

Securing our Future Health: Taking a Long-Term View

Final Report

Derek Wanless

April 2002

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The Review also commissioned “Health care systems in eight countries: trends and challenges”, a report produced by the London School of Economics and Political Science hub of the European Observatory on Health Care Systems. This document is available on the Review’s website.

LETTER TO THE CHANCELLOR OF THE EXCHEQUER

Dear Chancellor

In March 2001 you asked me to undertake a Review of the long-term trends affecting the health service in the UK. My Final Report is attached. It builds on the Interim Report which I presented to you in November 2001.

The Interim Report showed how far the UK has fallen behind other countries in health outcomes. We have achieved less because we have spent very much less and not spent it well. That shows up in significant shortfalls in our capacity to deliver. We all have an interest in improving the position, as individuals, businesses and communities. The health services sector is so large, it should become a vibrant sector of the economy, providing not only a healthy population and workforce, but also itself contributing to employment and national wealth.

My Interim Report, based on wide-ranging academic research, described the key factors likely to have an impact on the resources required to deliver a high quality health service over the next 20 years – the health needs of the population, rising expectations, technology and medical advance and the use of the workforce and other productivity changes.

Consultation

Since its publication, the Review has received 130 written consultation responses and I have held discussions with more than 400 people from a wide range of organisations. I have met with many who work in health and social care, often at the front-line, and undertaken a series of international visits to gain a better understanding of other countries' systems. The Review also commissioned an international comparison of health systems.

There was broad agreement in the consultation exercise that we had identified the most relevant factors, although it did highlight some additional points. In particular, respondents noted the need for stronger links between health and social care and the importance of health promotion and disease prevention. These issues are considered in the Final Report.

Main influences

In line with the Terms of Reference, my Final Report attempts to quantify *“the financial and other resources required to ensure that the NHS can provide a publicly funded, comprehensive, high quality service available on the basis of clinical need and not ability to pay”*.

The main influences on the resources required are:

- **commitments already made to improve the quality of the health service and its consistency.** The NHS Plan and the National Service Frameworks (NSFs) include many promises, especially reducing waiting times and guaranteeing specific treatments;
- **changing patient and public expectations.** Further enhancements to quality beyond those presently planned and provision of greater choice will be demanded by patients. Other countries, against which the UK's performance will increasingly be compared, will continue to improve their health outcomes and levels of care. Improved quality such as shorter waiting times will itself tend to expand demand;
- **advances in medical technologies,** including pharmaceuticals. Trends towards the end of the 20 year period are particularly uncertain as a major expansion of knowledge in, for example, genetics might have significant practical impact;
- **changing health needs of the population,** including demography. Over the next 20 years, the changing age structure of the population is likely to have a more limited impact than many have assumed on health service spending. Health care needs may decline with improvements in public health but people, especially older people, will demand more from the service;
- **prices** for health services resources, including skilled staff, have historically risen faster than the general level of inflation and there seems every reason for this to continue; and
- the level of **productivity improvement** which can be achieved. Productivity in the health service is difficult to measure but there are many reasons to believe that resources can be used more effectively. Current use of information and communication technology (ICT) is extremely poor, changes in the skill mix of staff can go further and there is significant scope for better management (and less bureaucracy). If more decisions were taken in a holistic way, recognising the inter-relationships between many of the resources in the system, the health service would be more effective. For example, better integration of health and social care for older people could reduce 'bed blocking' to low levels and free up expensive hospital beds for many more patients.

The health service in 2022

My Terms of Reference asked me to determine the resources needed for a high quality service. That, therefore, needs definition and Chapter 2 of the Report describes the Review's vision of such a service in 2022. Patients are at its heart, demanding and receiving safe, high quality treatment, fast access and comfortable accommodation services. It is therefore far ahead of the present health service and a huge challenge to deliver.

The Review has assumed that the current NSFs are delivered as planned and the NSF approach is assumed to be extended across other diseases. Waiting times are reduced, first meeting existing targets and then going better to achieve maximum waiting of two weeks. Health care professionals devote a significantly greater proportion of their time to

clinical governance activities, improving both quality and safety, and there is substantial investment in modernising and rebuilding both hospital and primary care buildings.

Scenarios

We have estimated the costs of meeting this vision over the next 20 years, first 'catching up' with best practice and then ensuring that the UK 'keeps up'. The cost estimates have been produced for three alternative scenarios, set out in detail in Chapter 3. Each delivers the high quality vision but in different ways:

- scenario 1: *solid progress* – people become more engaged in relation to their health. Life expectancy rises considerably, health status improves and people have confidence in the primary care system and use it more appropriately. The health service becomes more responsive, with high rates of technology uptake, extensive use of ICT and more efficient use of resources;
- scenario 2: *slow uptake* – there is no change in the level of public engagement. Life expectancy rises, but by the smallest amount in all three scenarios. The health status of the population is constant or deteriorates. The health service is relatively unresponsive with low rates of technology uptake and low productivity; and
- scenario 3: *fully engaged* – levels of public engagement in relation to their health are high. Life expectancy increases go beyond current forecasts, health status improves dramatically and people are confident in the health system and demand high quality care. The health service is responsive with high rates of technology uptake, particularly in relation to disease prevention. Use of resources is more efficient.

Resource estimates

We developed a detailed model of health service expenditure to project the cost of delivering the health service envisaged for 2022 under each of the scenarios. Chapter 4 of the Final Report describes the model and how it has been used to produce the Review's estimates of resource requirements. Many other scenarios are, of course, possible and could result in very different estimates.

The Review's spending estimates for these three scenarios are summarised in the table below. In the current year, total NHS spending in the UK is expected to be around £68 billion. To deliver the high quality service envisaged, the Review projects that this will rise to between £154 billion and £184 billion by 2022-23 (in 2002-03 prices). Across the 20 year period this implies total NHS spending increasing at an average rate of between 4.2 and 5.1 per cent a year in real terms.

It is beyond the scope of this Review to plot a detailed path from where we are now to where we would be aiming in 2022. But, we have looked at the profile of spending in five year blocks. The fastest period of growth is in the early years, reflecting the need to deliver improvements as quickly as sensibly possible. Over the next five years, UK NHS spending on this basis would grow at an average annual real rate of between 7.1 and 7.3 per cent. The range is small because the cost increases are largely driven by objectives already announced and common to all scenarios. The growth rate eases back in the

second five years, although remaining well above the historic average. During the second decade, as an increasing amount of the 'catch up' spending has been undertaken, growth reduces further to between 2.4 per cent a year in *fully engaged* and 3.5 per cent a year in *slow uptake* in the final five years.

The *slow uptake* scenario is the most expensive but it is also the one based around the worst health outcomes. *Fully engaged* is the least expensive but based around the best outcomes. Higher spending inputs do not necessarily imply better health outputs and outcomes.

On the simple assumption that private health expenditure remains constant at its present level of around 1.2 per cent of GDP, total UK health spending would rise to between 10.6 and 12.5 per cent of national income in 20 years' time.

UK health spending summary

	2002-03 ¹	Projections			
		2007-08	2012-13	2017-18	2022-23
Total health spending (per cent of money GDP)²					
Solid progress	7.7	9.4	10.5	10.9	11.1
Slow uptake	7.7	9.5	11.0	11.9	12.5
Fully engaged	7.7	9.4	10.3	10.6	10.6
Total NHS spending (£ billion, 2002-03 prices)					
Solid progress	68	96	121	141	161
Slow uptake	68	97	127	155	184
Fully engaged	68	96	119	137	154
Average annual real growth in NHS spending (per cent)³					
Solid progress	6.8	7.1	4.7	3.1	2.7
Slow uptake	6.8	7.3	5.6	4.0	3.5
Fully engaged	6.8	7.1	4.4	2.8	2.4

¹ Estimates.

² All figures include 1.2 per cent for private sector health spending.

³ Growth figures are annual averages for the five years up to date shown. (Four years for the period to 2002-03).

The results are very sensitive to the assumptions made about productivity in the model. The sensitivities outlined in Chapter 5 illustrate this clearly. In the *solid progress* scenario, UK health spending is projected to rise to 11.1 per cent of GDP by 2022-23. But if, for example, productivity growth was to be 1 percentage point a year lower than assumed and nothing else changed, the equivalent spending figure would be 13.1 per cent of GDP. Conversely if productivity was to be 1 percentage point a year higher over 20 years, the percentage of GDP devoted to health care, all other things being equal, would be 9.4 per cent by 2022-23. This points to the importance of reform alongside additional investment.

Workforce and capacity

In arriving at resource estimates, we have needed to consider carefully both short-term and long-term capacity issues, particularly in relation to the workforce. To aim for too rapid a rate of activity growth risks hitting capacity constraints and simply driving up costs. However, aiming too low would mean delaying much needed improvements in quality and access.

Some of the projected increase in expenditure required will not impact directly on staff requirements. The projections allow for a substantial and immediate expansion in spending on both ICT and the capital estate. But substantial increases in activity are also needed, for example to implement the NSFs and reduce waiting times. Because it takes time to recruit and train new staff and to change the skill mix among the existing workforce, there is inevitably a short-term limit on the pace at which the service can sensibly expand.

Using a model of the workforce developed with the Department of Health, the Review has assessed the plausibility of our activity projections by comparing the implied workforce demand with projections of workforce supply. Even with planned increases in workforce supply over the next few years, I believe that our projections for UK real terms spending growth of 7.1 to 7.3 per cent a year over the next five years are at the upper end of what should sensibly be spent. Indeed, to be wisely spent, they already represent a very considerable management challenge. The figures incorporate assumptions that the significant workforce expansion planned for the next few years is fully delivered, that ICT spending can be doubled and spent productively and that waiting time and NSF commitments are met.

Beyond the short term, there is scope — if action is taken early — both to increase the numbers and adjust the skill mix of staff further than current plans. This is necessary. The increased activity implied by the projections would result in a substantial increase in demand for health care workers: over the 20 year period, at least two thirds more doctors and up to a third more nurses. Assuming that the existing ambitious plans for expanding the skilled workforce are achieved and that estimates of reductions in average length of stay from the National Beds Inquiry are delivered, then without any other action the model projects a small shortfall of nurses by 2020 but a larger shortfall, around 25,000, of doctors, especially GPs.

We explored the contribution that skill mix changes might make to the potential mismatch between demand and supply over the next 20 years. The estimates in Chapter 5 of the Final Report illustrate how workload might be shifted from doctors to nurse practitioners, and from nurse practitioners to health care assistants (HCAs). That will need to be a significant part of the solution. But there will also need to be an increase in the numbers of doctors and nurses over that already planned. This should be achievable if the current discussions about pay modernisation for GPs, nurses and consultants result in improved recruitment and retention and deliver the flexibility needed for future management of resources.

Social care

My visits, reinforced by many consultation respondents, showed the importance of integrating thinking about health and social care. No review of health care resources would be complete without considering the link between them.

I have, therefore, considered it necessary to go beyond my remit to begin to consider social care; although the Review could not build up detailed projections in the same way as for health care. I recommend that any future reviews should fully integrate modelling and analysis of health and social care. Indeed it is for consideration whether a more immediate study of the trends affecting social care is needed.

As a first step, in the Final Report, I have included projections of personal social services (PSS) spending in England covering spending on the elderly and on adults with mental health problems and physical and learning disabilities. These calculations take account only of the present baseline spend adjusted for population changes and changes in the level of ill health. They show spending rising from £6.4 billion in 2002-03 to between £10.0 billion and £11.0 billion in 2022-23 (in 2002-03 prices). The average annual real growth rate rises over successive periods, from between 2.0 and 2.5 per cent a year in the first five years to between 2.7 and 3.4 per cent a year in the final five years. This confirms the finding in my Interim Report that demographic change and, in particular, the ageing of the population is a more important cost pressure for social care than for health care. These figures do not include estimates of any additional increase in the level of resources required to deliver higher quality in social care or more imaginative planning of the whole of social care. The figures quoted are therefore under-estimates of the additional resources which will be required.

Effective use of resources

Success in achieving a high quality health service will not be guaranteed by spending the amounts of money estimated in this Report. In working through the modelling and absorbing the views expressed in consultation, many issues arose about the way in which resources are currently being used in the health service. Both additional resources and radical reform are vital: neither will succeed without the other.

Chapter 6 of my Final Report sets out a number of observations which I hope will help the debate about how best to use resources. I would differentiate strongly between, on the one hand, issues of local delivery and, on the other, the central role of government in setting standards, regulating health and social care services and establishing those processes which determine how information and money should flow.

As far as standards are concerned:

- in addition to examining newer technologies, the National Institute for Clinical Excellence (NICE), in conjunction with similar bodies in the Devolved Administrations, should examine older technologies and practices which may no longer be appropriate or cost effective;
- the proposed extension of the NSFs to other areas of the NHS is very welcome. NSFs and their equivalents in the Devolved Administrations should be rolled out across the rest of the health service. In future, they should include estimates of the resources – in terms of the staff, equipment and other technologies and subsequent cash needs – necessary for their delivery; and
- a key priority will be to invest effectively in ICT. A major programme will be required to establish the infrastructure and to ensure that common standards are established. Central standards must be set and rigorously applied and the budgets agreed should be ring-fenced and achievements audited.

Evidence-based principles need to be established for public health expenditure decisions. In consultation, the possible benefits of increased investment in health promotion and disease prevention were stressed. As the Review's model illustrates, lifestyle changes such as stopping smoking, increased physical activity and better diet could have a major impact on the required level of health care resources. Given the projected increase in old people

after 2022, as post-war “ baby-boomers” reach old age, the potential benefits could be especially attractive.

The NHS has had many reorganisations over its history, the most recent happening at present with the establishment of 28 Strategic Health Authorities (StHAs) for England. The challenge now must be to ensure that this new structure works effectively and involves a high degree of accountability and public involvement at local level.

The current reorganisation of the NHS is pointed in the direction of decentralisation of delivery to local units. I am convinced that direction is right and that greater local freedom can improve the overall health service significantly. It could develop much further with powerful benefits possible from innovation and experimentation in resource management.

Rigorous and regular independent audit of health spending will be necessary to ensure that all resources are being used efficiently. Incentives for local performance will be necessary but targets should be used with care. The health and social care services are complex and have many objectives which are difficult to aggregate. They do not lend themselves to a small number of targets because of the danger of mis-allocation of resources that would bring. Rather the audit process should examine performance in the round against the wide range of objectives which the central standard-setting process would set.

As the NHS Modernisation Board noted in its recent Annual Report, progress towards the NHS Plan objectives has been variable, and there still remain a number of difficult issues such as waiting times and clinical quality. The balance of health and social care is still skewed too much towards the use of acute hospital beds. More diagnosis and treatment should take place in primary care. There is scope for more self-care. Modernising the NHS needs at least a 10 year programme of change as well as additional resources. Clear signs of progress will be necessary if the health and social services are to command continuing public confidence and support.

The governance of local delivery of health care could usefully include wide community representation, for example, of both patients and the business community. This would be a useful step towards better public engagement, which the Review shows could play a major role in the future stability of the NHS. Better public health programmes as well as the results of independent audits and publicity about local units’ performance should help.

On funding, the majority of those expressing views agreed that the current method of funding the NHS through taxation is relatively efficient and equitable. The Interim Report concluded that the current system is both a fair and efficient one. I remain of that view. The need for equity and to avoid any disruptive change while such a huge process of change is already underway seem to me very persuasive arguments. The way in which the resources are raised to fund health and social care will continue to be an issue for consideration in the light of the UK’s overall economic performance. The important issues, as far as funding is concerned, will be the long-term sustainability of the sources of funding and the confidence with which those responsible for delivery can plan ahead.

On more minor specific issues raised, my own view is that it would be inappropriate to extend out-of-pocket payments for clinical services but there may be some scope to extend charges for non-clinical services. This would potentially help provide more choice for patients. If non-clinical charges are to be considered, then the policy on exemption

from prescription charges could usefully be examined at the same time, as the policy ought to be more clearly aligned with the principles of the NHS.

A list of all my recommendations is included in Chapter 7 of the Report.

Conclusion

The Review flags the need for a very substantial increase in resources for health and social care. This increase could be moderated if the NHS could achieve better productivity than the Review assumes. If the extension of the NSFs to all disease areas costs less than predicted, the increase would also be reduced. If there were to be more success in implementing public health measures then the long-term costs of health care treatment could be limited.

The resource increase envisaged could also be moderated by delivering high quality as defined over a longer period or if it were to be decided that some of the improvements, when considered in detail, did not provide value for money. Information about all these issues should be gathered more systematically in future.

Your decision to establish this independent Review has been widely welcomed. I believe that there should be a further review in approximately five years time to re-assess the future resource requirements. A future review would benefit from a fuller information base and further research in the areas I have indicated. In particular, health inequalities affect the resource requirement for health and social care but knowledge of how socio-economic need and health need are related is incomplete. This is a major area of uncertainty for the future. Subsequent reviews should be able to draw upon the better information, research findings and international knowledge base which I recommend in Annex A.

I am conscious that a thorough analysis of all the issues in the Devolved Administrations was not possible given the data constraints I have outlined. These constraints too should be addressed and any future review of this kind should examine the regional variations within England.

Finally, I would like to express my thanks to all those who have assisted me. The Advisory Group, listed in the Interim Report, gave expert advice. I am also grateful to all those I met and those who sent responses to us but, most of all, to the superb Review team which supported me led extremely ably, before the Interim Report, by Anita Charlesworth, and after it, by Ian Walker.

Thank you for the opportunity to conduct such a stimulating Review. I have sent copies of this letter and the accompanying report to the Prime Minister and to the Secretary of State for Health.

Yours sincerely,

A handwritten signature in black ink that reads "Derek Wanless". The signature is written in a cursive, flowing style.

Derek Wanless

April 2002

- 1.1 The Acts of Parliament which founded the National Health Service (NHS) set out a vision of: “a comprehensive health service designed to secure improvement in the physical and mental health of the people ... and the prevention, diagnosis and treatment of illness”¹. In the half century since, the NHS has established itself as the public service most valued by the people of the UK.
- 1.2 To meet its original vision in future, and to justify the value which people attach to it, the health service requires radical reform.
- 1.3 In July 2000, the Government published the NHS Plan². It defined the core values on which the NHS in England should be based in future and many of the detailed changes needed to “universalise the best”, closing both the unacceptable gaps in performance within the UK and the considerable gaps in performance between the UK and other developed countries. The Plan set out the core principles for the NHS and a framework for delivering these principles over the next decade. Many ambitious goals have been defined.
- 1.4 A commitment to a sustained increase in NHS spending was made in March 2000 to underpin the programme of reform.
- 1.5 Against this background, in March 2001, the Chancellor of the Exchequer commissioned this Review to examine future health trends and the resources required over the next two decades to close the gaps in performance and to deliver the NHS Plan and the vision of the original Acts. The Review’s Terms of Reference are set out in Box 1.1
- 1.6 This is the first time in the history of the NHS that the Government has commissioned such a long-term assessment of the resources required to fund the health service. Making a long-term projection of this kind is, of course, fraught with uncertainty, but there are good reasons for attempting it.
- 1.7 Many decisions about resources need to be made for the long term; for example, the number of people to be trained, the skills they will require, the types of buildings likely to be needed and the information and communication technologies upon which the efficient operation of the system will depend. The whole system, including prevention, diagnosis and treatment, rehabilitation and long-term care must be seen from the perspective of the individual patient, with appropriate structures in place to produce sensible incentives and to direct resources efficiently.

¹ National Health Service Act (England and Wales) 1946, National Health Service Act (Scotland) 1947, Health Services (Northern Ireland) Act 1948.

² Department of Health (2000), The NHS Plan - A plan for investment, a plan for reform, Cmd 4818-1, The Stationery Office, London. The Devolved Administrations produced similar Plans.

Box 1.1: Terms of Reference

1. To examine the technological, demographic and medical trends over the next two decades that may affect the health service in the UK as a whole.
2. In the light of (1), to identify the key factors which will determine the financial and other resources required to ensure that the NHS can provide a publicly funded, comprehensive, high quality service available on the basis of clinical need and not ability to pay.
3. To report to the Chancellor by April 2002, to allow him to consider the possible implications of this analysis for the Government's wider fiscal and economic strategies in the medium term; and to inform decisions in the next public spending Review in 2002.

The report will take account of the devolved nature of health spending in the UK and the Devolved Administrations will be invited to participate in the Review.

- 1.8 It is hoped that this Review will help to contribute towards greater stability in the funding and delivery of health care over the next 20 years. While total health spending has risen on average by 3.9 per cent a year in real terms over the past 40 years, annual changes in real terms have varied substantially – from reductions, to an increase of over 10 per cent. Such instability in funding acts as a serious barrier to long-term planning. Taking a long-term view should also provide the opportunity for more effective management of the health service. Good management requires clarity about the long-term, strategic direction of the service coupled with flexibility to respond decisively and appropriately to changes as they occur.
- 1.9 The Review should also contribute towards greater transparency and better understanding of the costs of providing people with the health service they expect. Filling the serious current gaps in data and research that the Review has identified and which are discussed in Annex A will also help in this respect. Together these should assist in the development of necessary processes to expand public involvement in the difficult issues which are certain to emerge as the next 20 years unfold.

SCOPE OF THE REVIEW

- 1.10 The Chancellor has asked the Review to assess the long-term resource requirements for the health service in the UK. The starting point is the set of principles, for England, established in the NHS Plan and developed in subsequent National Service Frameworks (NSFs).
- 1.11 The Review's Terms of Reference encompass financial and other resources. In making its assessments it has considered both together, in order to verify that the health service has sufficient capacity, particularly in terms of its workforce, to spend its financial resources wisely.

- 1.12 The Review has considered the resource requirements for a publicly funded, comprehensive and high quality health service. Although the Terms of Reference relate to health care, it is clear that social care is inextricably linked to health care. They must be considered together. The Review has therefore attempted to identify and draw out some of the key relationships between the two and, as a first step, sets out illustrative projections of resource requirements for social care for adults (especially older people) based on the present position adjusted for changes in the population and in the level of ill health. However, with the time and resources available, it has not been possible to develop social care projections in the same amount of detail as the projections for health care. Further work is required as part of a 'whole systems' approach to analysing and modelling health and social care.
- 1.13 Public funds are used to commission services not only from the NHS and local authorities but also from private and voluntary organisations. The Review has made no judgement about the relative merits of different forms of public and private delivery; the resource estimates make no assumption about the public/private mix in the delivery of services in 20 years' time.
- 1.14 The Review's Terms of Reference cover the whole of the UK and its resource estimates are presented on this basis, although information and time constraints mean that detailed modelling work has been carried out using data related to England. The Review would like to have considered in more detail how the health trends it has identified may differ between different parts of the UK, but again data and time constraints prevented this. This is discussed further in Chapter 4 and Annex A.

