee on Health (2001) *Access to NHS dentistry*. First Report. London: The Stationery Office.
- Hunter D, Shishkin S and Taroni F (2004) 'Steering the purchaser: stewardship and government' in Figueras J, Robinson R and Jacobowski E (eds.) *Effective purchasing for health gain*. Buckingham: Open University Press.
- Klein R (1993) 'The NHS: church or garage?' in Harrison A (ed.) *Health care UK 1992/93*. London: King's Fund Institute.
- Lipsey D (Chairman) (2003) *A fairer prescription for NHS charges*. Health Commission Report. London: Social Market Foundation.
- Laing & Buisson (2004) 'Major operators of dentistry with numbers of practices and dentists at 21 April 2004.' *Healthcare Market News*, p123, May 2004, London, Laing & Buisson.
- Lynch M and Calnan M (2003) 'The changing public/private mix in dentistry in the UK – a supply-side perspective'. *Health Economics*. 12: 309-321.
- Manning W and Phelps C (1979) 'The demand for dental care'. *The Bell Journal of Economics*. 10: 503-525.
- McGrath C and Bedi R (2002) 'Population based norming of the UK oral health quality of life measure (OHQoL-UK)'. *British Dental Journal*. 193.9: 521-24.
- McGrath C, Moles D and Bedi R (1999) 'Who uses independent dental services? Findings from a national survey'. *Primary Dental Care*. 6.4: 157-60.

REFERENCES

- 70 Medical Research Council (2002) *Water fluoridation and health*. Working Group Report. London: Medical Research Council.
- Mossialos E and Le Grand J (1999) *Health care and cost containment in the European Union*. Aldershot: Ashgate.
- MSI Marketing Research for Industry Ltd (2002) *The future of the UK dental care market to 2006*. Chester: MSI.
- Mueller C and Monheit A (1988) 'Insurance coverage and the demand for dental care. Results from non-aged, white adults'. *Journal of Health Economics*. 7: 59-72.
- National Association of Citizens Advice Bureaux (2001) *Unhealthy charges: CAB evidence on the impact of health charges*. London: NACAB.
- NHS Centre for Reviews and Dissemination (2000) *A systematic review of public water fluoridation* (CRD Report No. 18). York: NHS Centre for Reviews and Dissemination, University of York.
- Oakley A and Ashton J (eds.) (1997) *The gift relationship by Richard M Titmuss*. London: LSE Books.
- O'Brien M (1994) *Children's dental health in the UK 1993*. Office of Population Censuses and Surveys, London: HMSO.
- Office of Fair Trading (OFT) (2003) *The private dentistry market in the UK*. London: Office of Fair Trading.
- Office for National Statistics (ONS) (2000) *Adult dental health survey: oral health in the UK 1998*. London: The Stationery Office.
- Oliver A (2002) 'Reforming public sector dentistry in the UK'. *British Journal of Health Care Management*. 8.6: 212-216.
- Renshaw J (2001) 'Access to politics'. *British Dental Journal*. 193.9: 405.

REFERENCES

- 71 Robinson R (2002) 'User charges for health care' in Mossialos E, Dixon A and Figueras J (eds.) *Funding health care: options for Europe*. Buckingham: Open University Press.
- Robinson R and Dixon A (2003) *Completing the course: health policy to 2010*. London: The Fabian Society.
- Robinson R and Steiner A (1998) *Managed health care*. Buckingham: Open University Press.
- Schanschieff S (Chairman) (1984) *Report of the Committee of Inquiry into Unnecessary Dental Treatment*. London: HMSO.
- Sheiham A and Batchelor P (2001) 'Suggestions for developing the British oral health system'. London: University College Medical School (mimeo).
- Sintonen H and Linnosmaa I (2000) 'Economics of dental services' in Culyer A and Newhouse J (eds.) *Handbook of health economics volume 1A*. Elsevier Science.
- Sintonen H and Maljanen T (1995) 'Supplier inducement and price as factors in dental care use: econometric evidence from the Finnish dental market' in Harris A (ed.) *Economics and health*. Proceedings of the 16th Conference of Australian Health Economics. New South Wales: School of Health Service Management.
- Tattersall W (Chairman) (1964) *Report of the Committee on Methods of Remuneration*. London: British Dental Association.
- Taylor-Gooby P, Sylvester S, Calnan M and Manley G (2000). 'Knights, knaves and gnashers: professional values and private dentistry'. *Journal of Social Policy*. 29: 375-395.
- World Health Organisation (2000) *Health systems: improving performance*. Geneva: World Health Organisation.

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