APPROACH OF THE REVIEW

Interim Report

- 1.15 The Review published its Interim Report³ in November 2001. The Overview chapter of that Report is attached as Annex C. The Interim Report outlined the Review's three stage approach:
- Stage one: to understand what patients and the public are likely to expect from a comprehensive, high quality service available on the basis of clinical need and not ability to pay in 20 years' time;
 - Stage two: to map the likely changes in health care needs, technology and medical advance, workforce, pay and productivity; and
 - Stage three: to assess how these changes will affect the resources required to meet patient and public expectations.
- 1.16 The Interim Report considered the first two stages, after assessing how the NHS is performing and where at present it is falling well short of expectations. It sought to identify the key trends which will drive health needs and the resource requirements of meeting them over the next two decades:
- rising patient and public expectations;
 - delivering a 'world-class', high quality service;
 - changing health needs of the population (including demography);
 - technological development and medical advance; and
 - use of the workforce and other productivity changes.
- 1.17 It also set out the factors expected to influence these trends. For example, changes in the number of older people and changes in inequalities among the wider population will impact on health needs.
- 1.18 The Interim Report considered whether the method of financing the NHS was itself a potential driver of total cost. It concluded that the current method by which health care is financed through general taxation is both a fair and efficient one, with no evidence that any alternative financing method to the UK's would deliver a given level of health care at a lower cost to the economy. Indeed, other systems were likely to prove more costly. So continuation of a system of funding broadly similar to that at present was not, in itself, a factor leading to additional resource pressures over the next two decades.
- 1.19 The Interim Report recognised that the UK's overall economic performance was likely to be an important influence on the total resources devoted to health services. The strength of a country's economy tends to be an important determinant of its health spending: countries with a higher GDP (Gross Domestic Product) per capita typically spend more on health care both in absolute terms and as a share of their total income. A relatively stable macroeconomic environment and satisfactory growth will be crucial in

³ Wanless D (2001), Securing our Future Health: Taking a Long-Term View - Interim Report November 2001.
www.hm-treasury.gov.uk/wanless

delivering a high quality health service. The Review assumes that the Government's estimate of the long-term trend rate for GDP growth is achieved.

- 1.20 The Interim Report also outlined the benefits to the economy and society of a high quality health service. For example, research has shown that if average life expectancy could be increased by five years (i.e. to Japanese levels) then GDP in the UK could be between £3 billion and £5 billion a year higher⁴, while it has been estimated that workplace absence cost British business nearly £11 billion in 2000⁵. Indeed, such economic and social benefits were at the heart of the objectives in founding the NHS. Individuals, employers and the Government stood to benefit from the improved levels of national health arising from curing sickness and preventing disease, and were therefore all deemed to have a stake in delivering them. This is still the case today.
- 1.21 The Interim Report did not attempt to estimate the resources required for the health service over the next two decades. Its aim was to set out analysis and views as a basis for widespread consultation.

Consultation

- 1.22 The Review has undertaken a wide range of discussions on the Interim Report throughout the UK. Formal consultation events have been held in England (Leeds, Birmingham and London) and in Scotland, Wales and Northern Ireland. The Review has also been involved in visits to many health care providers. Over 400 people from the NHS and social care organisations, patient groups, academic and private sector organisations have attended meetings held to discuss the Interim Report.
- 1.23 The Review has also visited a number of other countries to discuss the challenges facing their health care systems and the approaches which they adopt to long-term resource planning. In addition to visits to Australia, Canada and the US in advance of the publication of the Interim Report, the Review has visited France, Germany and Sweden and held discussions with those involved in the planning and delivery of health care in the Netherlands. The Review also commissioned a report⁶ from the European Observatory on Health Care Systems to examine the trends and challenges facing the health care systems in eight countries (including the UK). This is being published alongside this Final Report and is available on the Review's website.
- 1.24 In addition, over 130 written consultation responses were received. The individuals and organisations who submitted responses are listed in Annex B. The responses have been analysed and the feedback used to inform the preparation of this Final Report.

⁴ Bloom D and Canning D (2000) Health and Wealth of Nations Science, 18 February; 287: 1207-1209.

⁵ Confederation of British Industry (2001), Pulling Together, May 2001.

⁶ Dixon A and Mossialos E (eds) (2002), Health care systems in eight countries: trends and challenges, European Observatory on Health Care Systems, April 2002.

1.25 The Interim Report was widely welcomed and its findings have been generally endorsed, particularly:

- the identification of the main drivers of health spending;
- the overview of the current position of health services and health outcomes in the UK;
- the analysis of patient and public expectations;
- the main trends affecting high quality health care;
- the discussion of the future workforce and productivity issues; and
- the data on variations in health and health care within the UK.

1.26 People have largely agreed with the Interim Report's findings that:

- patients are expected to want more choice in future and to demand higher quality services;
- while ageing is an important factor, demographic change is not the main factor driving up health care costs;
- improving the use of information and communication technology (ICT) in the health service is a key issue in improving quality and productivity; and
- there is scope for major changes in skill mix and the ways in which professionals work in the health service, including an enhanced role for primary care.

1.27 Two further points were made strongly in the consultation responses, and have been given greater prominence in this Final Report:

- **health promotion:** better public health measures could significantly affect the demand for health care. A number of respondents emphasised that, while much of the beneficial impact might occur beyond the end of the 20-year period, that should not prevent action being taken in the short term. For example, the Institute for Applied Health and Social Policy said, "the one major area of government activity that can, but mainly over the long term, reduce demand for health care and other related services is public health promotion and sickness prevention". Others said that investment in changing people's behaviour now, such as cutting out smoking, improving diet and encouraging more exercise, could significantly improve the population's health status. This would potentially reduce demand and postpone the average age at which health need would become expensive. In response to these comments, the Review has modelled a range of scenarios to explore the possible impact of reduced activity arising from improved public health; and

- **social care:** further sustained investment in social care is vital because of the current difficulties faced by the social care sector. Help the Aged, for example, felt that the Interim Report had under-stated the contribution of social care and that there was a need to invest in social care staff to deliver higher productivity elsewhere in the system. SCOPE said that structural changes were required to develop an integrated health and social care system. Respondents outlined current problems in the social care sector, such as the closure of nursing and social care homes and the continued difficulties with the transfer of patients from hospital to nursing and residential care.

The Review has taken on board these comments by outlining a view of how a more integrated 'whole systems' approach to health and social care could function. The scenarios outlined in Chapter 3 vary in how well this approach is implemented.

- 1.28 A few respondents addressed the method of financing health care, with some suggesting that alternative methods of financing should be considered. For example, BUPA argued that the Government should encourage additional voluntary spending. REFORM said that countries with mixed funding systems are better funded and achieve better outcomes. Respondents argued that the current funding mechanism through taxation was responsible for a lack of resources and dynamism within the NHS. This was particularly because of the way budgets had been set over many years, the absence of appropriate incentives and the inability to reward efficiency and allow individuals to express choices. Chapter 6 discusses the main mechanisms for financing health care and the comments made in consultation.
- 1.29 Some people argued that a more diverse mix of private, public and 'not-for-profit' providers than currently seen in the UK health service would result in greater efficiency and responsiveness. Chapter 6 discusses issues about delivery and the effective use of resources.

Final Report

- 1.30 This Final Report assesses the resources required for the health service over the next two decades - the third stage of the Review's approach - based on the trends and analysis set out in the Interim Report and consideration of the views received in consultation.
- 1.31 There are inevitably many large uncertainties, which the Review has had to accept and incorporate into its estimates. In order to make clear how these have been dealt with, while ensuring that the resource estimates deliver a "publicly funded, comprehensive, high quality service available on the basis of clinical need and not ability to pay", the Final Report sets out:
- a description of its view of **the health service in 2022** (Chapter 2) based on the trends in rising patient and public expectations and what a high quality service might mean; and

- **scenarios** (Chapter 3) to account for a range of possible variations in the changing health needs of the population; technological development and medical advance; and use of the workforce and other productivity gains. These factors will determine the resources required to deliver a high quality service. The scenarios impact in two ways. First, through changing the demand for health care and, second, through changing the cost and configuration of the supply of health care. To illustrate the uncertainty involved, the Review has adopted three scenarios, each combining the trends in a way designed to present a coherent whole and a plausible picture of the future.

MODELLING RESOURCE REQUIREMENTS

- 1.32 The Review has produced its assessment of required resources by developing a detailed model of NHS expenditure incorporating the trends and factors identified. Table 1.1 summarises how these trends and factors fit within the Review's approach outlined above and how they feed into its financial model. The Review has also produced projections covering around 60 per cent of personal social services (PSS) expenditure, on the basis of the present position adjusted for population changes in the level of ill health⁷.
- 1.33 Developing a model of the resources required for health and social care over the next 20 years is a complex task. Aside from the challenges arising from the uncertainties of such a long period and the constraints of data, the size and complexity of, and the interrelationship between, the health and social care sectors present a major challenge. For example, health care accounts for the largest portion of public expenditure after social security, with total UK NHS spending expected to be around £68 billion this year.
- 1.34 The Review's analysis of current expenditure on publicly-funded health and social care provides a breakdown by type of activity: for example, elective inpatient admissions, GP visits, district nurse visits, screening, health promotion and stays in residential homes. Approximately 60 per cent of all current health spending has been further broken down by age and sex of the patient and, where possible, by disease group. This breakdown has allowed two approaches to modelling resource requirements: a life-course approach that uses the age breakdown and a disease-based approach.

⁷ PSS expenditure considered in this Review excludes care for children and families and asylum seekers, much of which is not – strictly speaking – health-related. It includes social care for adults with mental health, learning disability and physical disability needs. A detailed model of long-term care for the over 65s has been provided by the Personal Social Services Research Unit at the London School of Economics and Political Science – this includes both NHS and PSS funded long-term care.

Table I.I: Drivers of health need and cost over the next 20 years

		Type of trend	Factor in model
The health service in 2022		Patient and public expectations	Fast access: reduced waiting times
			Safe and high quality treatment: improved clinical governance
			Better accommodation
		Delivering high quality	CHD Renal National Service Framework (NSF) areas Cancer Diabetes Mental health Extending the NSFs to other areas
Scenarios	Impacting on demand	Changing health needs	Demography Life expectancy Proximity to death
			Health status Health needs in old age Impact of health promotion and disease prevention
			Likelihood of seeking care for a given level of need
	Impacting on supply	Technological development and medical advance	Technology and medical advance, including ICT
		Use of the workforce and productivity	Pay and prices Productivity

1.35 Creating the Review's baseline has involved combining data from a wide range of sources. The majority of the data have been drawn from official Department of Health sources, such as the Hospital Episodes Statistics (HES) database. Other data, for example GP visits, have been drawn from surveys. The Personal Social Services Research Unit (PSSRU) at the London School of Economics has provided the baseline data and projections of long-term care for those aged over 65.

1.36 The Review's modelling has involved four stages:

- projecting expenditure to reflect demographic change, but assuming that age-specific use of care and the quality of care remain constant;
- assessing changes, over and above those implied by demographic change, in the type, level and cost of care that will be required to deal with some of the key disease areas over the next 20 years. The Review has analysed in detail the resource implications of meeting the quality standards set out in the NSFs for coronary heart disease (CHD), cancer, renal disease, mental health and diabetes. Together these disease areas account for around 16 per cent of current health service spending. The Review has then examined the possible cost implications of extending these quality standards to other disease groups by extrapolating on the basis of the resource implications of the five for which these detailed plans exist and by making assumptions about the pace of introduction of future NSFs;
- assessing changes in the age-specific use of different types of care from birth to death over the next 20 years. These result from changes in health status due to health promotion and/or wider changes in education and income levels; and from changes in demand for a given level of need related to public expectations about health status which are partly driven by public awareness about health; and
- incorporating the impact of certain key drivers of health care expenditure that apply to all disease categories and ages. These drivers include factors related to the public's expectations for the health service such as improving access to care, better clinical governance and more comfortable accommodation. Other factors such as technological change and potential productivity gains are included here.

Care has been taken in both combining data sources and in the modelling to avoid double-counting of any effects.

1.37 A more detailed summary of the Review's modelling approach is set out in Chapter 4.

STRUCTURE OF THE REPORT

1.38 The remainder of the Report is structured as follows:

- **Chapter 2** describes the Review's vision of the health service in 20 years' time;
- **Chapter 3** outlines how each of the scenarios considered is expected to impact on this view;
- **Chapter 4** sets out a detailed summary of the Review's modelling approach;
- **Chapter 5** presents the Review's estimates of the resources required over the next 20 years under each of the scenarios;
- **Chapter 6** makes a number of observations about the effective use of resources; and
- **Chapter 7** draws together the conclusions and recommendations made.

Summary

This chapter sets out the Review's vision of a high quality health service in 2022, delivering a high level of clinical standards and meeting the rising expectations of patients and the public. It describes how the Review has gone about defining and estimating the cost of closing the gap between this vision and today's reality.

The Review has identified the following areas which need to be addressed, first to 'catch up' with best practice and then to 'keep up':

- delivering best practice in the five National Service Framework (NSF) disease areas – coronary heart disease (CHD), cancer, renal disease, mental health and diabetes;
- extending the NSF approach to other areas of the NHS over the next 20 years;
- capturing the costs and benefits of increased clinical governance activities;
- assessing the costs of meeting current targets for waiting times and going beyond them; and
- estimating the cost of better accommodation through modernisation of the hospital and primary care estates and improving the quality of hospital food.

The chapter describes the assumptions which have been used in modelling the cost of delivering this high quality vision.

INTRODUCTION

- 2.1 The aim of the Review is to assess the resources required over the next two decades to “ensure the NHS can provide a publicly funded, comprehensive, high quality service available on the basis of clinical need and not ability to pay.”
- 2.2 Such a health service will have two main characteristics. First, it will be delivering high quality clinical standards across the whole of the service. Second, it will meet the rising expectations of those who use and those who pay for the service. The costs of delivering a safe, high quality health service which meets the expectations of patients and the public are at the heart of the Review's projections.
- 2.3 This chapter sets out the Review's vision of a high quality health service in 20 years' time that meets these rising expectations. It draws on the evidence presented in Chapters 7 and 8 of the Interim Report and the subsequent consultation. It sets out how the Review has estimated the resources required to achieve this vision over the next 20 years.

EXPECTATIONS

- 2.4 The ethos of the NHS – comprehensive care available to all – commands universal support. Over 90 per cent of people believe that the NHS should be available free of charge when they need it¹. The Review has assumed that, even though people will expect ever more from the health service over the next 20 years, public support for the values of the NHS will remain firm. Whether this is right will depend on the achievement of both the improvements promised and a general belief that money is being well spent.
- 2.5 The Interim Report outlined what the Review believes patients and the public will expect of the NHS in 2022²:
- safe, high quality treatment;
 - fast access;
 - an integrated, joined-up system;
 - comfortable accommodation services; and
 - a patient-centred service.
- 2.6 The consultation generated a broad consensus that meeting current and future patient expectations will be vital to the future of the NHS. Standard Life Healthcare, for example, felt that the importance of assessing, setting and then meeting consumer expectations cannot be emphasised enough, while the Association of British Insurers agreed that a more patient-centred service and improving patient information will be major drivers of expectations and choice.
- 2.7 Standards of health care in the UK do not currently meet expectations, especially in terms of access and waiting times. The NHS Confederation noted that “the gaps between the public’s expectations of the service and its delivery are widely documented and well understood”. The first priority must be to catch up with current expectations.
- 2.8 Respondents’ focus was not just on meeting individuals’ expectations. Many also emphasised society’s expectations. Glaxo SmithKline argued that the public should take a greater responsibility for their own health care and the NHS Confederation emphasised the importance of maintaining social solidarity.
- 2.9 There was widespread agreement with the Interim Report’s conclusions. In the future, patients and the public will expect better access, higher quality care in comfortable surroundings and a more patient-centred service, including the availability of greater choice. The following sections describe the Review’s vision of the health service in 2022 and then compare it with the reality of the health service today.

¹ ICM (2002), 1,000 adults aged 18+ interviewed between 14 and 15 March 2002.

² See also Annex C to this Report for a summary of the analysis in the Interim Report.

THE HEALTH SERVICE IN 2022

- 2.10 Patients are at the heart of the health service of the future. With access to better information, they are involved fully in decisions – not just about treatment, but also about the prevention and management of illness. The principle of patient and user involvement has become ever more important and the health service has moved beyond an ‘informed consent’ to an ‘informed choice’ approach.
- 2.11 The health service is able to recruit and retain the staff that it requires with the right levels of skills. No longer do chronic shortages among key staff groups act as a constraint on the timely delivery of care. Health care workers are highly valued and well motivated as a result of better working conditions and the opportunity to develop their skills to take on new and more challenging roles for which they are appropriately rewarded.
- 2.12 Modern and integrated information and communication technology (ICT) is being used to full effect, joining up all levels of health and social care and in doing so delivering significant gains in efficiency. Repetitive requests for information are a thing of the past as health care professionals can readily access a patient’s details through their Electronic Health Record. Electronic prescribing of drugs has improved efficiency and safety. Patients book appointments at a time that suits them and not the service.
- 2.13 In this vision, patients receive consistently high quality care wherever and whoever they are. It is appropriate, timely and in the right setting. Different types of care are effectively integrated into a smooth, efficient, hassle-free service. With support from the NHS, people increasingly take responsibility for their own health and well-being. Through media such as the internet and digital TV, people receive more information and interactive advice on the management of their and their family’s health.
- 2.14 When patients need to see their GP, or seek other forms of primary care, they get appointments quickly with staff who are pro-active in identifying what care is required and who is best placed to deal with it. Primary care delivers an increasingly wide range of care, including diagnosis, monitoring and help with recovery. There is a focus on lifestyle, disease prevention and screening. Choices are explained in a clear, jargon-free way. Patients seek more advice from pharmacists who handle routine prescribing and help patients to manage their medication effectively. Current service innovations such as NHS Direct, Walk-in Centres and telemedicine are commonplace, enabling people to receive an initial diagnosis in a variety of settings, moving beyond the traditional visit to the GP surgery.

- 2.15 The majority of general and less specialised medical and surgical care has moved out of large hospitals. Hospitals focus almost solely on specialist treatments. There is a new 'whole systems' relationship between self-care, primary, secondary, tertiary and social care.
- 2.16 Patients who need hospital care wait within reason – weeks not months, days not weeks, hours not days and minutes not hours. They get the best treatments with minimum variability in outcomes, supported by up-to-date and effective use of technology. Treatment is provided in clean, modern surroundings with less than four patients per room in most hospitals. Patients have access to healthy, high quality food at the time they want it.
- 2.17 Social care is no longer a bottleneck preventing the NHS from working well. Patients leave hospital quickly when they are medically fit to do so and are transferred speedily to the most suitable setting. In many instances they will return home. If the need is there, they are supported by health care professionals and paid carers, allowing people to enjoy independent lives in their own homes for longer. They are monitored by regular GP check ups designed to assess their all round needs. If necessary they move to a high quality residential or nursing placement of their choice, or another quality 'intermediate care' setting.

TODAY'S REALITY

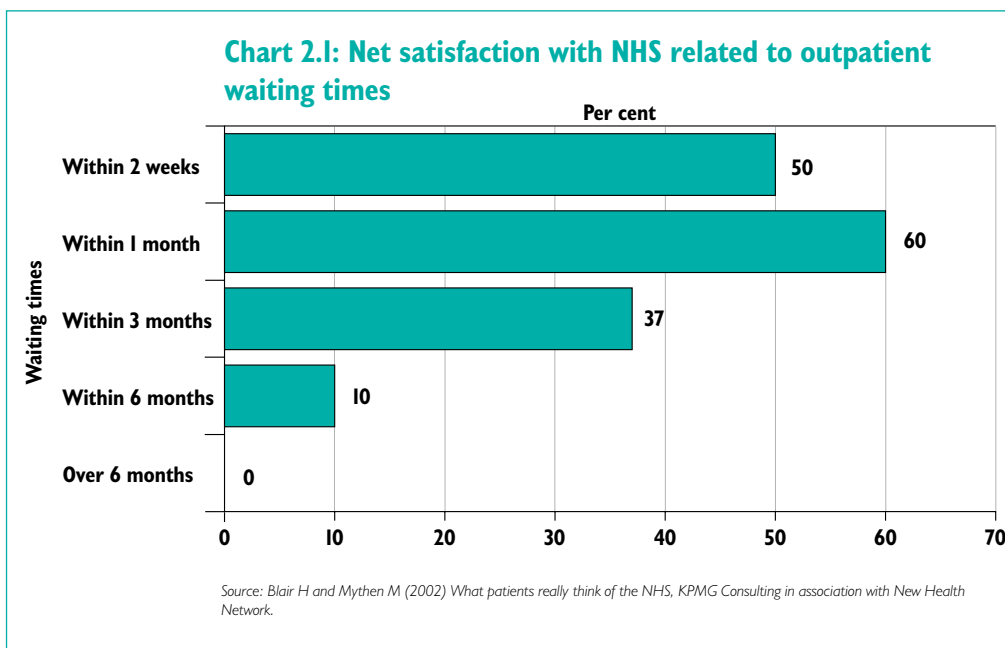
- 2.18 Despite all its problems, satisfaction with today's health service is often high. A recent survey found that 83 per cent of people are satisfied with their GP and recent users are more satisfied than the general public³. While satisfaction with GPs is generally higher than with hospitals, patients are satisfied with the friendliness of hospital staff and the quality of care provided. In 1999, the National Survey of NHS Patients consulted 112,000 patients who had been discharged in 1998 after being diagnosed as suffering from CHD. It found that 83 per cent of hospital patients had confidence and trust in doctors and 79 per cent in nurses⁴.
- 2.19 At the same time, there is undoubtedly a growing gap between expectations and reality. More people think that the overall state of the NHS is bad than good and three quarters think that it has had insufficient investment⁵. Today's reality falls a long way short of tomorrow's vision.

³ Blair H and Mythen M (2002), What patients really think of the NHS, KPMG Consulting in association with New Health Network, MORI surveyed 2,012 adults aged 16+ across Great Britain between 24 and 28 February 2002; Mulligan J and Appleby J (2001), The NHS and Labour's battle for public opinion in Park A, Curtis J, Thompson K, Jarvis L and Bromley C (eds) (2001), British Social Attitudes: 18th Report, Sage, London.

⁴ Department of Health (2000), National Survey of NHS Patients, April 2000. www.doh.gov.uk/public/nhssurveyrs.htm

⁵ ICM (2002), 1,000 adults aged 18+ interviewed 14 and 15 March 2002. 44 per cent said the NHS is in a bad state, 30 per cent in a good state.

2.20 NHS waiting times are a major source of public and patient dissatisfaction. Chart 2.1 suggests that patient satisfaction with the NHS tends to fall as length of wait rises. As at 31 December 2001, there were just over 1 million people in England waiting for admission to hospital, of whom around 30,000 had been waiting for more than 12 months⁶. 24 per cent of UK patients currently wait more than three months for outpatient treatments, compared with virtually no waiting for patients in Germany. There is clearly a long way to go before people only have to 'wait within reason'.



2.21 The health service is not yet sufficiently patient centred. The Interim Report included survey evidence showing that patients commonly feel that they have insufficient involvement in decisions, there is no one to talk to about anxieties and concerns, tests and treatments are not clearly explained, insufficient information is provided to family and friends and there is not enough information about recovery⁷.

2.22 One of the main reasons why people have to wait is that the health service faces significant capacity constraints, in terms of its workforce, its capital estate and infrastructure, reflecting past inadequate investment in the NHS. These capacity constraints severely restrict patient choice. SCOPE noted in its consultation response that there is "limited space for the expression of individual preferences and choice". Box 2.1 considers this further.

⁶ Department of Health (2002), NHS waiting list figures 31 January 2002, press release 2002/0123.

⁷ Coulter A (2001), *Measuring and Improving Patients Experience: How can we make health care systems work for patients?*, Presentation to the OECD Conference Measuring Up: Improving Health Systems Performance in OECD Countries, 5–7 November, www.oecd.org/els/health/canconf/coulter.pdf

Box 2.1: Choice in the health service

Public priorities for the health service are improving safety, increasing capacity and reducing waiting times. But expectations are rising fast and the evidence suggests that people will expect to have more choice in the future.

In some areas choice already exists in the NHS. For example, patients can choose their GP, their hospital for treatment (in consultation with their GP) or how to access the NHS (e.g. choosing, where appropriate, between NHS Direct, NHS Direct On-line, Walk-in centres and GPs).

However, capacity is a pre-requisite for choice; today's severe capacity constraints therefore limit choice in reality. For example, it is difficult to change your GP to one already heavily oversubscribed.

There are some specific initiatives which will facilitate choice. For example, the booked admissions programme should mean that by 2005 every hospital appointment will be booked for the convenience of the patient, making it easier for patients and their GPs to choose the hospital and consultant that best suits their needs.

However, in every health care system, clinical choice is inevitably limited in some way. There are finite resources and decisions have to be made about where these resources should go to ensure value for money and equity.

Nevertheless, over the 20 years of the Review, the substantial increases in capacity that the Review's assumptions deliver should increase the clinical choice available to patients. Whether the NHS can increase choice for non-clinical services and if they should be offered free of charge is considered in further detail in Chapter 6.

- 2.23 The UK has low levels of health care professionals per head of the population compared with many other countries. Progress is being made as a result of the steps outlined in the NHS Plan to increase both the number and skills of the workforce, but many parts of the service still experience significant difficulties in recruiting and retaining the staff they need. This can have serious consequences for patient care, for example, where the use of newly installed equipment for cancer treatment is restricted by a shortage of suitably trained staff. The skills and potential of many health service workers are not being used to the full.
- 2.24 The health service makes very poor use of ICT. There are examples of successful use of ICT at local level, but systems have typically been developed and installed in a piecemeal fashion. This prevents the effective integration and sharing of information across a wide range of health care providers.

- 2.25 The standard of NHS accommodation and food frequently falls below expectations. Around 30 per cent of the NHS estate pre-dates 1948 and there is a cumulative maintenance backlog in excess of £3 billion (see Chart 2.2). It is rare for more than 20 per cent of a hospital's beds to be in single rooms and there are still mixed sex wards of eight or more⁸. 60 per cent of the primary care estate is over 30 years' old and nearly 80 per cent is below the current recommended size⁹. Social care has a similar investment backlog. NHS hospital food is much criticised and despite recent efforts to improve it, spending is significantly lower than the amount spent by private health care providers and there is often little choice for patients about when to eat¹⁰.
- 2.26 The UK has fallen significantly behind other countries over many years, as detailed in Chapter 5 of the Interim Report and summarised in Annex C of this Report. On a wide range of measures, health outcomes in the UK fall well short of those in the best performing countries. The UK currently spends a significantly smaller proportion of its national income on health than comparator countries; has fewer doctors, nurses and other health care professionals per head of the population; and invests significantly less in health care technologies.
- 2.27 As the Interim Report highlighted, a safe system is an integrated system where there are effective links and good communications between different parts of the service and beyond. This was highlighted by many respondents in consultation, who especially pointed to problems in social care impacting on the effectiveness of the NHS.
- 2.28 As illustrated in Chart 6.1 in Chapter 6, the number of places in residential care homes and private nursing homes has been falling in recent years. Various reasons have been given, the most common being rising property prices resulting in buildings being developed for other uses, relatively low fees and the costs of meeting increased regulation.
- 2.29 While some of the reduction may reflect previous over-expansion, it is evident that social care expenditure has failed to keep pace with the growth of NHS spending and figures on 'bed blocking' suggest that there is a genuine capacity problem in the social care sector. Help the Aged says that "limitations in spending on social care have resulted in a failure to develop alternative models of care, leaving only a minimalist service of social and home care despite evidence that shows that such services can greatly reduce dependency in later life." This shortfall must be addressed. The balance between health and social care is considered further in Chapter 6.

⁸ Department of Health and NHS Estates estimates.

⁹ District Valuer sey 1998-99. See in the Departmental of Health (2002), Departmental Investment Strategy, November, www.doh.gov.uk/dis.

¹⁰ McKinsey & Company (2001), *Expectations of the 2020 UK Healthcare system*. Health Trends Review: Proceedings of conference held at the Barbican Centre, London on 18 and 19 October 2001, HM Treasury, November 2001.

CLOSING THE GAP

2.30 The NHS Plan sets out the Government's strategy in England for closing the gap between today's reality and what patients will come to expect over the next decade. The NHS Plan is underpinned by 10 core principles (see Box 2.2). Similar plans have been established by the Devolved Administrations. The Plan, while only covering 10 years, is an attempt to meet many of the issues discussed above. The Review has modelled the resource requirements for the NHS on the belief that the Plan's core principles will remain valid in 20 years' time.

Box 2.2: The NHS Plan

The NHS Plan, published in July 2000, sets out 10 core principles for the health service:

1. The NHS will provide a universal service for all based on clinical need, not ability to pay.
2. The NHS will provide a comprehensive range of services.
3. The NHS will shape its services around the needs and preferences of individual patients, their families and their carers.
4. The NHS will respond to different needs of different populations.
5. The NHS will work continuously to improve quality services and to minimise errors.
6. The NHS will support and value its staff.
7. Public funds for health care will be devoted solely to NHS patients.
8. The NHS will work together with others to ensure a seamless service for patients.
9. The NHS will help keep people healthy and work to reduce health inequalities.
10. The NHS will respect the confidentiality of individual patients and provide open access to information about services, treatment and performance.

2.31 The Plan, like its equivalents in the Devolved Administrations, seeks to "universalise the best" by establishing clinical and wider quality standards for the NHS as well as the framework for delivering this quality.

NATIONAL SERVICE FRAMEWORKS

- 2.32 At the heart of the Plan's quality strategy is the development of National Service Frameworks (NSFs), which set out national standards for 'catching-up' to a high quality, integrated service in key areas. The Department of Health in England has already published or is developing NSFs in the following areas: coronary heart disease (CHD), cancer, renal disease, mental health, diabetes, older people and children. Building on this work, the Review has set out to estimate the cost of delivering world class standards over the next 10 years in the five disease-based NSF areas: CHD, cancer, renal disease, mental health services for adults and diabetes. In some cases this has involved going beyond the standards in the published NSFs and assuming a more ambitious programme of implementation. Scotland, Wales and Northern Ireland have similar clinical priorities to those identified in the NSFs for England, although policies to tackle these priorities may be different.
- 2.33 The Review welcomes the Government's intention to extend the NSF approach to other disease areas and its projections assume that NSFs will be rolled out across the rest of the service in a similar way to the disease areas already covered. The importance of NSFs are discussed further in Chapter 6.
- 2.34 The five NSF disease areas on which the Review has focused¹¹ are important, both in terms of the resources required and their impact on the well being of the population. Collectively they cover around 16 per cent of total NHS expenditure and 12 per cent of morbidity (measured in terms of disability or consulting behaviour), but between 40 and 70 per cent of mortality (depending on the age group considered).
- 2.35 The NSFs aim to reduce health inequalities by improving access to care for those most in need and currently least likely to receive it. A range of sources suggest that, although need for treatment often increases with the level of deprivation, the chances of receiving treatment decrease¹². This so-called inverse care law, as described in the Interim Report, is likely to be the result of people from lower socio-economic groups having less access to care facilities, presenting at a later stage of disease development and being less demanding of medical professionals. Action by the health service alone may not eradicate the inverse care law, but it should contribute to substantial reductions. The NSF for CHD, for example, states that "resources will be targeted at those in greatest need and with the greatest potential to benefit". The expenditure on wider access incorporated into the NSF costings described here will therefore go towards tackling the inverse care law.

¹¹ The Review has not separately estimated the cost of improving quality in the two client group NSFs – older people and children. It would have required more time to fit these into a disease-based modelling approach. However, some if not all of the costs of improving quality in these areas are picked up implicitly in other parts of the modelling work.

¹² For example, see Chart 9.10 in the Interim Report; and MacLeod MCM, Finlayson AR, Pell JP, et al (1999), Geographic, demographic and socio-economic variations in the investigation and management of coronary heart disease in Scotland, *Heart*, 81:252-256.

2.36 Chapter 8 of the Interim Report set out in some detail what improvements would be required to deliver a world class service for each of the five disease areas and also gave provisional estimates of what this might cost. Since then, the Review (with input from the Department of Health) has refined these estimates to identify what it would cost to 'catch up' with best practice in other countries, over and above the impact of demography. (Because the estimates quoted in the following sections do not include population changes, they are lower than the figures presented in Chapter 5 which include the impact of the rising population on the cost of delivering the NSFs.) Improvements in quality have been defined in terms of access, technology and other aspects of quality.

Coronary heart disease (CHD)

2.37 CHD kills more than 110,000 people a year in England (41,000 of whom are under the age of 75). More than 1.4 million people in the UK suffer from angina and around 300,000 suffer a heart attack each year. CHD accounts for around 3 per cent of all hospital admissions in England. The burden of CHD is higher and has fallen by less in the UK than in many other countries, yet CHD is largely preventable.

2.38 The NSF sets standards for every stage of CHD, from primary prevention through to treatment and cardiac rehabilitation. The Review has estimated that to implement the NSF as currently stated and to go further in raising quality in certain areas would cost an additional £2.4 billion a year by 2010-11. This would roughly double existing NHS expenditure on CHD. These costs arise largely from the implementation of recommendations by the National Institute for Clinical Excellence (NICE), revascularisation and the cost of statins (see Box 2.3).

2.39 The health impact of successfully implementing the NSF is very substantial – 40,000 lives a year saved through a reduction in CHD deaths alone¹³.

Cancer

2.40 Deaths from cancer account for 26 per cent of all male deaths and 22 per cent of all female deaths each year. Cancer survival rates are significantly lower than those of other European countries (see for example Charts C.4 and C.5 in Annex C). The Government has pledged that, by 2010, it will cut the cancer death rate by one fifth among people aged under 75.

¹³ Department of Health estimate.

Box 2.3: Statins

A significant part of the cost of improving quality in the treatment and prevention of CHD is new and more effective drug treatments, including statins. The NHS currently spends over £500 million a year on statins and these costs are rising rapidly. Statins help to reduce cholesterol and other risk factors and are already being widely used in the primary and secondary prevention of CHD.

The Review projects a further increase in expenditure on statins from around £700 million in 2002-03 to £2.1 billion by 2010. These projections are highly sensitive to assumptions about how many people currently have heart disease, how many might develop it in the future (which depends on preventative strategies around lifestyle factors such as diet, exercise and smoking), whether people take the drugs they are prescribed and the cost of the drugs (which partly depends on when their patents expire).

The Review has assumed that statins should be made available to all those with at least a 15 per cent risk of developing CHD over the next 10 years, and that a compliance rate of 80 per cent is achieved. This is consistent with the latest evidence on cost effectiveness and goes beyond the standards set out in the original NSF, where a 30 per cent risk threshold was assumed. The Review has also allowed for some offsetting impact on costs in future resulting from both reduced prevalence of smoking (see Chapter 3) and the impact of statins in preventing hospital admissions for CHD. It has been assumed that all statin patents expire by 2010 and that this results in price reductions of around 50 per cent as a result of competition. 75 per cent of those on statins are assumed to switch to generic alternatives.

Although statins play a key role in managing the risk of CHD for those who are considered to be at risk, it is lifestyle choices around diet and smoking that create this risk in the first place. US estimates suggest that high cholesterol, which is due mainly to diet, accounts for 43 per cent of CHD and smoking accounts for a little over 20 per cent¹⁴. In absolute cost terms, the NHS currently spends around ten times as much on statins as it does on smoking cessation programmes. In cost effectiveness terms, smoking cessation has been estimated to cost between £212 and £873 per quality-adjusted life year (QALY)¹⁵ compared to a range of £4,000 to £8,000 per QALY for statins.

The link between statins and smoking demonstrates the importance of taking a 'whole systems' approach to health care: the need to strike the right balance between focusing on prevention and treatment and recognising how the focus on one may affect the cost of the other. So good progress in reducing smoking prevalence would have a beneficial impact on the use and cost of statins in the service. These interactions are explored in the scenarios described in Chapter 3 of this Report.

¹⁴ McPherson K, Britton A and Caser L (forthcoming), Monitoring the progress of the 2010 target for coronary heart disease mortality: estimated consequences on CHD incidence and mortality from changing prevalence of risk factors, A report for the Chief Medical Officer, The Stationery Office.

¹⁵ The quality adjusted life year (QALY) is a measure of the health gain from an intervention. An intervention can produce QALYs by extending life expectancy or improving the quality of life or both.

- 2.41 The NHS Cancer Plan aims to match England with the best European standards through extending screening, employing more specialists, investing in palliative care and tackling health inequalities – particularly by reducing smoking prevalence. In the short term, it aims to ensure that by 2005 no one waits for more than two months from urgent referral for suspected cancer to the beginning of treatment. In the health service of 2022, these waiting times will need to be much lower if the treatment of cancer is to match the best in the world.
- 2.42 The Review has estimated that to deliver the standards set out in the Cancer Plan would require the NHS to spend an additional £1 billion a year by 2005–06 in resource terms. This compares with existing spending on cancer services of around £2.5 billion a year. In cash terms, the additional outlay required would be £1.3 billion a year because of the capital costs of improving equipment for diagnosis and treatment. This would deliver improvements in screening, equipment for diagnosis and treatment, better drugs, faster access to treatment and improved support and community care.

Renal disease

- 2.43 The number of patients in England being treated for end-stage renal failure (ESRF) has risen by 35 per cent in five years, with the level of incidence highest among the elderly. ESRF is fatal in a few months if not treated. The UK compares relatively favourably with other European countries on transplant rates, but less well on rates for renal dialysis. The NSF aims to close this gap.
- 2.44 It is estimated that it will cost an extra £370 million a year to implement the NSF by 2010-11, on top of current spending of £445 million a year. This will be a result of several technological improvements in haemodialysis and developments in primary and palliative care, which are likely to be the major cost drivers by the time the NSF is fully implemented.

Mental health

- 2.45 At any time, one in six adults has a mental health problem such as anxiety or depression, although less than 2 per cent of the population suffers from severe mental illness. Suicide is now the most common cause of death among those under 35¹⁶.
- 2.46 Adult mental health (covering those under the age of 65) was the first fully-fledged NSF to be published. Its implementation will involve increasing preventative interventions in primary care or in the community, increasing uptake of drugs such as atypical antipsychotics, a significant increase in the number of staff and addressing past under-investment in capital. The additional annual cost of implementing the NSF for mental health is estimated to be £3.1 billion a year by 2010-11, roughly doubling existing spending on mental health services for adults.

¹⁶ Quoted by Professor Louis Appleby, National Director of Mental Health, in response to the consultation.

- 2.47 Chapter 8 of the Interim Report set out how this extra cost could be offset by savings from reductions in the costs of mental illness and crime.

Diabetes

- 2.48 An estimated 3 to 5 per cent of the adult population has diagnosed diabetes, a group of chronic disorders which involve a raised level of blood glucose and increase the risk of heart disease and kidney failure. This number is expected to rise, not least because there is thought to be significant current under-diagnosis, with estimates of the number of people unaware they have the disease ranging from 600,000 to 1 million.
- 2.49 The resulting cost to the NHS is currently around £1.3 billion a year, with most of this cost arising from the long-term complications resulting from diabetes not being managed properly. The NSF for diabetes aims to reduce the risk of complications, particularly through improving the integration of care.
- 2.50 The Review has estimated that it would cost an additional £600 million a year to implement the diabetes NSF and provide a world class service by 2010-11. This assumes a moderate increase in diagnosed prevalence of diabetes. The additional costs are primarily a result of expanded programmes to manage diabetes complications and increase optimal glucose control. This financial cost, however, is partly offset by a reduction in hospital admissions of those with complications from diabetes. Assuming that the improved standards of quality in the NSF are fully implemented, this could save the health service over £200 million a year in 10 years' time.
- 2.51 The long-term cost of the NSF will, however, be substantially affected by the success of public health policies, for example, in tackling obesity. Obesity is a key factor causing diabetes and is currently rising, especially among children. The impact of developing a greater role for public health and details of how the Review has modelled the impact is discussed in Chapter 3.
- 2.52 Box 6.3 in Chapter 6 considers diabetes as a case study in a 'whole systems' approach to health care.

Bringing together the five disease-based NSFs

- 2.53 The estimates summarised above suggest that delivering best practice in these five disease areas will add between 5 and 9 per cent a year in real terms to the cost of treating these diseases. Weighted by their shares of expenditure, this represents an average real terms increase of approaching 8 per cent a year. This is equivalent in total across the five disease areas to an additional £7.5 billion a year in NHS spending by 2010-11 (excluding additional spending beyond 2005-06 for cancer). The estimates are summarised in Table 2.1 below.

2.54 The cost of catch up can be broadly split between the costs associated with wider access (over and above general waiting times), greater uptake of technology and higher quality. The Review's estimates indicate that on average across these five specific areas (weighted according to expenditure shares), technology accounts for around 3 percentage points of the increase and access and quality around 2½ percentage points each.

Table 2.1: Implementing the NSFs

	CHD	Cancer	Renal	Mental health	Diabetes
2002-03					
Spending (£ billion)	2.4	2.5	0.4	3.3	1.3
2010-11¹					
Additional annual spending (£ billion)	2.4	1.0	0.4	3.1	0.6
Total annual spending (£ billion)	4.8	3.4	0.8	6.4	1.9
Average annual estimated growth 2002-03 to 2010-11 (per cent)	8.9	6.2 ²	7.9	8.8	5.3

¹ Cancer figures are to 2005-06.

² Comprises growth of 11.5 per cent a year to 2005-06 and a 3 per cent 'keep up' assumption thereafter.

EXTENDING THE APPROACH TO OTHER DISEASE AREAS

2.55 Ideally the Review would have applied this same disease-based approach to estimating the resource implications of meeting similarly high standards in other disease areas. As further NSFs are developed, that will be possible, but at present it is difficult to project the potential costs of delivering high quality in areas for which NSFs are yet to be designed. The Review has therefore had to make some broad assumptions in order to generalise from the current NSF areas to other diseases. These assumptions are critical to understanding the likely overall cost to the health service of improving quality to internationally comparable standards.

2.56 As a first step, the Review has attempted to extrapolate the costs of improving access, technology and quality in the existing NSF areas to other specific diseases, under varying assumptions.

2.57 Although sensitive to the detailed assumptions made, the estimates suggest that, for these disease areas, spending might typically have to increase by 6 to 8 per cent a year in real terms over a period of 10 years to deliver high quality. For modelling purposes, the Review has used a central figure of 7 per cent. An important assumption in this approach is that, on average, other disease areas lag behind internationally comparable standards to a similar extent to the five disease areas discussed above. In the absence of a detailed NSF-type analysis it is difficult to establish conclusively that this is the case, but there seems little reason to believe that there are not similar shortfalls across the NHS.

- 2.58 The uptake of technology is assumed to contribute 3 percentage points a year to the growth rate over the 10 year period, while improved access and better overall quality each contribute 2 percentage points to the 7 per cent total. These figures are broadly in line with average estimated contributions of technology, access and quality in the five existing disease areas.
- 2.59 The Review has also had to make an assumption about how quickly standards might realistically be improved across these other disease areas. The Review, following advice from the Department of Health, has assumed that additional NSFs are rolled out across other disease areas in phases, at an average rate of two additional NSFs each year, ensuring complete coverage over the two decades of the Review period.
- 2.60 However, extending this disease-based approach to other areas cannot provide a complete assessment of the resources required to deliver the Review's vision. In particular:
- the NSFs only cover a 10 year period. A view must be taken about what resources will be required beyond the implementation period for each NSF to 'keep up' – to ensure that the NHS maintains high standards in an environment where what is medically possible and what patients expect is continually evolving; and
 - the NSFs could be delivered without meeting fully the expectations of the public and patients as there are other aspects to quality not covered by NSFs.
- 2.61 The Review has assessed the impact of delivering some of the broader components of high quality beyond the NSFs and meeting a number of the key patient expectations: safe and high quality care, fast access and better accommodation. These are considered below. The cost of 'keep up' in terms of the uptake of technology is discussed in Chapter 3.

Safe and high quality treatment: clinical governance

- 2.62 The central element of the NHS Plan's quality focus is an improvement in clinical governance: a range of structures and schemes which aim to ensure that the NHS continually improves the quality of the health care it provides. The Review has assessed both the financial costs and benefits of such an improvement.
- 2.63 The Review has accounted for the financial costs by estimating the impact of increasing the amount of 'protected time' which staff devote to clinical governance. The Interim Report included estimates that medical staff in hospitals and primary care currently devote around 5 per cent of their time to clinical governance, while for nursing staff in hospitals and primary care and other professional staff the figure is currently around 2 per cent.

- 2.64 The Review has assumed that all health service staff will need to devote 10 per cent of their time to clinical governance by 2010-11, if its full benefits are to be realised. This assumption was supported in consultation by the Academy of Medical Royal Colleges which noted that “the pace of scientific advances, the fast changing expectations of patients, and the ever changing structure of the NHS itself, all have implications for doctors working in the service. The Academy is therefore pleased to support the proposal that in future planning the doctors should be freed from immediate service work for 10 per cent of their time to devote to quality assurance work including CPD (continual professional development) and clinical governance”.
- 2.65 The costs have been accounted for in the Review’s model through higher workforce unit costs, arising from the additional staff required to deliver the same level of care as a result of more time being devoted to quality improvement. The Department of Health has estimated that these higher unit costs equate in total to an additional £2.9 billion a year in staff costs up to 2010-11¹⁷.
- 2.66 The Interim Report proposed to account for the financial benefits of improved clinical governance through the ‘price of non-conformance’, which measures the cost to the NHS of not providing care to the required standard at the first attempt.
- 2.67 The Review has concluded following consultation that using the price of ‘non-conformance’ to capture the benefits of clinical governance would constitute double counting with the Review’s wider estimates of the potential scope for productivity improvements (see Chapter 3). The Review has, however, maintained the assumption that the benefits of introducing clinical governance will start to come through after five years in attempting to quantify the effect of quality improvements in four specific areas:
- a reduction of 15 per cent in hospital acquired infections (HAIs) in acute care by 2012-13, equivalent to around 100,000 admissions at 2000-01 levels. This reduction is based on what was considered feasible by the National Audit Office in a recent report on HAIs¹⁸. Achieving this reduction could lead to a fall of 2.8 per cent in all inpatient activity, saving around £300 million a year (in 2000-01 prices);

¹⁷ These estimates are based on staff costs from: Cooley R E, Slight A, Netten A, Knight J and Dennett J (1998), A ‘Ready Reckoner’ for Staff Costs in the NHS, Volume I, Estimated Costs, PSSRU, University of Kent, Canterbury, Kent, December 1998.

¹⁸ National Audit Office (2000), The Management and Control of Hospital Acquired Infection in Acute NHS Trusts in England, The Stationery Office, London. The NAO calculations are based upon Plowman R, Craves N, Griffin M, Roberts J, Swan A, Cookson B and Taylor L (2000), The socio economic burden of hospital acquired infection, Public Health Laboratory Service, London. See www.nao.gov.uk/publications/nao_reports/9900230.pdf.

- a reduction of 10 per cent in other adverse incidents in acute care, such as preventable medication errors, also by 2012-13. Such a reduction could lead to a fall of around 0.6 per cent a year in inpatient activity on top of that as a result of reduced HAIs, saving around £70 million a year – £50 million of which would be as a result of reduced medication errors¹⁹;
- a significant improvement in avoidable emergency admissions in the worst performing 25 per cent of Health Authorities on this measure by 2012-13. Raising the performance of these to the level of the next worst performing 25 per cent would avoid around 120,000 admissions each year, saving £220 million a year (in 2000-01 prices)²⁰; and
- potential reductions in the clinical negligence bill resulting from reductions in the number of negligent incidents in obstetrics and gynaecology by 25 per cent by 2005²¹, and assuming that the reduction in the number of adverse events by 10 per cent implies an equivalent reductions in the number of negligent incidents. The Department of Health estimates that by 2012-13 this could save around £225 million a year.

2.68 The Review recognises that the costs and benefits accounted for above will not represent the full range of potential costs and benefits of improved clinical governance. It agrees with the Department of Health that the costs associated with improving protected time is just one element of the clinical governance agenda for improving quality, albeit an important one. However, other aspects of the Review such as improvements in ICT and the NSF standards will indirectly capture other elements of clinical governance, such as clinical audit, clinical effectiveness and research data, risk management processes and effective information systems.

2.69 It is also possible to identify a range of other improvements associated with the effective implementation of a system of clinical governance, such as improving the number of generic drugs prescribed, reducing the number of readmissions in secondary care and a reduction in inappropriate prescribing in primary care. However, data limitations and the fact, in some instances, that evidence is mixed as to whether such measures do indeed capture quality improvement has meant that the Review has limited its focus to the four areas discussed above.

2.70 In addition to the cost savings associated with clinical governance, the Review has also attempted to capture the direct benefits to patients. It has been estimated that the direct quality improvements accounted for by the Review could contribute to saving over 12,000 lives a year by 2012-13²².

¹⁹ These estimates were supplied by the Department of Health and are based upon Department of Health (2000), *An Organisation with a Memory*, The Stationary Office, London. The report draws on the study documented in Vincent C, Neale G and Woloshynowych M (2001), *Adverse events in British hospitals: preliminary retrospective record review*, *British Medical Journal*, 322: 517-519.

²⁰ Based on estimates from Performance Assessment Framework (2000-01).

²¹ Department of Health (2000), *An Organisation with a Memory*, The Stationery Office, London.

²² The Department of Health estimates 9,600 fewer deaths from reduced HAI (based on Plowman et al (2000)) and 2,600 fewer deaths from reduced adverse events (excluding HAI; based on Vincent et al (2001)). It should be stressed that these estimates do not mean that HAI and adverse events cause death, but rather that having an HAI increases the probability that someone is likely to die. The actual cause of death is likely to be different.

Fast access

- 2.71 The length of time patients currently wait is a major source of public concern. The Review has taken account of expectations of fast access in two stages. First, by assessing the likely impact on activity of meeting the reduced waiting times targets outlined in the NHS Plan; and second – in line with expectations of only ‘waiting within reason’ – achieving further reductions in the long term. The waiting time assumptions, which form the basis of the Review’s cost estimates, are set out in Table 2.2.

Table 2.2: Reducing waiting times in hospital²³

	Maximum inpatient waiting time	Maximum outpatient waiting time (excludes cancer)
Today	15 months	6 months
2005-06	6 months, with all admissions booked	3 months
2008-09	3 months	3 months
2022–23	2 weeks	2 weeks

- 2.72 The Review’s analysis has focused mainly on the cost of reducing hospital waiting times for elective surgery. There will also be significant resource implications of improving access in primary care and delivering more responsive emergency services but in the time available the Review has not been able to account for these.
- 2.73 In modelling the likely costs of reducing waiting times for surgery, two alternative approaches have been considered. First, the Department of Health’s own model and standard queuing theory results have been used to simulate the impact of delivering a maximum waiting time of two weeks by the end of the Review period. However, this model was not designed with such long-term projections in mind. Second, the Review has examined the cost of increasing activity to levels where treatment rates in the UK would be similar to those in countries such as France where waiting times are very low. There are, however, difficulties in comparing the available data on treatment rates across countries. The Review has adopted a straightforward assumption that procedure rates (per head of the population) in England for most surgical interventions would have to double in order to match the best performing comparator countries.
- 2.74 The results of such analysis are highly sensitive to different assumptions and thus a range of different projections are possible. As a central estimate, the Review has concluded that it is reasonable to assume that waiting times could be reduced to very low levels if the health service were to deliver increases of around 5 to 6 per cent a year in the number of inpatients treated over the next five years, and increases averaging 3 to 4 per cent a year for the remainder of the 20 year period. But the degree of uncertainty involved is large.

²³ NHS Plan targets and the Review’s future vision.

2.75 What is absolutely clear is that additional activity will not be enough on its own. Service redesign, improvements in information, better management of referrals and changes in incentives must accompany it. The Review recognises the important changes already underway in this respect, including the booked admissions programme and the collaborative programmes, run by the NHS Modernisation Agency. They attempt to help clinical teams work together to review their services, learn from others and develop new ways of working²³. For example, such collaboratives have reduced the duplication of work (such as blood tests and scans) and cut down the number of appointments patients are required to attend, reducing waiting times in the process.

Better accommodation

2.76 The Interim Report described the main cost drivers in raising the quality of NHS accommodation to meet patient expectations over the next 20 years. These were the need for new hospitals and the modernisation of the NHS estate, reducing hospital room sizes to four beds or fewer and improving the quality of hospital food.

2.77 The NHS currently provides around 300 million meals a year, at a cost of around £500 million a year. McKinsey and Company reported that while the NHS currently spends around £2.50 per person per day, hospitals in Germany spend £4.10 and BUPA currently spends £5 a day²⁵. The Review has extrapolated to 2022-23 the McKinsey projections of how much the average person is likely to spend on food over the next five years. It has assumed that in 20 years' time the NHS will be spending around £4.80 per person per day on food (in 2002-03 prices). This would raise the amount the NHS spends on food to around £1 billion a year by 2022, double the current level.

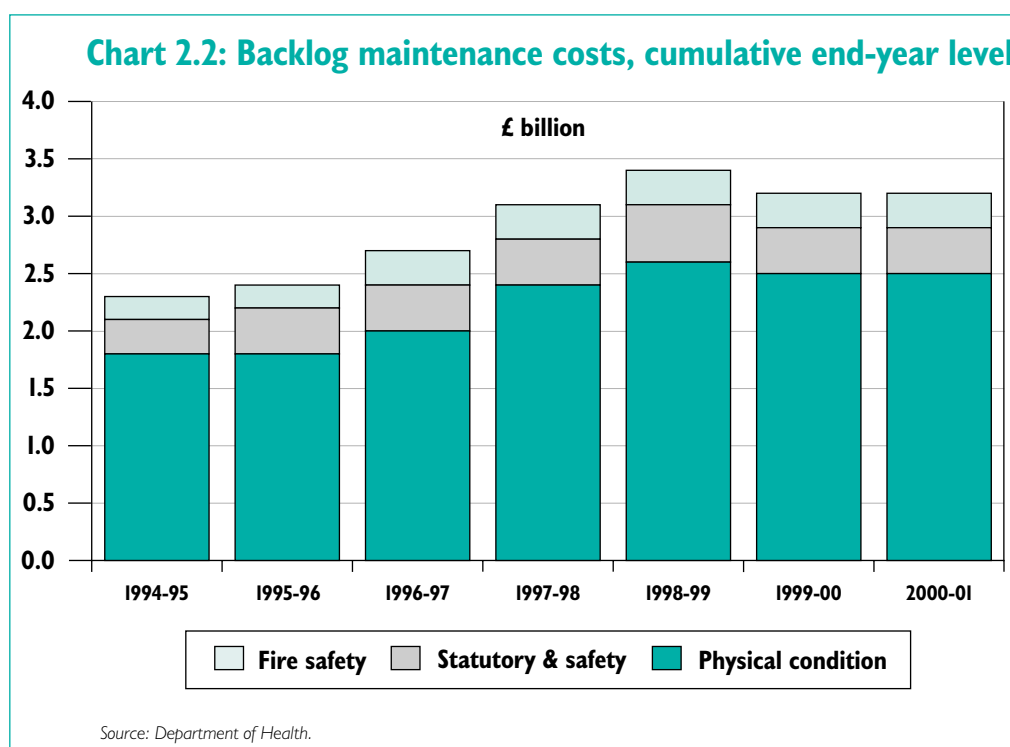
2.78 As described earlier in this chapter, the NHS estate is in urgent need of modernisation. In many cases the poor state of buildings undoubtedly impacts not only on the comfort of patients and staff but also on the quality of care delivered. This is unacceptable. It reflects the past failure to rebuild or substantially refit buildings at the appropriate time.

²⁴ Department of Health (2001), The NHS Modernisation Board's Annual Report 2000-2001, The Stationery Office, London. www.doh.gov.uk/modernisationboardreport

²⁵ McKinsey & Company (2001), Expectations of the 2020 UK Healthcare system, Health Trends Review: Proceedings of conference held at the Barbican Centre, London on 18 and 19 October 2001, HM Treasury, November 2001.

2.79 The Review has assessed the annual resource costs²⁶ to the NHS of modernising its estate, based on the following assumptions:

- over the next 20 years, one third of the hospital and community health services (HCHS) estate will be replaced, with those buildings with most maintenance backlog being replaced first (see Chart 2.2 which shows cumulative, end-year levels of backlog maintenance in current prices);
- equipment (excluding ICT) is replaced every eight years;
- in new hospitals, 75 per cent of beds are in single en-suite rooms and the maximum number of beds per room is four; and
- the entire primary care estate will be upgraded or replaced over the next 10 years.



2.80 The cost of replacing the HCHS estate is estimated at £1,650 per square metre, compared to £1,500 for the standard described in the NHS Plan or for a private hospital. The difference with the private hospital figure is principally due to the higher engineering costs associated with the more complex emergency care administered in NHS hospitals. The increase on the NHS Plan building estimates mainly reflects the cost of reducing room sizes to four beds or fewer²⁷. The extra space that will be needed for the en-suite rooms and associated equipment increases the replacement costs of a new hospital by approximately 15 per cent.

²⁶ Capital charges include an accounting charge for the cost of using capital at 6 per cent and depreciation.

²⁷ It is estimated that to convert a ward to 50 per cent single rooms costs an average of £300,000 per ward, plus the additional cost of new wards at over £30 million each to re-provide beds lost in the conversion. Depending on the ward design, as many as one new ward may be required for every four converted. This implies a service-wide cost of around £5.5 billion. This would effectively mean renovating the whole of the capital estate over the next 20 years, which the Review does not believe would represent value for money. The Review has therefore assumed that this standard will be achieved as part of the wider modernisation of the estate.

2.81 The NHS has not replaced and refurbished its assets at an appropriate rate. The Review has estimated the additional resource costs to the health service (in the form of capital charges) by 2012-13 of achieving an age profile for the HCHS estate consistent with an average age of 30 years. Thereafter, it is assumed that the estate is replaced at the required rate each year in order to maintain this age profile. All the replacement or refurbished buildings are assumed to be of the higher specification outlined above. This is estimated to add around £700 million a year to NHS capital charges, on top of current spending of £2.5 billion²⁸. Further details are provided in Box 5.2 in Chapter 5.

2.82 It is more difficult to be certain about the condition of the primary care estate, because of the position of GPs as independent contractors. A survey by the District Valuer in 1998-99 suggested that:

- nearly 80 per cent of primary care premises are below the current recommended size. Only around 40 per cent are purpose built. Almost half are either adapted residential buildings or converted shops – and over 60 per cent are over 30 years old;
- a fifth of premises are in the private rented sector, almost two thirds are owner occupied and the remainder are health centres, owned by NHS trusts or Primary Care Trusts (PCTs); and
- although most surgeries are located within a quarter of a mile of a pharmacy, less than 5 per cent of premises are co-located with a pharmacy and around the same proportion are co-located with social services.

Overall the quality of the primary care estate and the range of services provided varies markedly from area to area. In particular, the most deprived areas tend to have the worst primary care facilities.

2.83 Current plans assume that two thirds of the primary care estate will be upgraded or replaced by 2006, generally using private finance in line with current practice. The Review has gone further by assuming that the entire primary care estate will have been modernised by 2010-11. To gauge the maximum cost and assuming that it costs on average £560,000 to replace a unit, the cost of upgrading or replacing all 10,500 primary care premises over the next decade would be £5.9 billion, corresponding to an annual revenue cost of around £550 million by 2010-11. This compares with a current figure of around £320 million.

²⁸ This is higher than the estimated £435 million discussed in the Interim Report because of the assumed 15 per cent higher replacement costs and the rate at which assets are replaced.

2.84 It is even more difficult to ascertain the condition of the social care estate as it is largely within the private sector. The estimated value of the social care estate is £13.3 billion (of which only £3.3 billion is in the public sector)²⁹. The Review has not included estimates of the cost of modernising the social care estate, as the majority of it is owned by the voluntary and private sectors. It appears certain, however, that such costs would be substantial.

CONCLUSION

2.85 This chapter has defined a broad vision of the health service in 2022 and the costs which might be associated with delivering its high quality and meeting rising expectations. But there are many other factors which will impact on the health service over the next 20 years and affect the cost of delivery. Chapter 3 describes these factors and how the Review has incorporated them into different scenarios. The definition of the vision of the health service in 2022 set out in this chapter is common to each scenario, but the cost of delivering it, the way in which it is delivered and the health outcomes achieved will differ.

²⁹ Price Waterhouse Coopers (PWC) estimates for the Department of Health.

Summary

The resources required to deliver a high quality service will depend on the health needs and demands of the population, technological developments, workforce issues and productivity. As there is uncertainty around how these additional cost drivers will change, the Review has built up three scenarios:

- **solid progress** – people become more engaged in relation to their health: life expectancy rises considerably, health status improves and people have confidence in the primary care system and use it more appropriately. The health service is responsive with high rates of technology uptake and a more efficient use of resources;
- **slow uptake** – there is no change in the level of public engagement: life expectancy rises by the lowest amount in all three scenarios and the health status of the population is constant or deteriorates. The health service is relatively unresponsive with low rates of technology uptake and low productivity; and
- **fully engaged** – levels of public engagement in relation to their health are high: life expectancy increases go beyond current forecasts, health status improves dramatically and people are confident in the health system and demand high quality care. The health service is responsive with high rates of technology uptake, particularly in relation to disease prevention. Use of resources is more efficient.

The Review's assumptions about pay, prices and the configuration of the workforce are also discussed. These are common across all scenarios.

INTRODUCTION

- 3.1 The previous chapter set out a vision of the health service in 20 years' time based on rising patient and public expectations and the definition of a high quality service. The resources required to deliver such a service will also depend on the other main drivers of cost: the changing health needs and demands of the population, technological developments and medical advance, the use of the workforce and productivity.
- 3.2 There is significant uncertainty around how each of these will develop over the next 20 years. To reflect this uncertainty, the Review has built up assumptions about the possible impact in the form of three scenarios, described in detail in this chapter, which are intended to capture a range of possible futures:
 - Scenario 1: *solid progress*;
 - Scenario 2: *slow uptake*; and
 - Scenario 3: *fully engaged*.

- 3.3 Each scenario seeks to bring together the various drivers of cost in a coherent way, to provide three plausible views of how they might impact on the use and delivery of the health service in 20 years' time. Each of the scenarios is possible, as indeed are many others. They are not forecasts and are deliberately not intended to encompass the full range of possibilities for either resource requirements, health-related behaviour or final health outcomes.
- 3.4 The three scenarios also aim to capture some of the main themes which the Review believes will be significant in helping to achieve better health outcomes over the next 20 years; in particular, the extent to which resources are used effectively and the public engage with their own health care.

Box 3.1: Scenario planning

Scenario planning exercises are used in many large organisations to build understanding of what the impact of different possible futures might be. By identifying the distinctive competencies of the organisation and the environmental influences and drivers, plausible scenarios of possible futures can be constructed. The result is a small set of internally consistent, but substantively different, scenarios which can be considered alongside each other – to assess the range of likely pressures on an organisation and to illuminate the future and better understand the key uncertainties.

- 3.5 The future health needs and demands of the population will depend on:
- changes in the **age structure** of the population, particularly the extent to which life expectancy continues to rise and the number of older people increases;
 - changes in the **health status** of the population, particularly the extent to which improvements in life expectancy are accompanied by improvements in healthy life expectancy. The levels of ill health (particularly among elderly people) are key determinants of health care use. Initiatives to improve public health and reduce health inequalities could result in reduced incidence of key diseases such as coronary heart disease and stroke across all age groups, but particularly those aged under 65; and
 - changes in the **likelihood of people seeking health care** for a given level of need. Higher levels of education and income and greater public engagement in health issues could result in greater demands, even if underlying health needs remain constant.
- 3.6 There are also several key factors which will impact on the cost and configuration of the supply of health care over the next 20 years:
- the rate of spending on **technology and medical advance**, including drugs, equipment and information and communication technology (ICT);
 - changes in the pay and productivity of the **health service workforce** and, in particular, developments in skill mix; and

- wider **productivity** gains through the more effective use of all the health service's resources.

SCENARIO SUMMARIES

- 3.7 The descriptions of the scenarios below highlight the effects which the Review has attempted to capture. In some cases this is through a well-evidenced direct impact on levels of activity in the service or the costs of delivering the service. In other cases, existing evidence has been used to approximate the likely impacts on future expenditure. Across the scenarios, different assumptions have been made about possible future health outcomes, health seeking behaviour, technological development and productivity. Details of the assumptions made are described later in this chapter.
- 3.8 All three scenarios assume investment of the core resources required for the delivery of the high quality service outlined in the previous chapter. But they differ in how well the service responds to this investment and in how health care needs and demands change. The response of the health service will be vital in determining whether it has the ability to deliver the outcomes identified. Some of these issues are considered in Chapter 6. Details in the following scenario descriptions relate to key outcomes in 20 years' time.

Scenario 1: solid progress

- 3.9 In this scenario, people live for considerably longer than they do today – life expectancy at birth¹ is 80.0 years for males and 83.8 years for females, compared to 75.8 and 80.6 today. Older people experience around 5 per cent fewer acute health problems than today. But the probability of experiencing long-term health problems at a given age is the same as today². Combined with increases in life expectancy this means that extra years are a combination of healthy and unhealthy years. Roughly speaking, half the additional years gained through higher life expectancy will be healthy.
- 3.10 A significant driver of better health in this scenario is therefore an improvement in curative care provided by the service itself. There is strong take up of medical technology and efficient use of ICT in an integrated way across the service. This and a more appropriate workforce skill mix contribute towards productivity gains increasing to 3 per cent a year over the second half of the period. The service is fully integrated, efficient and has closed the major gaps with other countries.

¹ Life expectancy at birth in a given year is the average number of years of life that a new-born baby would be expected to live assuming the death rates of that year.

² Here long-term ill health is equated with an inability to perform at least one domestic task such as shopping or cooking a main meal and/or at least one personal care such as bathing or going to the toilet.

- 3.11 In the event of ill health, people are treated well by a service which has made good progress in responding to increased investment. Reduced age discrimination and higher expectations among the elderly combine to place increasing demands on the service. Younger people are more health aware and seek care for problems which they currently tolerate without health service intervention. They visit their GP on average once a year more than now, frequently for reassurance, because they have confidence in the system.
- 3.12 Targets for public health are met – less than 24 per cent of adults smoke compared to 27 per cent today³. Less than 15 per cent of pregnant women smoke compared to 18 per cent today⁴. The number of babies born to teenage mothers in England and Wales is around 41,000 in 2005 and 24,000 in 2010, compared to 48,000 today⁵. Recent trends in the prevalence of obesity (which since 1980 has trebled for women to 21 per cent and doubled for men to 17 per cent⁶) are slowed and ultimately reversed as a result of local actions to increase levels of physical activity and provide advice about healthy diets, including the “Five a day” programme⁷. The challenging Health of the Nation targets for obesity are met with prevalence of only 6 per cent for men and 8 per cent for women.
- 3.13 Coupled with success in other areas contributing to public health – such as poverty reduction and increasing employment opportunities – health promotion measures targeted at deprived population groups help to reduce socio-economic inequalities in health. The gap in life expectancy between those in the poorest areas and the average falls by at least 10 per cent⁸. Smoking among adults in manual socio-economic groups falls from 30 per cent today to 26 per cent by 2010⁹.
- 3.14 This *solid progress* scenario is thus one of steady improvement, with current public health targets met and maintained.

Scenario 2: slow uptake

- 3.15 In this scenario, although people live for longer than today – life expectancy at birth of 78.7 years for men and 83.0 years for women – they do not live longer in good health. People aged over 65 are more likely to experience long-term chronic ill health than today. Severe, acute ill health also deteriorates, with a 10 per cent increase in health problems requiring GP visits and hospital admissions.

³ Department of Health target and Office for National Statistics (2002), *Living in Britain: Results from the 2000 General Household Survey*.

⁴ Department of Health target.

⁵ Department of Health target.

⁶ National Audit Office (2001), *Tackling obesity in England*, HC 220, Parliamentary Session 2000-2001.

⁷ The “Five a day” programme is a Department of Health initiative to provide targeted action to achieve improved access to, and increased consumption of, fruit and vegetables.

⁸ Health inequalities target, Department of Health.

⁹ Cancer Plan target, Department of Health. Figures for males and females combined.

- 3.16 The service responds slowly to its increased investment, impacting on the speed of improvements in curative care. The uptake of new technologies is relatively slow and the potential productivity improvements from better use of the workforce and integrated ICT are not fully realised. While the service offers the good quality care defined in Chapter 2, it does not offer a fully 'whole systems' approach.
- 3.17 The health of people improves slowly and inequalities in health between groups of people are unchanged. For example, targets on reducing smoking are not achieved, with prevalence remaining similar to today. Levels of obesity and physical exercise remain unchanged. There is no rise in the levels of public engagement. People visit their doctor at the same frequency as at present. Older people do not demand or receive additional care for a given level of need.
- 3.18 With unchanged levels of health inequalities and risk factors, the *slow uptake* scenario is the most pessimistic of the three.

Scenario 3: fully engaged

- 3.19 In this scenario, people live longer and in better health than they do both today and in the *solid progress* scenario. Life expectancy at birth is 81.6 years for males and 85.5 years for females. People not only live longer, but they spend a smaller proportion of their lives in ill health: as life expectancy rises, the proportion of a lifetime spent in long-term ill health declines¹⁰. Thus healthy life expectancy rises broadly in line with total life expectancy. Roughly speaking, a woman aged 78 in 2022 has the same probability of being in chronic ill health as a 73 year old today. In addition, acute ill health among the elderly declines by 10 per cent.
- 3.20 The difference between the *solid progress* and *fully engaged* scenarios is a dramatic improvement in public engagement, driven by widespread access to information – for example, through media such as the internet and digital television.
- 3.21 Public health improves dramatically with a sharp decline in key risk factors such as smoking and obesity, as people actively take ownership of their own health. The improvements seen in the *solid progress* scenario are achieved quickly and exceeded. People have better diets and exercise much more. Targets for obesity are met quickly and maintained. Fewer people smoke: only one in six compared to around one in four today, matching levels in California where there has been intensive smoking reduction in recent years. These reductions in risk factors are assumed to be largest where they are currently highest, among people in the most deprived areas. This contributes to further reductions in socio-economic inequalities in health.

¹⁰ See footnote 2.

- 3.22 Health needs and the type of care available become more sophisticated as engagement rises. The service responds as effectively as it does in the *solid progress* scenario, although differently to reflect the different needs of a *fully engaged* public. For example, uptake of appropriate technology is assumed to be rapid and effective in both, but what is appropriate in each will differ. As in the *solid progress* scenario, on average, people make one more visit to their GP each year compared to today. The very old rapidly start experiencing higher levels of hospital care than at present, because they demand more and doctors are much more likely to provide them with care based on their clinical need alone, not their age.
- 3.23 This scenario is the most optimistic of the three: a picture of rapid improvement in the health of the nation, underpinned by a *fully engaged* public and a high quality service.

SCENARIO FACTORS

- 3.24 The scenarios will impact on the future resources required for the health service both by affecting the demand for care and by affecting the cost and configuration of the supply of care.
- 3.25 The changing health needs of the population will affect demand for care. Technological developments and medical advances, use of the workforce and productivity will affect the supply. Demand and supply are not, of course, independent. For example, technological advances also expand what is medically possible, thereby extending demand.
- 3.26 Generally, changes in demand impact on the level of activity, while changes in supply impact on unit costs. A summary of the impacts of all the factors included in each scenario is provided in Table 3.1. The remainder of the chapter describes how each of these factors has been incorporated into the estimation of the resources required for the health service over the next 20 years.

Table 3.1: Summary of scenarios

	Solid progress	Slow uptake	Fully engaged
Changes in demand for care¹¹:			
UK life expectancy at birth by 2022	Men: 80.0 Women: 83.8	Men: 78.7 Women: 83.0	Men: 81.6 Women: 85.5
Long-term ill health among the elderly	No change in rates of ill health	Increase in long-term ill health	Healthy life expectancy increases broadly in line with life expectancy
Acute ill health among the elderly	5 per cent reduction by 2022	10 per cent increase by 2022	10 per cent reduction by 2022
Health promotion (smoking, exercise, diet, etc.)	Meet current public health targets leading to reductions in hospital admissions and GP visits	No change	Go beyond current public health targets leading to greater reductions in hospital admissions and GP visits, combined with higher spending on health promotion
Health seeking behaviour among over 65s	'Old old' match use of hospital and GP care per head of 'young old' by 2022	No change	'Old old' match use of hospital and GP care per head of 'young old' by 2012
Health seeking behaviour among under 65s	One additional GP visit per year on average by 2022	No change	One additional GP visit per year on average by 2022
Self-care	Switch of 1 per cent of GP activity to pharmacists; reduction of 17 per cent in outpatient attendances among 225,000 people using self-care	Switch of 1 per cent of GP activity to pharmacists; reduction of 17 per cent in outpatient attendances among 225,000 people using self-care	Switch of 2 per cent of GP activity to pharmacists; reduction of 17 per cent in outpatient attendances among 450,000 people using self-care
Changes in the cost and configuration of the supply care:			
Medical technology	Contributes around 3 percentage points a year to growth in health spending	Contributes around 2 percentage points a year to growth in health spending	Contributes around 3 percentage points a year to growth in health spending
ICT	Spending doubles in real terms by 2003–04	Spending doubles in real terms by 2007–08	Spending doubles in real terms by 2003–04
Productivity growth	Increases from 2 to 2½ per cent a year in the first decade to 3 per cent a year in the second	Increases from 1½ per cent a year in the first decade to 1¾ per cent a year in the second	Increases from 2 to 2½ per cent a year in the first decade to 3 per cent a year in the second

¹¹ Where a change is assumed, it is on present activity or unit costs. Some of these factors impact on the same part of the service, especially GPs, and the final impact calculated in the model is the combined effect of the separate factor impacts.

FACTORS IMPACTING ON DEMAND

Demography

- 3.27 People aged over 65 currently account for only 16 per cent of the population but just over a third of spending on hospital and community health services. Although in consultation the need to improve health services for children and to rehabilitate patients of working age was underlined, the Review's work on demographic change has focused mainly on the ageing of the population as evidence suggests this is the key demographic driver of cost.
- 3.28 There is uncertainty about how quickly the population aged over 65 will grow. Each scenario uses a different population projection, produced by the Government Actuary's Department (GAD), to reflect the different health outcomes between the scenarios. Each projection is based on the same assumptions about migration (annual net migration converges towards 135,000) and fertility (the average number of children per woman converges towards 1.74). The scenarios therefore differ only in their assumptions about life expectancy:
- *solid progress* uses GAD's high life expectancy assumptions. These were chosen as the central case because of evidence that past projections have tended to underestimate future numbers of elderly people¹²;
 - *slow uptake* uses GAD's principal life expectancy assumptions¹³. These are the lowest life expectancy assumptions used in the three scenarios; and
 - *fully engaged* uses high life expectancy assumptions prepared by Eurostat¹⁴ which are more optimistic than any routinely used by either GAD or Eurostat.

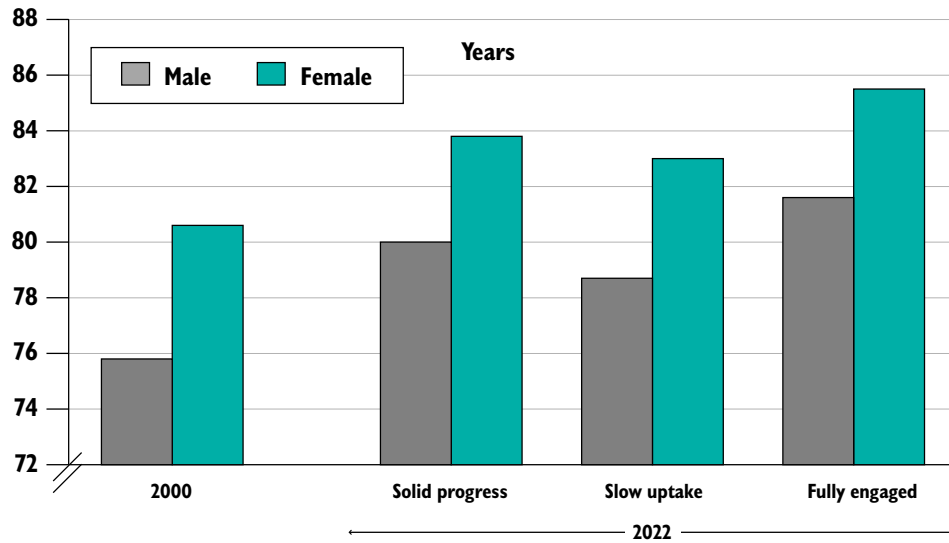
The different assumptions about life expectancy are shown in Chart 3.1. The resulting projections of the number of older people are illustrated in Chart 3.2. This shows the number of people aged over 85. There is relatively little difference between the scenarios in the number of people projected to be aged between 65 and 84 by 2022: 12.4 million in the *slow uptake* scenario compared to 13.3 million in the *fully engaged* scenario. The total UK population in 2022 varies between 64.7 million in *slow uptake* and 65.4 million in *fully engaged*.

¹² Shaw C (1994), Accuracy and uncertainty of the national population projections for the United Kingdom, Population Trends 77: 24-33.

¹³ GAD's principal life expectancy assumptions are similar to the central UK demographic projections made by Eurostat and the United Nations. Full details of GAD's 2000-based population projections are available at www.gad.gov.uk.

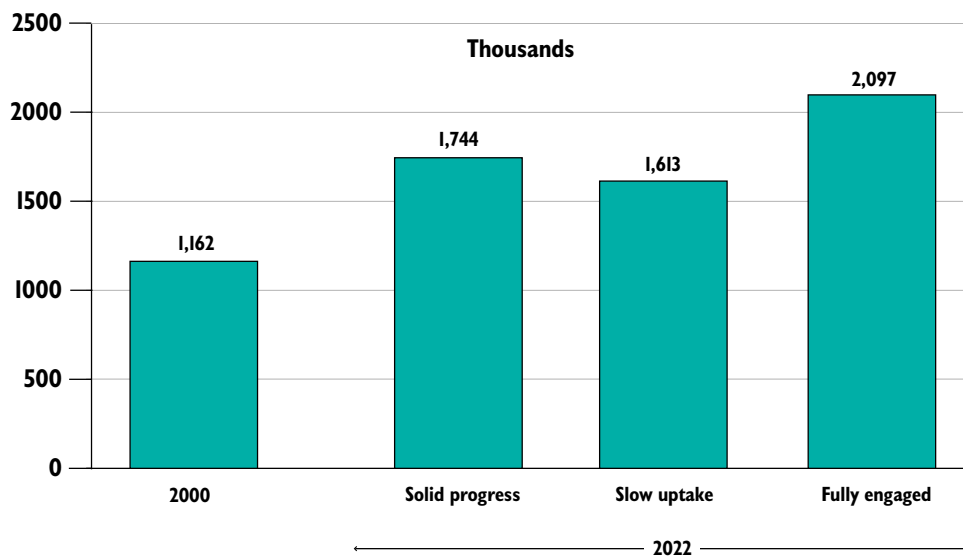
¹⁴ Eurostat is the Statistical Office of the European Communities. These high variant life expectancy assumptions were originally produced at the request of the OECD. This demographic projection was prepared by GAD using their own principal migration and fertility assumptions and the high variant Eurostat life expectancy assumptions.

Chart 3.1: UK life expectancy at birth



Source: Government Actuary's Department.

Chart 3.2: UK population aged 85 and over



Source: Government Actuary's Department.

3.29 As discussed in Chapter 9 of the Interim Report, the costs of acute care are strongly associated with proximity to death, regardless of age at death, i.e. health costs for older people are higher mainly because they are closer to death. Any analysis of demographic pressures that does not separate costs in the last year of life (i.e the costs of death) from other acute care costs risks overstating the impact on demand of more older people. So, the Review has in each of the scenarios split its modelling of the use and costs of hospital care between people in their last year of life (decedents) and those not in their last year of life (survivors)¹⁵. Such a split has not been used for social care. There, as costs increase with proximity to death, they also increase with age.

¹⁵ The Review has used Scottish linked data on hospital use for decedents and survivors, and adjusted and applied this to England data.

Health status

- 3.30 Increased life expectancy is a key indicator of improved health outcomes. Increased healthy life expectancy – arising from reduced levels of disease and disability – is another. The two are related and the health service strives to achieve improvements in both.
- 3.31 Chapter 2 outlined some specific ways in which outcomes can be influenced by the prevention and early diagnosis of specific diseases, for example, in terms of reduced hospital admissions as a result of statin uptake for those at risk of coronary heart disease (CHD) and earlier diagnosis of diabetes. The three scenarios outlined in this chapter consider how outcomes could be influenced by making different assumptions about the level of ill health and therefore demand for care, in two ways:
- changes in the levels of ill health among people over the age of 65; and
 - changes in the risk factors among those under 65 which contribute to ill health, arising from changes in the impact of health promotion and disease prevention.

These two are, of course, linked: a reduction in risk factors among people under 65 should lead to reduced ill health when these people are over 65.

Health in old age

- 3.32 As the Interim Report discussed, there is considerable uncertainty over what will happen to levels of illness among older people; this is reflected in the three scenarios. Research suggests that while levels of very serious ill health are falling, older people are experiencing more minor health problems, implying that the extent of long-term chronic conditions might rise while severe acute health problems might fall¹⁶.
- 3.33 The Review has tried to capture this distinction by considering the impact of changes in ill health among the over 65s on the demand for acute health care separately from that for long-term health and social care. In this Review, long-term ill health means the existence of some physical dependency: either difficulty with performing at least one domestic task such as shopping or making a main meal and/or at least one personal care task such as washing, bathing or going to the toilet. In the model, changes in levels of physical

¹⁶ Kelly S and Baker A (2000), Healthy life expectancy in Great Britain, 1980-96, and its use as an indicator in United Kingdom Government strategies, *Health Statistics Quarterly* 7: 32-37. Dunnell K and Dix D (2000), Are we looking forward to a longer and healthier retirement?, *Health Statistics Quarterly* 6: 18-24. Manton KG and Gu X (2001), Changes in the prevalence of chronic disability in the United States black and non-black population above age 65 from 1982 to 1999, *PNAS* 98(11): 6354-6359. Bone A, Bebbington A et al (1995), *Health expectancy and its uses*, The Stationery Office, London.

dependency only impact on long-term health and social care for people aged over 65¹⁷. In the Review’s model, acute ill health means health problems resulting in use of GP services or hospital care by those aged over 65 (except hospital stays of over 55 days which are captured in long-term care).

- 3.34 The predominant view which emerged from the consultation process is that there will be less ill health in old age, a so-called ‘compression of morbidity’. This has been modelled as an impact on acute care in the *solid progress* scenario and on both acute and long-term care in the *fully engaged* scenario. Although there are concerns about recent increases in the prevalence of obesity, future older people are likely to be healthier because of current or previous success in reducing the prevalence of smoking and general improvements in wider factors such as levels of education and income. This is supported by research and was emphasised in the consultation responses. For example, ASH (Action on Smoking and Health) commented “there are future declines in smoking-related morbidity ‘locked in’ to the current ageing population as a result of past declines in smoking prevalence” and the National Service Framework (NSF) for older people was mentioned as a key driver for reducing morbidity among elderly people.
- 3.35 It is not certain that the health of the future elderly will improve. It is possible that the risk of ill health in old age will remain the same as it is today or possibly even increase. Constant age-specific rates of physical dependency are assumed in the *solid progress* scenario. In the *slow uptake* scenario, increased use is assumed for both long-term and acute care. These more pessimistic views link with concerns that medical advance will succeed in prolonging life, but not prolonging healthy life. Thus more people with health problems are kept alive through interventions but are not cured completely and thus continue to require care. The assumptions for the scenarios are described in Table 3.2.

Table 3.2: Levels of ill health among over 65s

	Solid progress	Slow uptake	Fully engaged*
Demand for long-term care	Age-specific rates of physical dependency remain constant	Age-specific rates of physical dependency increased by 1 per cent a year	Age-specific rates of physical dependency decline broadly in line with changes in life expectancy
Demand for acute care	Use of acute care falls by 5 per cent by 2022	Use of acute care increases by 10 per cent by 2022	Use of acute care falls by 10 per cent by 2022

* Combined with a high life expectancy assumptions, this results in a reduction in the proportion of a lifetime spent in chronic ill health.

¹⁷ The data for the baseline and projections of long-term care use by those aged over 65 incorporating different assumptions about physical dependency were provided by the Personal Social Services Research Unit at the London School Economics and Political Science. For a description of their methods see Wittenberg R, Pickard L, Comas-Herrera A et al (2001), Demand for long-term care for older people in England to 2031, Health Statistics Quarterly 12:5-17. See also <http://www.lse.ac.uk/depts/lsehsc/pssru.htm>

Health promotion and disease prevention

- 3.36 Changes in the level of ill health, of course, affect all ages. The levels of ill health among those aged under 65 are closely related to levels of risk factors, such as smoking, physical inactivity, obesity, poor diet and alcohol. It is estimated, for example, that almost all the occurrence of CHD in those under 65 is preventable¹⁸. Improved public health, through health promotion and disease prevention, could therefore have a significant impact on health status and ultimately the demand for health services and the resulting cost. On top of the health benefits, it also brings wider benefits by increasing productivity and reducing inactivity in the working age population. The potential significance of public health featured strongly in the Review's consultation.
- 3.37 The extent to which individuals will take active ownership of their own health by changing their risk factors, by responding to evidence and possibly by regular checks of their health status is uncertain. The scale of the impact of promotion and prevention will depend on two principal factors: the level of public engagement; and the success of public policy in promoting such engagement through, for example, ensuring wide access to the latest evidence on risk factors or specific interventions. Public health policies themselves play a role in this, but so does wider social and economic policy, as there is a strong correlation between health inequality and socio-economic inequality. So, any changes in socio-economic inequalities could have an impact on health-related behaviours and ultimately demand for care.
- 3.38 The major killers are linked to socio-economic inequality. Excess rates of CHD and stroke among low-income groups largely account for overall health differentials. The key risk factors are much higher among people in deprived areas. For example, 35 per cent of men in manual groups smoke compared to just 23 per cent in non-manual groups; 25 per cent of children aged 2-15 in affluent families eat fruit more than once a day, compared to just 15 per cent in poorer families; and obesity is 65 per cent higher among poorer women than affluent women¹⁹. Limiting long standing illnesses (LLSI) is more prevalent in lower social classes (for example, 32 per cent in men in social class V compared to 17 per cent in social class I). It is associated with heavier demands on health services, with annual inpatient admission rates two to three times higher than for those with no LLSI. Preliminary analysis by the Department of Health suggests that if all social classes were to match class I's prevalence of LLSI, hospital admission rates would fall by 6 per cent.

¹⁸ McPherson K, Britton A and Casner L (forthcoming), Monitoring the progress of the 2010 target for coronary heart disease mortality: estimated consequences on CHD incidence and mortality from changing prevalence of risk factors. A report for the Chief Medical Officer. The Stationery Office.

¹⁹ Office for National Statistics: General Household Survey, National Diet and Nutrition Survey, Health Survey for England.

- 3.39 The Government is committed to tackling health inequalities through targeted health promotion and better access to care for those in need (encompassed in the NSFs). It is also committed to reducing deprivation more generally through, for example, tackling child poverty. In combination these commitments should ultimately reduce health inequalities. Despite evidence documented in the Interim Report that health promotion interventions may benefit middle socio-economic groups first and fastest, recent evidence suggests that efforts to reduce smoking have demonstrated particular success among deprived population groups²⁰. The Government's cross-cutting review on health inequalities is designed to ensure that health promotion efforts are directed where they are most needed.
- 3.40 Because of the close relationship between health and socio-economic inequalities and the likelihood of double-counting effects, the Review has assumed that the impact of reductions in health inequalities on future resources is captured within the assumptions for health promotion.
- 3.41 However, the likely impact of health promotion on overall demand for health care is difficult to assess. For example, estimating the impact on demand for health care of eating five rather than three pieces of fruit or vegetables a day or of exercising four rather than three times a week is fraught with methodological complications. There is a lag time between interventions and effect; interventions are rarely taken up universally by those at risk; people do not always make permanent or complete changes to their behaviour; and it is difficult to attribute changes in health status to an individual intervention. Despite methodological difficulties and the length of time needed for research, there is evidence suggesting that some health promotion interventions²¹ are not only effective, but also cost-effective over both short and longer time periods²². This point was reinforced during consultation. For example, 25 per cent of all cancers and 30 per cent of CHD are preventable through public health measures²³.
- 3.42 The Interim Report focused on smoking, but following consultation this was extended to physical activity and diet in order to reflect additional large risk factors. Because of the difficulty in assessing the impact of individual factors, the Review has not attempted to account for the benefits of each individually, but has attempted to capture them collectively by considering a reduction in demand for hospital and GP care arising from a reduction in the risk factors. Large reductions were considered for CHD and stroke as they are likely to be particularly affected by improved public health. The costs to the system of providing an expanded public health service have also been considered²⁴.

²⁰ Comment in the consultation response from the Health Development Agency based on Department of Health Statistical Bulletin (2001), Statistics on smoking cessation services in England, April 2000 to March 2001.

²¹ Health promotion is used as shorthand for interventions to reduce the prevalence of key risk factors such as smoking, physical inactivity and poor diet. Interventions may relate to primary or secondary prevention. Screening and drug-related interventions (apart from nicotine replacement therapy) are not covered here as they are captured in the NSF work described in Chapter 2.

²² International Union for Health Promotion and Education (1999), The evidence of health promotion effectiveness: shaping public health in a new Europe, Report for the European Commission.

²³ McPherson K (2001), Are disease prevention initiatives working?, *Lancet* 357: 1790-92.

²⁴ Assumptions about the costs of health promotion exclude areas already encompassed by the NSF costs discussed in Chapter 2, such as disease-specific drug-based prevention therapies and screening.

A number of contributors to the consultation, for example, the National Heart Forum and Health Development Agency, advocated greater consideration of the resources and specifically workforce requirements of a high quality public health system. The Review has used a simple approach to estimate resource requirements for an enhanced public health impact.

- 3.43 The choice of the type and level of reduction of risk factors for each scenario was based on a review of evidence²⁵. They are estimates of the potential impact of greater or lesser success in health promotion and wider public engagement in health on demand for care. Given the uncertainties involved and the assumptions that have had to be made, they merely capture a range of possible futures and are not intended to be forecasts. The Review has not attempted to capture any knock-on effects of prolonging life through avoiding early death from CHD, stroke, cancer, diabetes, etc. as the evidence about the effects is conflicting²⁶ and the Review's model was not designed to capture such impacts.
- 3.44 The scenarios reflect the possibility that current public health targets will be exceeded, given appropriate support for health promotion initiatives combined with wider improvements in education, growing affluence and generally increased awareness of healthy living.
- 3.45 The *solid progress* scenario has attempted to capture the impact on use of health services of meeting the specific English targets around smoking (in general and in pregnancy), teenage pregnancy and obesity as well as local initiatives for physical activity and diet. Specifically the model incorporates over 20 years the following changes from a 2002-03 baseline:
- a 10 per cent reduction in hospital admissions, GP visits and prescriptions related to CHD and stroke for 15-64 year olds. These reductions are largely due to reductions in the prevalence of smoking, but higher levels of physical activity and better diet also contribute;
 - a 5 per cent reduction in all other hospital admissions, GP visits and prescriptions for 15-64 year olds. These reductions are partly due to the wider health gains from reductions in smoking and partly due to the impact higher levels of physical activity and improved diet might have on other conditions such as cancer, diabetes and musculoskeletal problems;

²⁵ Key evidence used includes: Swales C (2001), A health economics model: the cost benefits of the Physical Activity Strategy for Northern Ireland – a summary of key findings; Naidoo B, Stevens W and McPherson K (2000), Modelling the short term consequences of smoking cessation in England on the hospitalisation rates for acute myocardial infarction and stroke, *Tobacco Control* 9:397-400; Russell LB, Teutsch S, Kumar R et al (2001), Preventable smoking and exercise-related hospital admissions, *American Journal of Preventive Medicine* 20(1): 26-34; Department of Health preliminary analysis of the potential health care benefits of reducing teenage pregnancies; Thoroughgood M and Naidoo B (2001), The potential impact of public policy on future exposure to risk and health status, Paper presented at the Health Trends Review Conference, October 2001.

²⁶ One study (Bonneux et al 1998) concluded that preventing fatal disease increases health care costs. It assumed that premature mortality avoided would lead to increased need for long-term care. Another report (Bates 2001) suggested smoking costs the health service 13 times more through treatment needs than it saves through early death and avoidance of future care needs. References: Bonneux L et al (1998), Preventing fatal diseases increases healthcare costs: cause elimination life table approach, *BMJ* 316: 26-29; Bates C (2001), Study shows that smoking costs 13 times more than it saves, *BMJ* 323: 1140-1.

- a 5 per cent reduction in births requiring special or intensive care due to reductions in teenage pregnancies and reduced levels of smoking in pregnancy; and
 - health promotion expenditure growing in line with expenditure on GP and hospital care.
- 3.46 The *slow uptake* scenario assumes no change in current activity and expenditure on health promotion grows in line with population growth and inflation.
- 3.47 The *fully engaged* scenario has attempted to capture the possible impact on use of health services from going beyond existing targets and, for example, meeting Californian targets for smoking. It also assumes that increased spending on health promotion would be required to meet such challenging targets. Specifically, it assumes the following changes over 20 years from a 2002-03 baseline:
- a 25 per cent reduction in hospital admissions, GP visits and prescriptions related to CHD and stroke for 15-64 year olds;
 - a 15 per cent reduction in all other hospital admissions, GP visits and prescriptions for 15-64 year olds;
 - a 5 per cent reduction in births requiring special or intensive care;
 - health promotion expenditure growing in line with expenditure on GP and hospital care, plus an additional £250 million a year by 2007-08²⁷; and
 - a reduction in statin use of over £1 billion as a result of reductions in smoking, as discussed in Box 2.3 in Chapter 2.

Health seeking behaviour

- 3.48 Changes in life expectancy and healthy life expectancy will impact on the demand for care. But demand could also change regardless of health status as a result of changes in health seeking behaviour. Such changes could occur across the whole population, or for specific groups. Changes for specific groups will be particularly affected by policy initiative, while both these and wider changes will be affected by people's levels of engagement with their health and the health service itself. Levels of education, income and media coverage of health issues are also important.
- 3.49 These factors could also encourage an increase in people caring for themselves and their families or community. The potential impact of this is discussed in Box 3.2.

²⁷ This is what is currently estimated to be spent on health promotion in England (general advice on smoking, diet, hypertension, exercise, obesity, alcohol, smoking cessation clinics, nicotine replacement therapy, National Fruit Schemes, Healthy Living Centres and Walk-in-centres) and the assumption therefore amounts to a doubling of expenditure. This would bring spending on interventions to reduce smoking in line with expenditure in California where ambitious reductions have been met.

Box 3.2: Self-care

The degree to which self-care becomes more important over the next 20 years will depend on the degree to which the public engages with health care. It is therefore closely linked to some of the other trends identified by the Review associated with rising knowledge, such as improved public health and increased health seeking behaviour.

Self-care is one of the best examples of how partnership between the public and the health service can work. The health service can support a pro-active public in promoting self-care by, for example, helping people to empower themselves with appropriate information, skills and equipment or supporting people to take a more active role in the diagnosis and treatment of a condition followed by rehabilitation and maintenance of well being. A comprehensive strategy on self-care would attempt to incorporate a wide range of approaches and models of self-care, including finding ways of providing funding, information, facilities, equipment and technology to support its development.

Increased self-care, and the more aware and engaged public associated with it, could result in useful cost benefits for the health service both in terms of levels and effectiveness of resources, arising from more appropriate use of health and social care services. For example, the Interim Report identified research which suggested that visits to GPs could decline by over 40 per cent²⁸ and outpatient visits by 17 per cent²⁹ as a result of increased self care. The Review has attempted to account for these benefits by using Department of Health estimates based on the above research which suggest that, for every £100 spent on encouraging self-care, around £150 worth of benefits can be delivered in return.

In the *fully engaged* scenario, the impact of increased self-care is assumed to be double the impact in the *slow uptake* and *solid progress* scenarios, reflecting the step change in public engagement in the former.

3.50 At present, people aged under 65 visit their GPs on average four times a year. In many cases, these visits are for minor ailments and reassurance. It is possible that in future people will visit their GP more, not less often, for a given level of need. In the future, a greater likelihood of people visiting their doctor, even if their underlying health status remains the same, could result from:

- increased health awareness and a broadening of people's beliefs about what constitutes health, resulting in demand for care of health problems that previously went untreated. This could relate to a growing intolerance of minor disorders and rising incomes and education; and
- people being more proactive in maintaining and enhancing their health and, for example, requesting regular check-ups. This is likely to result from an enhanced public health system combined with rising incomes and education.

²⁸ Fries J et al (1998), Reducing need and demand for medical services in high risk groups, *West J Med* 169: 201-207.

²⁹ Lorig et al (1985), A work place health education programme that reduces outpatient visits, *Medical care* 23, No 9: 1044-1054.

Some of this increase might be offset by greater levels of self-care. This offset reflects the fact while people may seek care more often as they become more engaged in their health, they might also seek care more appropriately.

3.51 The Review has incorporated a possible increase in health seeking behaviour into the scenarios as follows:

- *solid progress* and *fully engaged* scenarios: by 2022 one additional GP visit per person under 65 for unspecified conditions³⁰ compared to today; and
- *slow uptake* scenario: no change.

3.52 Two specific groups where demand for care could be expected to change even if their health status does not are older people and those on low incomes. These are two groups where there is evidence of inequality in access to care, i.e. their use is comparatively low given their health needs.

3.53 The NSFs discussed in Chapter 2 incorporate a policy drive towards equal access to care for equal need. Increasing access to care, particularly through targeting those most in need and least likely to seek care, will help to reduce occurrences of the inverse care law (inequalities in access to care as a result of socio-economic status). In order to avoid double-counting, the Review has assumed that the majority of costs associated with tackling the inverse care law are encompassed in the NSF costings described in Chapter 2.

3.54 In addition, wider access – combined with a clear policy direction from the NSF for older people – will help to reduce age discrimination in treatment rates among the very old. On top of the costs associated with tackling age discrimination in the health service, the scenarios incorporate changes in the demand for treatment of older people in the future.

3.55 It is likely that future older people will be increasingly intolerant of any differential access to services. They are likely to be more demanding of the health service, thanks to a greater awareness of health and available interventions. This was reflected in several consultation responses. For example, the Nuffield Trust noted increases in the number of complaints by older people and Age Concern highlighted increasing requests for screening by older people. This has been captured in the model by analysing use of GP and hospital services per head for different age groups over 65, a relatively crude way of estimating a possible impact of a more demanding future elderly population. In cases where treatment rates decline with age, it has been possible to estimate the impact on overall service use as a result of levelling up treatment rates among those over 75 to the rates found in those aged 65-74. For example, it is assumed that day case rates per head for 75 to 84 year olds would need to rise by 4 per cent to match rates for those aged 65 to 74:

³⁰ Excludes visits for CHD, stroke, schizophrenia, depression, anxiety, diabetes and asthma.

- for the *solid progress* scenario it is assumed that by 2022, hospital and GP care use per head among the over 75s will match current patterns of use among 65-74 year olds;
- for the *slow uptake* scenario it is assumed that there will be no change in utilisation rates; and
- for the *fully engaged* scenario it is assumed that by 2012, hospital and GP care use per head among the over 75s will match current use among 65-74 year olds.

FACTORS IMPACTING ON SUPPLY

Technology and medical advance

- 3.56 The Interim Report emphasised the UK's position historically as a late and slow adopter of medical technology, lagging behind comparator countries in both pharmaceuticals and 'big ticket' items such as scanners and radiotherapy equipment. It concluded that while some technologies will reduce unit costs, overall new technology is likely to continue to put upward pressure on health care spending as it enables more people to be treated and for longer periods of time.
- 3.57 The Interim Report also discussed the Review's preliminary estimate, based on the commonly used 'residual' approach³¹, that technology and medical advance have contributed around 2 percentage points to the annual rate of growth of health spending over the past 20 years. It suggested that over the next 20 years, technology spending will need to grow at a faster rate than over the past 20 years to catch up and keep up with other countries.
- 3.58 The consultation exercise yielded a variety of views about both the future impact and balance of technology spending. A number of respondents pointed to a likely shift from acute to chronic conditions and a need to shift the balance of spending away from high technology treatments to lower technology approaches focusing on the prediction, prevention and management of disease. Others expected new drug technologies – and specifically the way in which the National Institute for Clinical Excellence (NICE) develops – to be a major driver of rising spending over the next 20 years. The role of NICE is discussed further in Chapter 6. The impact of genetics was also raised during consultation. This is discussed in Box 3.3.

³¹ See pages 168-172 of the Interim Report.

Box 3.3: Genetics

The Interim Report included a discussion of the possible future impact of genetics and stem cell technology. It highlighted the significant uncertainties and differences of opinion about the likely impact of these technologies on health care spending over the next 20 years. The consultation responses have reinforced these uncertainties and differences of opinion.

It is clear that different types of genetic knowledge and technology will emerge at different times, and within each type there will be a whole spectrum of different discoveries that will happen over a period of years. But it is difficult to be more precise than this.

BUPA expects the impact of genetics to be “limited” over the 20 year period. The Nuffield Trust assumes that genetics and stem cell research will start to make an impact on costs within 15 years. Standard Life Healthcare takes the view that genetics will have a significant impact on health care spending over the next 5 to 10 years. GeneWatch UK says that “if NHS resources are not to be wasted, the potential role of genetic testing or screening in the prevention of major, complex diseases should not be over-estimated”.

In the light of the consultation responses, the Review maintains the view that there is huge uncertainty about the impact of genetics on health care spending over the next 20 years. On balance, its conclusion is that the impact on health care spending over the Review’s horizon is unlikely to be large. So it has not factored in any additional spending specifically to reflect developments in genetics.

This could well prove to be wrong and as the technology develops it will be important to revisit this assumption in future exercises of this type.

- 3.59 The Association of Community Health Councils for England and Wales thought that “a lower floor than 2 per cent should be considered” for the overall impact of technology, while others argued the need for a significantly higher rate of spending over the next 20 years – in at least one case double the 2 per cent figure. BUPA estimated that an 8 per cent a year real terms increase in hospital non-staff costs will be needed over the next 10 years to diffuse existing technologies more evenly, introduce new technologies and improve the quality of the NHS estate. The importance of the benefits of technology to the wider health service and economy was also noted by several respondents. Almost all respondents who commented on technology concluded that it would add to health spending over the next 20 years.
- 3.60 As the Interim Report emphasised, it is difficult to measure directly the impact of technology on aggregate health spending. Views differ significantly. No specific alternative methodologies to the Interim Report’s residual approach were suggested in consultation, although the Review acknowledges the limitations of this methodology. The British Medical Association said that “we would like to see further analysis aimed at isolating technological change from other elements of the residual”. The Review concurs with this view but has been unable to develop the research further itself. To do so will undoubtedly require more time and expertise than has been available to this Review. The need for further research in this area was also noted recently in an interim report on the state of the health care system in Canada³².

³² The Standing Senate Committee on Social Affairs, Science and Technology (2002), Interim Report on the state of the health care system in Canada, Volume Two: Current Trends and Future Challenges, January 2002: 43-44.

- 3.61 Part of the Review's analysis since the Interim Report has been able to provide a plausibility check on the results of the residual approach. As discussed in Chapter 2, in estimating the resources required to implement the five disease-based NSFs, the Review has attempted to identify the separate impacts due to greater uptake of technology, faster access and improved quality. This has been possible, albeit in a broad and simplistic way, because of the detailed way in which the NSFs are constructed.
- 3.62 This analysis shows that the contribution of technology to the increase in spending required to deliver the vision of a high quality service varies significantly across the five NSF areas. But the average technology contribution is around 3 percentage points a year.
- 3.63 While recognising the different approaches, this figure does not seem inconsistent with the historic figure derived from the residual approach. Given the need to 'catch up' to best practice following significant historic under-investment, the former figure would be expected to be larger than the latter.
- 3.64 Thus in projecting the impact of technology on health spending, the Review has chosen to apply the results derived from the NSF costings. By extending the NSF approach to other disease areas as described in Chapter 2, it has assumed that technology contributes around 3 percentage points a year to the cost of catching up to international standards over a period of 10 years for each disease area. As it is embodied in the costings of the current and future NSFs, this assumption is common to each of the scenarios.
- 3.65 The Review has also needed to take a view on the contribution of technology to the growth in health spending in each disease area in the 'keep up' period beyond the 10 year implementation span of each NSF.
- 3.66 In the *slow uptake* scenario, technology is assumed to contribute 2 percentage points a year to health spending growth during the 'keep up' period. This is in line with the historic average as estimated using the residual approach and consistent with the relatively low responsiveness of the service in this scenario. The *solid progress* and *fully engaged* scenarios both assume a larger technology contribution of 3 percentage points a year, the same as during the 'catch up' phase³³, as the service maintains the rapid uptake of the latest technologies. But as noted earlier in this chapter, the balance of technology spending could be rather different between these two scenarios, with more public health focused spending in the *fully engaged* scenario (for example, on screening).

³³ However, in the *fully engaged* scenario, and as discussed earlier in this chapter, some offset to spending has been assumed in the Review's modelling to reflect the successful impact of public health programmes on reducing the need for particular drugs and treatments.

- 3.67 In summary, while areas of the service are 'catching up' through the implementation of NSFs, the Review has assumed technology contributes 3 percentage points a year to spending growth. Beyond the 10-year implementation period for each NSF, the Review assumes a contribution to growth of 2 percentage points for the *slow uptake* scenario and 3 percentage points for the *solid progress* and *fully engaged* scenarios.

Information and communication technology (ICT)

- 3.68 The Interim Report emphasised the particularly poor ICT investment record of the UK health service. As shown in Chart C.8 of Annex C, the health service's annual ICT spending per employee was lower in 2000 than in any other sector of the economy considered. The UK health service also spends a significantly lower percentage of its budget on ICT than the health services of comparator countries.
- 3.69 In the UK health service, ICT systems have typically been developed and implemented in a piecemeal way at local level. While there are many examples of systems which work well for particular hospitals or GPs, the systems are not integrated across organisations or indeed sometimes across a single hospital. The Interim Report concluded that a significant infrastructure investment would be required across the service in order to reap the longer-term benefits which better integrated and more flexible ICT applications have to offer.
- 3.70 In response to the consultation question about the main ICT priorities for the health service, the majority of respondents identified the importance of the planned Electronic Patient Record (EPR) and the need to integrate ICT applications across primary and secondary care and also into social care. The development of electronic prescribing was also highlighted. Respondents emphasised the importance of ensuring that wider use of ICT is accompanied by appropriate training for all staff.
- 3.71 The Review believes firmly that the health service will need a significant programme of ICT investment to deliver first the infrastructure and then the applications which will secure the delivery of these and other targets.
- 3.72 At present, the NHS in England spends around £1.1 billion a year on ICT. The Review has incorporated in its projections a substantial increase in ICT investment. In the *solid progress* and *fully engaged* scenarios, ICT investment is assumed to double to around £2.2 billion in 2003-04, peaking at around £2.7 billion in 2007-08. Thereafter, a modest decline in the infrastructure element of investment is assumed but investment remains at around double its current level throughout the period. The same cumulative level of ICT investment is assumed in the *slow uptake* scenario, although it is phased in more slowly.

3.73 These figures are inevitably speculative, particularly beyond the short term, and are not based on detailed costings of specific investments. But the Review believes that they present a plausible view of what might be needed. They are intended to cover spending on a wide range of areas, including:

- ICT infrastructure;
- applications such as the Electronic Patient Record, electronic booked admissions, patient smart cards and the electronic staff record;
- investment in telemedicine and telecare for patients with chronic conditions;
- clinical governance support systems; and
- staff training.

Such a level of investment would raise NHS ICT spending from around 1¹/₂ per cent of total spending at present to over 3 per cent of total NHS spending.

3.74 How effective this investment proves in delivering a higher quality, more responsive health service and in reducing costs will depend on the quality of implementation. In particular, it will depend on the extent to which the investment takes place in an integrated manner with consistent standards across the whole service. These vital issues are discussed further in Chapter 6.

3.75 Quantifying the potential gains which might be delivered from such a programme of ICT investment is difficult, and for the purposes of its projections the Review has aimed to capture the benefits within a wider productivity assumption (see below). However, evidence relating to particular ICT investments – usually from the US – suggests that significant benefits are achievable, in terms of both cost savings and improvements in quality and safety.

3.76 For example, a recent report³⁴ cites the following gains achieved through the better use of ICT in health service settings:

- a study found that ‘charting errors’ in patient records occurred in 25 per cent of handwritten flow sheets. An automated patient data management system eliminated these errors and increased the number of progress notes documented by staff;
- a physician order entry system in an inpatient setting reduced length of stay by 10.5 per cent, reduced test charges by 12.5 per cent and reduced drug costs by 15.3 per cent. The total charges per admission were 12.7 per cent less for teams that utilised the order entry system than those that did not;

³⁴ Raymond B and Dold C (2002), *Clinical information systems: achieving the vision*, Kaiser Permanente Institute for Health Policy, February 2002.

- a study at Duke University found that the use of a computerised medical record system resulted in an overall time saving of 13 per cent for doctors. In another study, use of computer-based medical records contributed to time saving on follow-up phone conversations and office visits and saved the need to re-enter patient and laboratory data; and
- an antibiotic information system reduced adverse drug reactions in a particular hospital by 70 per cent, patients received excessive dosages for 2.9 fewer days and the overall cost of antibiotic therapy was reduced.

Health service workforce

- 3.77 More than 1¼ million people work in the UK health service and two thirds of the NHS budget is spent on pay. The NHS workforce is highly skilled and one in five health care workers are graduates, almost double the rate for the UK workforce as a whole. As the Interim Report demonstrated, the UK does not have enough doctors and nurses. The pay and productivity of the health service workforce will be an important driver of the financial resources required to deliver a high quality service over the next 20 years. But it is not enough to increase the financial resources available for the health service. To succeed, the service must have the right number and mix of staff in place. It takes a long time to train doctors and nurses, and workforce capacity is therefore a key determinant of the rate at which additional spending should take place.
- 3.78 The consultation responses endorsed the Interim Report's overall assessment of the shortfall in the numbers of health care professionals in the UK compared with other countries. The UK employs fewer doctors and nurses per head of population than any of the seven comparator countries considered in the Interim Report. The Nuffield Trust pointed out that the UK has also adopted a different skill mix to other European countries, being more reliant on non-professional staff and much more heavily reliant on doctors in training to provide clinical care. The Government's plans to increase the professional workforce were welcomed, but a number of respondents questioned whether they would go far enough, particularly as the Working Time Directive and changing expectations for work-life balance reduce participation rates.
- 3.79 The Interim Report argued that there will be substantial changes in the roles and responsibilities of health care professionals over the next 20 years. None of the respondents disagreed. Box 3.4 sets out a possible vision of the future. The consultation responses confirmed that there is considerable scope for skill mix changes within the health service, although all argued that this was unlikely to reduce costs overall. There was considerable support for further expansion of nurse-led services. Most of the organisations that responded considered this as positive and many highlighted the potential for further development. Alongside support for an extension of nurse-led services, there was general agreement that the next 20 years will see an extended role for

Health Care Assistants (HCAs). Many organisations raised the need to introduce a system of registration for HCAs. Many organisations pointed out that the scope for skill mix changes extends beyond the boundary between nurses and doctors. They highlighted the scope for developments in the role of allied health professionals.

3.80 While welcoming an expansion in the role of nurses, allied health professionals and HCAs, a number of organisations pointed out that increasing the supply of these groups may not be straightforward and may result in additional pay pressures.

Box 3.4: Vision of the future NHS workforce

- individuals will be responsible for more of their health care, either managing minor illnesses without the need of support from health care professionals or, working with health care professionals and pharmacists, taking a more active role in their own treatment;
- many of the first and routine contacts between patients and the health service will be provided by nurses or other health and social care professionals in community-based settings. The services might cover, for example, minor injuries, minor surgical procedures, counselling, laboratory work and care of the elderly. The settings where care would be provided include the patient's home and health centres or could be in any location via the telephone;
- health care assistants will undertake a large part of the routine work which nurses currently undertake in primary and secondary care;
- GPs will focus on patients with more complex health problems and provide a wider range of diagnostic and treatment services in the community. This will allow more services to move from secondary to primary care;
- GPs, while remaining generalists, will work with colleagues who are more specialised. They will work in teams including for example, paediatricians, geriatricians, psychiatrists and geneticists;
- more older people will be supported at home or in intermediate care facilities. Their treatment will be managed by community-based health care specialists;
- major acute hospitals will focus on providing 24 hour intensive and high dependency care. They will be centres of excellence for tertiary and high tech services. They will be staffed by doctors who are increasingly specialised and act as a centre of care networks; and
- although the increase in specialisation will continue, all specialists will have a strong general background and will work closely with community physicians to ensure holistic care for patients.

- 3.81** However, some organisations, including the Royal College of General Practitioners, while supportive of an expanded role for nurse practitioners and HCAs, were concerned about the changes in primary care envisaged. They highlighted the very high regard in which primary care services are held by patients and the general public and indeed by other countries. Continuity of care is seen as central to general practice and there are concerns that the benefits it brings – for example, in terms of better compliance with treatment – could be lost with greater specialisation and more direct access services.
- 3.82** The Review has not attempted to model different possible configurations for the use of the workforce. There are specific workforce planning mechanisms within the NHS. The Review recommends that the NHS workforce planning bodies should examine the implications of this Review’s findings for their projections over the next 20 years.
- 3.83** For the Final Report, the Review has examined whether the number and skills of the health care workforce will act as a capacity constraint on the pace of investment under each of the scenarios. To do this a separate workforce model has been developed in conjunction with the Department of Health. This compares the demand for different groups within the health service with the planned supply. The estimates of demand are based on current levels of productivity but with two important changes. First, they assume that the Working Time Directive reduces the working hours of hospital doctors to 48 hours a week. Second, they assume average length of stay in hospital falls in line with the estimates set out in the National Beds Inquiry, (see Table 3.3).

Table 3.3: Average length of stay for hospital in-patient admissions (days)

	2000	2005	2010	2015
Emergency admissions	7.76	7.27	6.35	5.43
Elective admissions	4.86	4.37	3.88	3.38

Source: National Beds Inquiry.

- 3.84** The Interim Report set out a number of other potential sources of workforce productivity gain. For the Final Report, the effect of these changes on the financial resources required is assumed to have been captured as part of the overall productivity improvement which is modelled for each scenario (see below). To have included a specific workforce factor in addition to this would have risked double counting. Changes in skill mix are examined within the workforce model as they will have an impact on any potential capacity constraints.
- 3.85** The supply estimates are based on the Government’s existing plans for training, recruitment and retention and assume all the benefits of those plans are achieved. The pay modernisation plans currently under negotiation for all professional groups should further increase supply, but at this stage the precise magnitude of the effects is still uncertain and, for this reason, has not been included in the estimates of supply.

Pay and prices

- 3.86 Over the past 20 years, pay in the hospital and community health services (HCHS) sector has risen by 2.4 per cent a year more than whole economy inflation. This increase in the total pay bill has been significantly above the average increase for specific groups of staff, reflecting changes in the staff mix over the period.
- 3.87 For a health service committed to delivering world class clinical standards based around high quality and fast access, pay levels must be sufficient to recruit, retain and motivate the number of staff that it requires with the appropriate skills. What is important in this respect is how the pay of health service staff compares with that of people in other occupations.
- 3.88 As the Interim Report demonstrated, while the relative pay of male doctors has held up, the relative pay of female nurses has slipped back over the past 25 years. While female nurses' earnings were higher than the earnings of around 65 per cent of working women in 1975-79, this figure had fallen to around 55 per cent by 1999. As the Interim Report also noted, these figures relate to the average across Great Britain. But geographical variations in health service pay tend to be much less marked than in other sectors of the economy.
- 3.89 For the purposes of its resource projections, the Review has assumed that total HCHS pay rises by 2.4 per cent a year in real terms (over and above GDP deflator inflation). This is in line with the average real increase since 1983-84. With inflation assumed to be 2.5 per cent throughout the 20 year period, this translates to a nominal increase of 4.9 per cent a year. Pay and prices in the General Medical Services sector are assumed to rise by 2.2 per cent a year in real terms, in line with the average since 1991-92. Pay in the personal social services sector is assumed to rise by 2.3 per cent a year in real terms, in line with the average between 1993-94 and 1999-2000. These assumptions are common to each of the three scenarios.
- 3.90 It should be stressed that these are simply assumptions in line with the historic averages and do not reflect a judgement about what rates of pay will actually be required to recruit and retain the staff which the health and social care sectors need. That will in practice depend on a wide range of interacting factors, the likely impact of which it is beyond the scope of this Review to assess.
- 3.91 Actual pay growth will, for example, depend on developments in the wider labour market and wider terms and conditions for health service staff. It will also depend on the success of current schemes to attract overseas recruits and people with health-related skills and qualifications back into the health service. The way in which the skill mix of the workforce, and other factors which impact on productivity, develop over the next two decades will be important, as will the scope for greater variation in health service pay between different parts of the country to reflect local labour market and cost of living differences.

- 3.92 The Review also notes the three separate, and exceptionally important, elements of health service pay reform currently in train: the Agenda for Change programme covering nurses, the GP Contract, and the Consultant Contract. Each of these should help to provide additional capacity and improve productivity. The costs and benefits, for the purpose of this Review, are effectively incorporated in the pay and productivity assumptions.
- 3.93 Price inflation of 2.5 per cent a year is assumed for the HCHS and Family Health Services (FHS) sectors, other parts of the NHS and social care. As with pay, this assumption is common to each of the scenarios.

Productivity

- 3.94 The efficiency with which the health service utilises its resources will be one of the most significant determinants of the cost of delivering high quality health care over the next 20 years.
- 3.95 The Interim Report highlighted four key areas which appear to offer the greatest potential for productivity gains:
- better use of the skilled workforce;
 - better use of ICT;
 - more self-care by patients; and
 - a redirection of existing NHS resources towards treatments which are cost effective.
- 3.96 Responses to the consultation largely agreed with these as the key drivers of productivity performance. Other factors raised included the scope for streamlining processes to cut out unnecessary delays (for example, between tests being undertaken and the results becoming available), contractual barriers within the workforce, poor management skills in some areas of the service and the gains which would be achieved by running elective services for more than the typical 40 hours per week.
- 3.97 The Review also notes the frequent debate about the extent of waste in the health service. Clearly, where inefficient or indeed inappropriate use of resources can be identified, action must be taken. The Review's estimates, therefore, incorporate savings in many of the areas which are frequently cited, including hospital acquired infections, clinical negligence and medication errors (see Chapter 2). The problems of bed blocking are also highlighted in this Report. In most cases there are some additional costs to help eliminate the waste, for example, in enhanced clinical governance.
- 3.98 Measuring productivity in a sector such as health care is not easy. Box 3.5 explains some of the difficulties and the approach which the Review has adopted in acknowledgment of these.

3.99 Box 3.5 notes that NHS productivity growth as conventionally measured (not taking account of quality changes) has averaged around 2 per cent a year over the past two decades. The most frequently cited driver of productivity

Box 3.5: Measuring health service productivity

Productivity measures the efficiency with which an organisation uses its resources to deliver particular outputs and outcomes. The accurate measurement of productivity is not, however, straightforward – particularly in services such as health and education where the majority of outputs are not priced in a market and changes in the quality of the service are difficult to measure.

In health care the difficulty in aggregating the volumes of many different types of activity is one problem. Another is that traditional measures of health service productivity have only covered part of the service and have not taken account of changes in the workforce skill mix. It has also been difficult to ensure that quality of care rather than just volume of activity is taken into account.

Measures of productivity for the wider economy such as those produced by the Office for National Statistics attempt to account for changes in the quality of outputs. Thus if a firm were to produce the same volume of output as in the previous year using the same amount of inputs but the quality of the output was deemed to have improved, recorded productivity would rise.

However, conventional measures of output used in calculations of NHS productivity do not adjust for quality changes. Thus, on such measures, if quality is improving, productivity will tend to be understated; while if quality is falling, productivity will tend to be overstated. Measured on its conventional basis (i.e. not taking account of quality change), NHS productivity growth has broadly matched that of the whole economy over the past 20 years – with growth averaging around 2 per cent a year. But such a comparison would be misleading if over this period NHS activity was rising at the expense of quality.

This also suggests that at a time when significant efforts are being made to deliver a better quality health service – as at present – conventional measures of NHS productivity are likely to understate the improvements being achieved.

While not straightforward in practice, the Review has therefore sought to consider NHS productivity on a quality-adjusted basis and split the productivity assumptions which it needs to make into two components: the first measuring the achievement of productivity improvements through lower unit costs and the second measuring the impact of improved quality.

As noted in several consultation responses, no ideal measure of productivity gain in health care yet exists and further work is therefore required. The Review agrees and by highlighting the issue hopes to encourage greater understanding and debate about the problems of productivity measurement.

improvement over this period is the impact of technology in facilitating a shift in the balance of hospital activity towards day cases and dramatic falls in average length of stay. For example, average length of stay fell by around a third in the ten years to 1999-2000. Better activity measurement and some shift in costs from the NHS to social care may also have contributed to the improvement.

- 3.100 The benefits of ICT will not come through significantly until the necessary infrastructure is built and there is early evidence both in the UK and other countries that the previously large falls in average length of stay have been levelling off. The planned significant expansion of the NHS workforce over the next few years will also act to limit productivity growth over this period. However, with the right up-front investment, there appears to be scope for significant productivity improvements in the longer term.
- 3.101 In coming to assumptions about the rate of productivity growth over the next 20 years, the Review considered an approach attempting to build up estimates from each of the individual factors likely to impact on productivity performance. But these are numerous and given the quality of information available, such a methodology was not feasible.
- 3.102 Instead, the Review has adopted an aggregate approach – although, as noted above, one which acknowledges the need to attempt to take account of the changing quality of health care. Table 3.4 summarises the aggregate productivity assumptions which have been used in the Review’s modelling, with an illustrative split between the cost reducing and quality improving elements. These are intended to capture the broad productivity gains which will be possible through better use of resources across the health service over the next two decades. They are distinct from the narrower benefits which might be expected to flow from specific initiatives which have been costed elsewhere.

Table 3.4: Breakdown of productivity assumptions, per cent a year

	Unit cost reduction		Quality improvement		Quality-adjusted productivity	
	Lower	Higher	Lower	Higher	Lower	Higher
2003-04 to 2007-08	¾	1	¾	1	1½	2
2008-09 to 2012-13	¾	1¼	¾	1¼	1½	2½
2013-14 to 2017-18	1	1½	¾	1½	1¾	3
2018-18 to 2022-23	1	1½	¾	1½	1¾	3

- 3.103 The Review is separately modelling the costs of delivering higher quality across the service (see Chapter 2) and in doing so has not explicitly taken account of the potential for improvements in, for example, use of ICT and the workforce to enable this higher quality to be achieved at lower cost than at present. It is therefore appropriate in estimating the resource requirements to include both the unit cost reducing and quality enhancing elements of productivity growth in the Review’s modelling.

- 3.104 The starting view for this aggregate approach is that the health service should at least be able to match the productivity performance of the wider service sector, where quality-adjusted productivity growth has averaged around 1½ per cent a year over the past 20 years. The lower productivity assumption shown in Table 3.4 and used in the *slow uptake* scenario is based on the health service matching service sector productivity growth, but little better. Given the position from which the health service starts and the significant investment in staff, buildings, medical technologies and ICT which is a feature of all the scenarios, this would be a particularly disappointing outcome.
- 3.105 Looking at the breakdown of the lower productivity assumption, quality improvements are assumed to contribute just ¾ per cent a year while unit cost reductions build up from ¾ per cent a year over the first 10 years to 1 per cent. This highlights the very pessimistic nature of this assumption. Unit cost reductions of no more than 1 per cent a year compare to the equivalent figure of 2 per cent achieved over the past 20 years.
- 3.106 In the higher case, which is used in the *solid progress* and *fully engaged* scenarios, quality-adjusted health service productivity growth is assumed to rise from 2 per cent a year over the next five years to 3 per cent in the second decade of the Review period as capacity constraints are lifted and the benefits of ICT and more flexible use of the workforce feed through.
- 3.107 The gains are split evenly between reductions in unit costs and improvements in quality. Unit cost reductions amount to 1 per cent a year in the first five years. This is consistent with the view of the Centre for Health Economics at the University of York which has concluded that "...as the NHS Plan has been implemented – the scope for annual unit cost reduction has fallen and at present may be no more than 1 per cent per annum". It is also consistent with estimates of the potential short-term cost reductions which might be possible through eliminating the majority of the current unit cost variation across the NHS and expected gains from improved purchasing, increasing the day case rate, reduced sickness absence, integration of human resource management and payroll and the new NHS Professionals scheme. Unit cost reductions rise to just 1½ per cent a year in the longer term.
- 3.108 Overall the Review believes that given the very significant investment which is embodied in each scenario and the potential for better use of ICT and the workforce across the entire service, this view of the scope for higher productivity gains is realistic and achievable. In consultation, The Nuffield Trust agreed with this assessment, identifying "a reasonable efficiency target of 2.5 per cent per annum in the near term and 3 per cent in the longer term".
- 3.109 The productivity assumptions set out above, while regarded as plausible and representing two distinct cases, are subject to significant uncertainty. Alternative productivity assumptions could have a large impact on the estimates of the overall resources required for the health service over the next 20 years. Chapter 5 therefore provides figures illustrating the sensitivity of the resource projections to changes in these productivity assumptions.

Links between factors

- 3.110 The drivers of expenditure are interdependent. For example, wider availability and take up of new technologies might lower treatment thresholds for procedures currently unavailable to frail patients, thus increasing demand for such care. Knowledge about new technologies available internationally may increase demand.
- 3.111 The three scenarios have sought to pick up these linkages and the Review has been careful in its modelling not to 'double count' impacts as a result of them.

CONCLUSION

- 3.112 This chapter has set out three scenarios illustrating how trends in the health needs and demands of the population, technological development and medical advance, the use of the workforce and productivity might affect the health service in 20 years' time.
- 3.113 Other scenarios are also possible: for example, one where there is a rapid improvement in overall public engagement and rapid response from the service to increased investment, especially in technology, but with a worsening of socio-economic inequalities: in effect a widening of the gap in key risk factors such as smoking prevalence, with the benefits of the high-quality service disproportionately benefiting those most affluent and knowledgeable. The Review believes this would be more likely in a country like the US where there is a strong reliance on financing through private insurance than in the UK where the majority of health care financing is through general taxation.
- 3.114 The three scenarios highlight some of the key issues explaining why the health needs and outcomes of the nation could develop differently over the next 20 years. They were chosen for that reason. In particular:
- the difference between the *slow uptake* scenario and the others is primarily one related to the response of the service itself, demonstrating the importance of curative care in improving health outcomes; while
 - the difference between the *solid progress* scenario and the *fully engaged* scenario is primarily related to the response of the public and patients, demonstrating the importance of preventative care in improving health outcomes.
- 3.115 These two aspects are considered in Chapters 5 and 6. Chapter 5 sets out the Review's projections of the level of resources required for the health service in 20 years' time under each of the three scenarios. Chapter 6 considers the use of these resources within this overall requirement. The next chapter describes the modelling approach.

INTRODUCTION

- 4.1 The Review has developed a detailed model to project expenditure. It is designed to estimate the resource requirements over the next 20 years of the high quality health service set out in Chapter 2 under each of the three scenarios set out in Chapter 3. The factors identified in those chapters influence the amount of activity undertaken by the health service (for example, the number of GP visits in a year or the number of day case attendances) and the unit cost of delivering a particular type of activity. In order to achieve separation of activity and unit costs, data from a number of disparate sources had to be brought together: from the Department of Health; the Office for National Statistics; NHS Scotland; and the Personal Social Services Research Unit (PSSRU) at the Universities of Kent and Manchester and the London School of Economics and Political Science.
- 4.2 The vast and complex range of activity within the health and social services makes constructing such a model of expenditure a difficult task. This year, for example, in England there are expected to be nearly 250 million GP visits and over 500 million GP prescriptions. There are expected to be 2 million elective inpatient admissions, 5¹/₂ million non-elective inpatient admissions, nearly 40 million outpatient appointments, 3¹/₂ million day cases and over 12 million A&E attendances.
- 4.3 The health and social care asset base is huge: there are over 1,600 NHS hospitals in the UK. There are around 10,500 primary care premises.¹ The combined value of this asset base in England is estimated to be over £25 billion; the value of the social care asset base in England is estimated to be around £13.3 billion².
- 4.4 These figures underline the challenge of attempting to estimate not only how health and social care may change over the next 20 years, but also the challenge of attempting to project the resources required as a result of these changes.

¹ Source: Department of Health.

² Source: Department of Health. Estimated net book value (NBV) of Health Authorities and Trusts (approximately £23 billion) and primary care (approximately £2.2billion). £10 billion of the social care base is in the private and voluntary sector. www.doh.gov.uk/dis

THE MODEL

4.5 This chapter briefly describes the Review's model. As outlined in Chapter 1, the Review built up baseline data on the NHS in England and around 60 per cent of English PSS expenditure. These were projected forward on the basis of assumptions about:

- demographic change;
- the costs of the five NSFs for specific diseases and then generalisations made from these;
- changes in the age-specific use of care; and
- other factors impacting on expenditure, such as reducing waiting times, technological development and productivity.

BASELINE

4.6 The Review first established a baseline level of spending for health and social care. The baseline for the Review is spending in 2002-03. However, in many cases the latest comprehensive data was for 1998-99. That year's data therefore needed to be used to build up the baseline; it was extrapolated to the planned figure for expenditure in 2002-03 based on the best available information about activity, inflation and spending in the intervening period.

4.7 Over 80 per cent of total NHS spending was accounted for in the model through information on activity data which, when multiplied by information on the cost of delivering a unit of activity, provides details of the expenditure. The remaining 20 per cent of expenditure was broken down only by type of expenditure. Table 4.1 sets out the data that could be broken down and Table 4.2 lists those that could not.

Table 4.1: How health and social care was broken down to build up an accurate baseline cost

Data with a breakdown by activity and unit cost

Type of care		Further breakdown of activity or unit cost data				
Health Care	Hospital care	Elective inpatients	Age ³ and Sex	Disease ⁴	Decedent and Survivor Status ⁵	
		Non-elective inpatients				
		Elective day cases				
		Outpatients				
		Accident and emergency attendances				
	General medical services	GP visits	Age and Sex	Disease ⁶		
		Prescribed items				
	Care in the community	District nursing visits		Age and Sex		
		Learning disability nursing				
		Psychiatric nursing				
Chiropodist visits (65+ only)						
NHS Direct						
Dental services						
General optical services						
Social Care	Long term for 65s+	Meals on wheels		Age and Sex		
		Home help				
Day centre attendances						
Residential care						
Nursing home care						
Respite care						
Care for 18-64s with physical disabilities, learning disabilities or mental health problems	Day centre placements	Age and Sex				
	Home help					
	Meals					
	Residential and nursing home care					

³ Age groups were: births, 0-4, 5-9 and five year age groups up to 95+ (except for long-term care for the over 65s which was grouped for 65-69, 70-74, 75-79, 80-84 and 85+.)

⁴ Heart disease, stroke, cancer, respiratory, renal, injuries and poisoning, mental health and other.

⁵ Decedents are classified as people in their last year of life, survivors are people not in their last year of life.

⁶ GP visits were broken down into CHD, stroke, hypertension, raised blood pressure, schizophrenia, depression, anxiety, diabetes, asthma and other. GP prescriptions were broken down into: gastro-intestinal; cardiovascular; respiratory; central nervous system; infectious; endocrine; obstetrics, gynaecological and urinary; malignant diseases and immunosuppression; nutrition and blood; musculoskeletal; eye; ear, nose and oropharynx; skin and other.

Table 4.2: How health and social care was broken down to build up an accurate baseline cost

Data with no breakdown by activity and unit cost

Hospital, community and family health services		
Ambulances	Obstetric outpatients	Professional advice and support
Community maternity	Other care in the community	Personal dental services
Family planning	Other hospital services	Screening
Health promotion	Other learning disability related care	Services to GPs (open access)
HQ administration		Personal medical services
Immunisation and surveillance	Other mental health related care	

4.8 In addition to the data in Table 4.2, capital charges, central health and miscellaneous services (CHMS), departmental administration, capital expenditure, cost of capital, depreciation and impairments, and provisions feature as aggregate expenditure lines.

4.9 In summary, the majority of expenditure was broken down by activity and unit cost. The activity data were, where possible, further broken down by age, sex and disease (between 10 and 13 disease areas depending on the type of care). The choice of disease categories was based on a combination of available information, information required for the disease-specific NSF model impacts, and a desire to have a disease breakdown for a reasonable proportion of activity.

4.10 Also, as noted in Chapter 3, in order to take into account the impact of proximity to death, activity rates for ordinary inpatients and day cases were further split by decedents (people who would die during the year) and survivors (people who would survive to the next year). The split was achieved using Scottish data that links records of hospital use with death records. Scottish hospital activity rates (activity per head) are available separately for people of a particular age/sex group in their last year of life (decedents) compared to people (of the same age/sex group) who are not in their last year of life (survivors)⁷. Achieving a separation of English total hospital activity for each age/sex group (i.e. decedents and survivors together) involved adjusting the Scottish decedent-specific and survivor-specific activity rates to reflect the average activity rates in England.

4.11 Unit costs for inpatient admissions were broken down by age, disease and decedent/survivor status, based on data on the average length of stay and an assumption about the average cost per day⁸. Box 4.1 provides an example of the disaggregated baseline data.

4.12 Adding together each of the areas gave an initial total baseline spend for health and social care in England in 1998-99. In order to complete the baseline, two adjustments needed to be made. First, reconciling the Review's model data with the data for 1998-99 in the Department of Health's Annual Report. Second, up-lifting the reconciled 1998-99 data to 2002-03, the baseline year for this Review. For the latter adjustment, spending on health

⁷ The Scottish linked data was provided by the Information and Statistics Division, NHS Scotland.

⁸ This involved the assumption that hospital costs are evenly distributed across a hospital stay.

and social care is increasing substantially up to 2002-03, as noted in Chapter 1. To account for this increase, the spending for each area in 1998-99 was uplifted taking account of spending plans, past trends and partial information about activity levels since 1998-99 to reach the 2002-03 projected level.

- 4.13 The expenditure figures have all been produced on a resource basis, consistent with the implementation of Resource Accounting and Budgeting in government from April 2001⁹.
- 4.14 As noted in Chapter 1, the Review's detailed modelling relates to England. The information which would have enabled the Review to build up a similarly detailed picture for the UK as a whole was not available. Therefore, in order to produce projections for the UK as a whole – in line with its Terms of Reference – the Review has applied a simple population factor adjustment to the projections for England taking into account of the baseline level of spending in the UK for 2002–03. This is a simple assumption which is not based on an assessment of existing levels of provision or health status, which vary across the UK.

Box 4.1: An example of disease-specific baseline data

An example of the most detailed breakdown of information in the Review's baseline is non-elective inpatient admissions for heart disease.

Total non-elective inpatient admissions for heart disease in 1998–99 were provided by the Department of Health (Hospital Episode Statistics). These data were available in 21 age groups and for males and females separately, i.e. 42 groups in total. Each age/sex group (for example females aged 50-54) was further split into decedents and survivors using adjusted activity rates from Scottish data. This resulted in 84 separate entries for ordinary non-elective inpatient admissions for heart disease.

Each age/sex/decedent-survivor group for inpatient admissions for heart disease had a unit cost linked to it. The unit cost was based on the average cost per admission across all age/sex/decedent-survivor groups provided by the Department of Health.

These unit costs were multiplied by total admissions to give total costs in each age/decedent-survivor group and then divided by the average length of stay for each of these groups to produce an age and decedent/survivor-specific unit cost for each disease group. The unit costs were not split by sex. So 84 activity entries for inpatient admissions for heart disease were linked to 42 unit costs to produce 84 expenditure figures which, when totalled, produced an estimate of baseline spending on ordinary non-elective inpatient admissions for heart disease.

⁹ See Department of Health (2001) Departmental Report, Cm 5103, The Stationery Office.

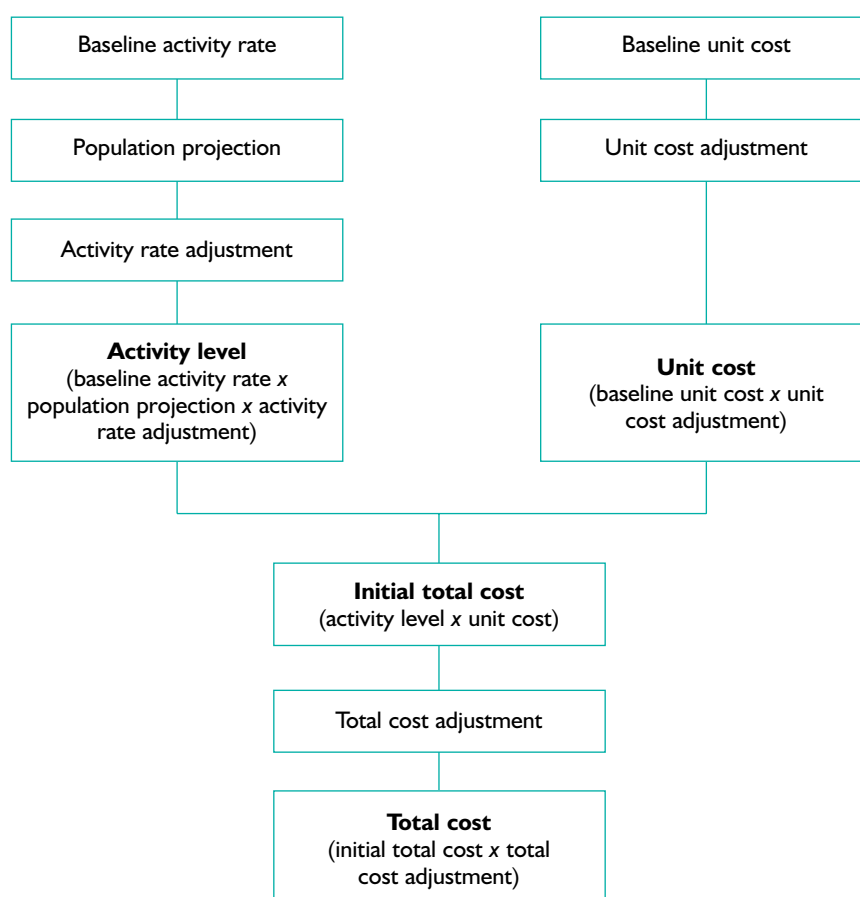
PROJECTIONS

4.15 Using this baseline, the Review then projected forward the cost of health and social care over the 20 year period. This was done by inputting into the model the various factors set out in detail in Chapters 2 and 3 that the Review had identified as affecting the activity levels, unit costs or total costs of health and social care.

4.16 Chart 4.1 summarises how the factors were incorporated into the model to produce a projected total cost. The factors can impact on the model in three ways:

- factors which affect the **activity rate** or **total activity** – principally, although not exclusively, these are factors related to the demand for care;
- factors which affect the **unit cost** – principally, although not exclusively, these are factors related to the quality of care; and
- factors which affect the **total cost** – principally, although not exclusively, these are factors where there was no clear information on the separate impacts on activity and unit costs, such as some aspects of technological uptake.

Chart 4.1: Projection method for each area – broken down by care type, and then where applicable by disease area, age, sex and decedent/survivor (see Table 4.1)



4.17 In summary the Review's approach was to:

- multiply the baseline activity rate by the projected population to give a new activity level;
- incorporate additional activity impacts;
- multiply new activity levels by an adjusted unit cost to give an initial total cost; and
- multiply that by total cost adjustments to give the final total cost for the care area.

Demographic change

4.18 Baseline activity rates (for example, the number of GP visits for a specific age/sex group in 2002-03 divided by the number of people in that age/sex group in 2002-03) were projected forward using different population projections for each scenario, assuming that age-specific use and unit costs of care remain constant. These results formed the base case projections.

4.19 As discussed, in order to account for the effect of proximity to death on acute health care costs, mortality rates were used to separate demographic projections into projections of decedents and survivors. These population projections were then multiplied by activity rates for decedents and survivors separately, where this breakdown was available.

Clinical quality - National Service Frameworks (NSFs)

4.20 The changes as a result of adopting the existing and future NSFs have been modelled as changes in:

- activity (e.g. improved diagnosis of diabetes resulting in greater use of care);
- unit cost (e.g. improving the quality of revascularisation); and
- expenditure (e.g. increased spending on screening for which there is no activity/unit cost data split in the model).

4.21 For example, modelling the impacts of the coronary heart disease (CHD) NSF involved:

- increases in the activity and unit costs for GP prescriptions to reflect take up of NICE guidelines and greater use of statins¹⁰;
- increases in outpatient activity and unit costs due to, among other things, rapid access chest pain clinics; and
- increases in district nursing and GP visits activity because of higher levels of monitoring and diagnosis.

¹⁰ This incorporates variations around compliance and when statins come out of patent and the impact on price.

Changes in health care needs

- 4.22 Changes in health status and health seeking behaviour have direct impacts on the demand for care. The assumptions for the demand factors outlined in Chapter 3 have been incorporated as activity impacts in the model. The specific ways in which the demand factors will impact on particular types of activity, age groups and disease areas were estimated and modelled.

Other impacts on the quality and configuration of supply

- 4.23 Additional factors related to the quality and configuration of the supply of care were included in the projections as either changes in the level of activity, changes in the unit costs of a particular activity or changes in the total cost of one or more types of care. For example:
- reducing waiting times was modelled as an increase in the relevant activity areas;
 - productivity gains were modelled as reductions in each activity's unit cost and total cost where unit costs were not available; and
 - improving accommodation services and other non-clinical quality impacts were modelled as unit cost uplifts.

Workforce

- 4.24 The Review's projected activity assumptions for each scenario were then fed into a workforce model developed in conjunction with the Department of Health to estimate the staff implications. These results were then considered against planned increases in the number of staff.

CONCLUSION

- 4.25 The Review's model can therefore generate activity, unit cost and total cost projections for each year between the 2002-03 baseline and 2022-23. The results can be broken down by type of care (e.g. inpatient admissions and GP visits) and for the majority of expenditure there can be further disaggregation by age, sex, disease and decedent/survivor status. The following chapter sets out the Review's projections.

Summary

Over the next 20 years, the UK will need to devote a substantially larger share of its national income to health care, if the vision of the health service in this Report is to be achieved under any of the scenarios. The projections indicate that:

- the growth in spending should be highest in the early years, in order to allow the service to 'catch up', increase activity and deliver higher quality. As these costs are common across scenarios, early growth is similar in all three scenarios;
- this early growth is at the upper end of what could be sensibly spent, given other resource and capacity constraints, especially the workforce;
- in the later years, the workforce implications of increased activity present a significant challenge and demonstrate the need for skill mix changes and other means of improving productivity; and
- growth in spending in the later years tails off as the service 'keeps up'. But the rate of growth varies between the scenarios and health expenditure accounts for substantially different shares of national income across the scenarios by 2022-23.

The projections for social care show that population changes and the ageing of the population are a much greater cost pressure for social care than for health care. The projections do not incorporate the cost of improved quality, and so will under-estimate the additional resources required for social care.

UK health spending summary

	2002-03 ¹	Projections			
		2007-08	2012-13	2017-18	2022-23
Total health spending (per cent of money GDP)²					
Solid progress	7.7	9.4	10.5	10.9	11.1
Slow uptake	7.7	9.5	11.0	11.9	12.5
Fully engaged	7.7	9.4	10.3	10.6	10.6
Total NHS spending (£ billion, 2002-03 prices)					
Solid progress	68	96	121	141	161
Slow uptake	68	97	127	155	184
Fully engaged	68	96	119	137	154
Average annual real growth in NHS spending (per cent)³					
Solid progress	6.8	7.1	4.7	3.1	2.7
Slow uptake	6.8	7.3	5.6	4.0	3.5
Fully engaged	6.8	7.1	4.4	2.8	2.4

¹ Estimates.

² All figures include 1.2 per cent for private sector health spending.

³ Growth figures are annual averages for the five years up to date shown (Four years for the period to 2002-03).

INTRODUCTION

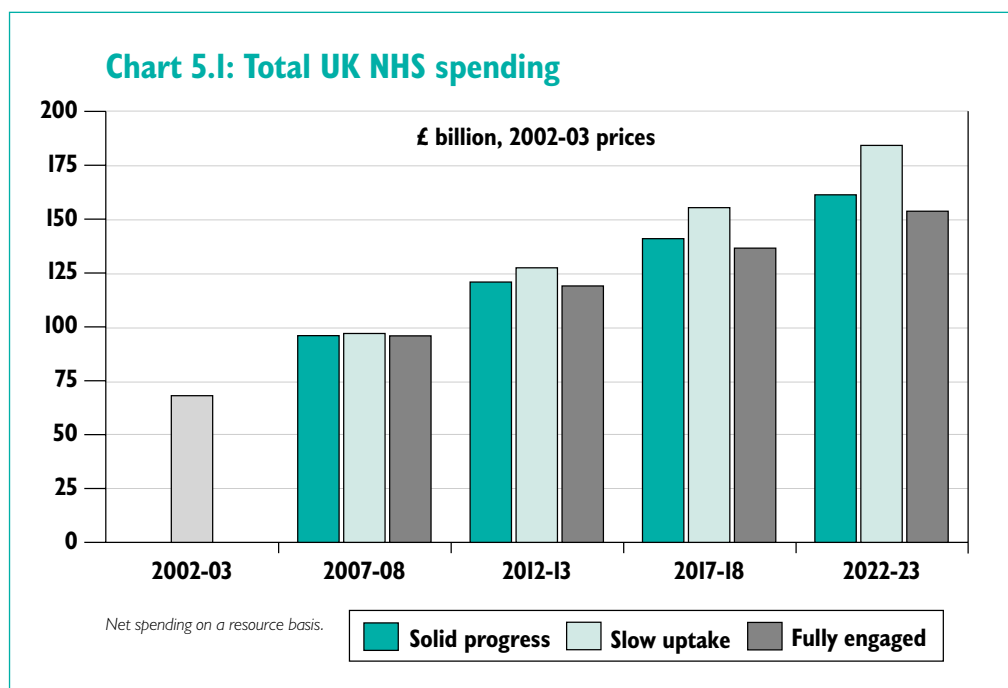
- 5.1 This chapter sets out the results of the Review's modelling work. Estimates of the resources which will be required over the next 20 years to deliver the high quality health service described in Chapter 2 have been produced.
- 5.2 For each of the three scenarios outlined in Chapter 3, to deliver the health service envisaged, the UK will need to devote a substantially larger share of its national income to health than it does today. There are also significant workforce implications over the period which need to be considered carefully.
- 5.3 The aggregate expenditure results are presented first, followed by greater detail of the contribution of specific factors. The chapter then discusses the workforce requirements against which the Review's expenditure projections have been considered. Finally, more illustrative projections show the impact, from the present spending base, of demographics and ill health on social care spending over the next two decades.
- 5.4 The projections are intended to show what resources might be required to deliver a high quality health service under three plausible and coherent views of the future. Many different scenarios are, of course, possible and could result in very different estimates.
- 5.5 The overall projections presented in this chapter are for the UK as a whole, in line with the Review's Terms of Reference. However, as noted in the previous chapter, the Review's detailed modelling has been carried out using data related to England. Thus, breakdowns showing the impact of different trends affecting health care relate to England. Consultation responses agreed with the Interim Report's assessment that the most significant of these trends are likely to impact similarly across all countries of the UK.
- 5.6 Assessing the resources required for the health service so far ahead is not straightforward. The Report has already highlighted the benefits of assessing long-term resource requirements, as well as some of the difficulties in making such an assessment. Annex A discusses these challenges in more detail and suggests how they might be addressed to assist subsequent reviews of this kind.
- 5.7 These challenges should be borne in mind when considering the projections in this chapter. Clearly, confidence in these estimates is greater for the earlier years than the later ones.

AGGREGATE RESULTS

- 5.8 In 2002-03, total NHS spending in the UK is expected to be around £68 billion, or 6.5 per cent of GDP. Including private expenditure on health, the figure is likely to be around 7.7 per cent of GDP.
- 5.9 Under the different scenarios considered, the Review estimates that UK NHS spending will rise to between 9.4 and 11.3 per cent of GDP in 2022-23 to

deliver the high quality health service which the Report describes. On the simple assumption that private health expenditure remains constant at its present level of around 1.2 per cent of GDP, this would raise total UK health spending to between 10.6 and 12.5 per cent of national income in 20 years' time (see Box 5.1).

5.10 This represents a considerable rise from current levels of expenditure – in 2002-03 prices, an increase from £68 billion today to between £154 billion and £184 billion in 2022-23, as illustrated in Chart 5.1. Across the 20 year period, this would imply total NHS spending increasing at an average rate of between 4.2 and 5.1 per cent a year in real terms.



5.11 These estimates incorporate both the cost of 'catch up' and 'keep up', i.e. the resources required to close the gaps in quality and expectations identified in Chapter 2 and then to keep them closed. Roughly speaking, the first decade of the Review is focused on 'catching up' and the second on 'keeping up'.

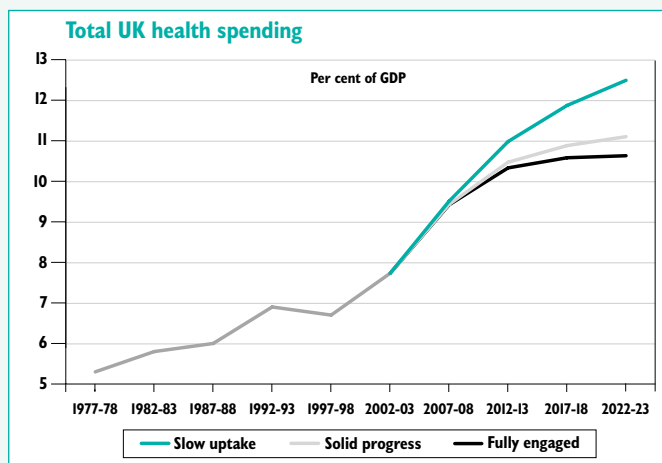
5.12 The rate of growth therefore varies across the 20 years. Given the importance of much needed investment being undertaken as quickly as it sensibly can be, and given the commitments of the NHS Plan to 2010, the fastest period of spending growth comes in the early years. This is boosted by increased infrastructure spending to help expand capacity.

5.13 Table 5.1 shows the profile of growth in NHS spending. Over the next five years, between 2003-04 and 2007-08, average spending growth of between 7.1 and 7.3 per cent a year in real terms is projected across the scenarios. The growth rate eases back in the second five year period, although remaining well above the average real terms growth rate of 3.6 per cent a year over the past two decades. During the second decade, as an increasing proportion of the 'catch up' spending has been undertaken, the required

Box 5.1: UK health spending

The UK has historically devoted a smaller share of its national income to health care than the European average – around 1 to 1½ percentage points a year less since at least 1972. This has contributed cumulatively to the serious shortcomings seen in the UK health service today.

The acid test of the success of the health service must be how health outputs and outcomes compare to other major countries, rather than how spending inputs compare. Indeed, it is with these outputs and outcomes that the Review's resource projections aim to 'catch up' and 'keep up'. However, these improvements will only be realised over a period of years.



Rising spending is only a useful indicator of how the health service is 'catching up' if the resources are being deployed effectively. Even then it should be secondary to measures indicating progress, for example, milestones relating to investment in the workforce, ICT and the capital estate.

The above chart shows the projected increase in the percentage of GDP devoted to health care in the UK (both public and private) over the next 20 years under each scenario. It is impossible to know how UK spending will compare with that of other countries in 20 years' time. But it seems reasonable to anticipate that the share of GDP devoted to health care in other countries will continue to increase over the next two decades: many of the trends identified by the Review as driving up costs in the UK are likely to affect comparator countries in similar ways.

It is also reasonable to anticipate that the UK's rate of increase in health spending will differ from that of other EU states. Much of the first decade's more rapid spending will help the UK to 'catch up' to the standards of its EU partners, while the projections for the subsequent decade should allow the UK to 'keep up' with (rising) standards across all countries.

However, as noted above, a particular level of spending input does not guarantee a particular level of health outcomes and outputs. For example, Sweden has a higher life expectancy than the US, but its health spending as a percentage of GDP is substantially less than that of the US¹. How effectively resources are used is important. How well health resources have been used in the past and other wider societal factors, such as levels of income and educational inequalities, will continue to impact on outcomes.

¹ Health spending as percentage of GDP 1998: US – 12.9, Sweden – 7.9 (OECD Health Data 2001). Life expectancy at birth 1998: US – 73.9 for men and 79.4 for women, Sweden – 76.9 for men and 81.9 for women. Source: OECD Health Data 2001.

real growth rate falls back further, particularly in the *fully engaged* scenario. In the final five years of the 20 year period, spending grows by between 2.4 and 3.5 per cent a year in real terms.

Table 5.1: Total UK NHS spending¹

	Average annual real growth, per cent				
	1999-00 to 2002-03	Projections			
		2003-04 to 2007-08	2008-09 to 2012-13	2013-14 to 2017-18	2018-19 to 2022-23
Solid progress	6.8	7.1	4.7	3.1	2.7
Slow uptake	6.8	7.3	5.6	4.0	3.5
Fully engaged	6.8	7.1	4.4	2.8	2.4

¹ Net spending on a resource basis, converted to real terms using the GDP deflator at market prices.

- 5.14 Under the three scenarios, total UK health spending (public and private) is projected to rise from an estimated 7.7 per cent of GDP in 2002-03 to between 9.4 and 9.5 per cent of GDP in 2007-08. The figures then diverge, with spending under the *slow uptake* scenario rising strongly to 11.0 per cent of GDP in 2012-13 and 12.5 per cent of GDP by 2022-23. Health spending is projected to take a considerably lower share of national income under the *fully engaged* and *solid progress* scenarios: 10.3 and 10.5 per cent respectively in 2012-13, rising to 10.6 and 11.1 per cent respectively by 2022-23.

Capacity constraints

- 5.15 In arriving at its final resource estimates, it has been important for the Review to consider carefully both short-term and long-term capacity issues. The rate at which activity can sensibly be expanded is determined by the available capacity within the system. This includes having adequate physical capacity in terms of buildings and information capacity in the form of ICT. But most importantly, it means having sufficient numbers of staff with the right level of skills.
- 5.16 To aim for too rapid a rate of activity growth risks hitting capacity constraints and driving up costs rather than activity. However, aiming too low means delaying the improvements in quality and access across the service.
- 5.17 Some of the projected increase in expenditure which is required will not impact directly on staff requirements, for example, investment in ICT and the capital estate. The Review's projections allow for a substantial and immediate expansion in spending on both, as discussed later in this chapter. But substantial increases in activity are also required, for example to implement the NSFs and reduce waiting times. These will inevitably require additional staff and/or an adjustment in the skill mix among the existing workforce. But this takes time and inevitably imposes a short-term limit on the rate at which the service can expand. Beyond the short term, there is much greater scope for recruitment and training plans to be adjusted or skill mix changes to be realised.

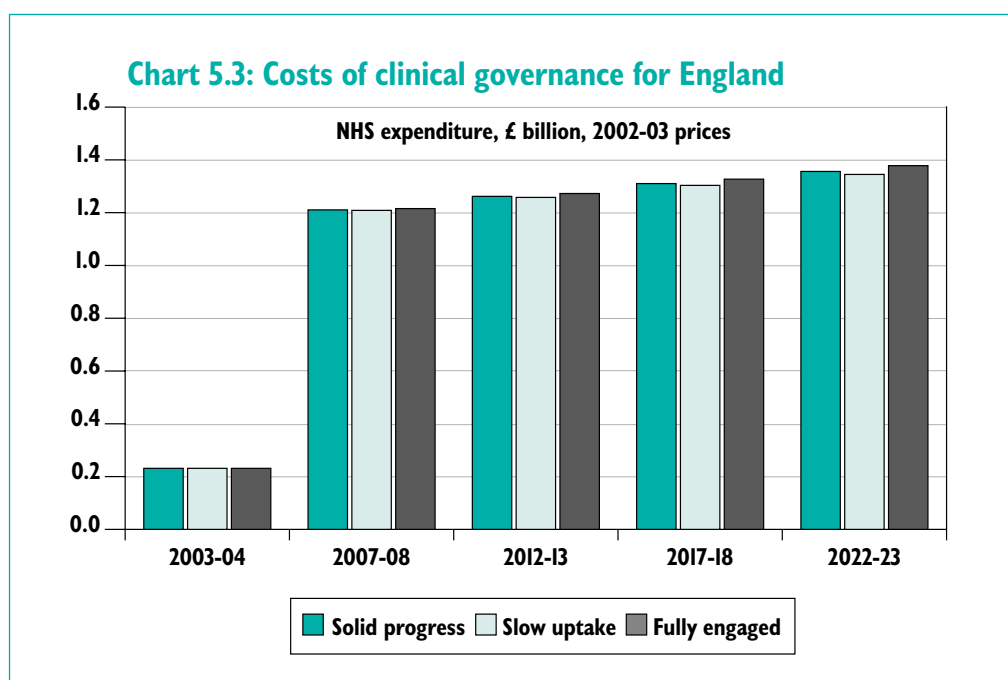
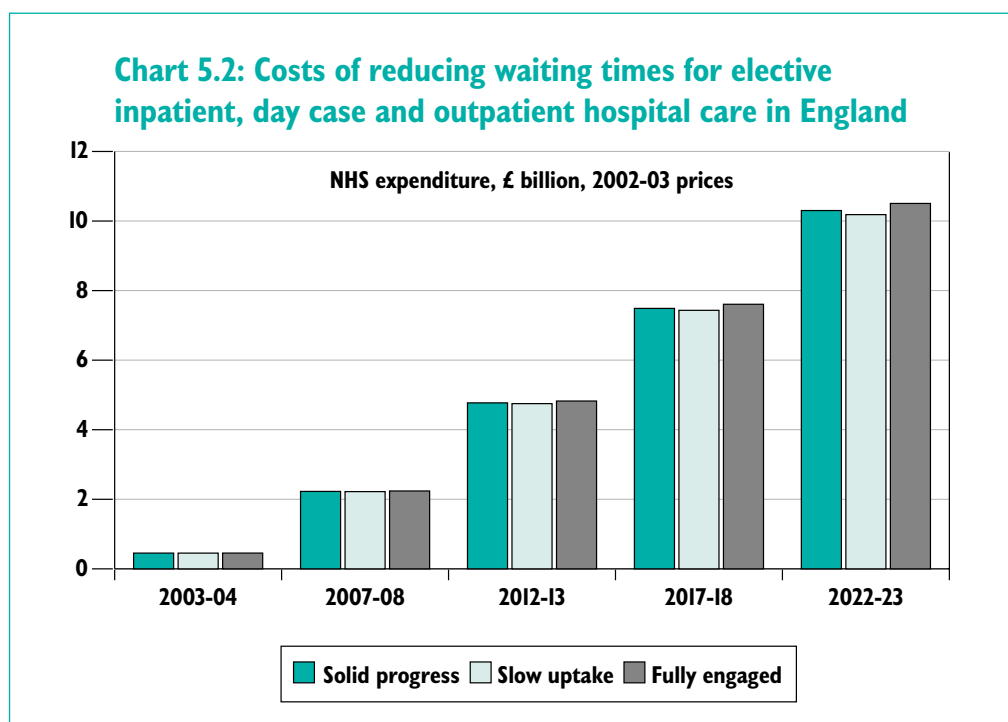
- 5.18 Workforce requirements are considered in more detail later in this chapter. It sets out how the Review has assessed the plausibility of its activity projections by comparing the implied workforce demand with projections of workforce supply.
- 5.19 Given the expected workforce supply over the next few years, the Review believes that its projections for UK real terms spending growth of 7.1 to 7.3 per cent a year over the next five years are at the upper end of what could sensibly be spent. Indeed, to be wisely spent, they would represent a very considerable management challenge. The risks of spending being ineffective rises with the spending growth rate. The figures already incorporate assumptions that the significant workforce expansion planned for the next few years is fully delivered, that ICT spend can be doubled and spent productively, and that waiting times and NSF commitments are met.
- 5.20 Beyond the short term there is more scope – if action is taken early – to increase the number, composition and skill mix of staff compared to current plans. The workforce section of this chapter therefore attempts to map out in broad terms what some of the key workforce challenges and opportunities are likely to be over the next 20 years.

COMPARING THE SCENARIOS

- 5.21 While in the early years of the Review period the growth rates between scenarios are similar, they subsequently diverge. This results in health spending as a percentage of GDP being around 2 percentage points higher by 2022-23 in the *slow uptake* scenario than the *fully engaged* scenario. In absolute expenditure terms, this gap is very large: around £30 billion or approaching half of today's NHS budget.
- 5.22 It is important to note that while *slow uptake* is the most expensive scenario, it also is based around the worst health outcomes. *Fully engaged* is the least expensive but based around the best outcomes. Life expectancy, as described in Chapter 3, is nearly 3 years higher for men and 2½ years higher for women in the *fully engaged* scenario. This illustrates the reality that higher spending inputs do not necessarily imply better health outputs and outcomes.
- 5.23 While the expenditure differences between the scenarios are substantial, they might have been more significant. There are two reasons why they are not:
- the most expensive cost drivers – those of delivering high quality and meeting rising expectations – are common to all the scenarios, explaining the substantial increase in resources projected in all three; and
 - some of the cost drivers which differ between the scenarios work in opposite directions. For example, in *solid progress*, the higher expenditure associated with increased health seeking behaviour offsets the lower expenditure associated with reduced ill health in old age.

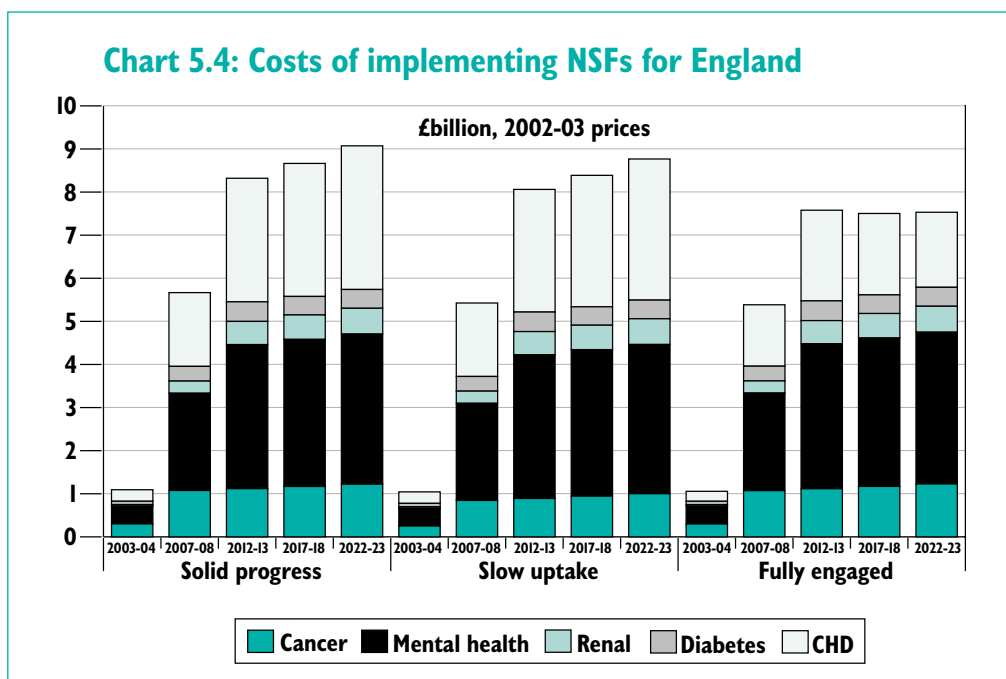
Similarities between scenarios

5.24 The principal costs of delivering better quality and meeting patient expectations (implementing the NSFs and expanding them across the service, reducing waiting times, improving clinical governance and better accommodation) are included in all the scenarios, and account for a large proportion of the increase in costs. Improving quality accounts for around two thirds of the growth rate in each scenario.



5.25 Charts 5.2 and 5.3 set out the projected costs in England of reducing waiting times and improving clinical governance. These are similar for each scenario – the differences are almost exclusively the result of different population sizes. For all three scenarios, the additional cost in today’s prices of reducing

inpatient and outpatient waiting times to two weeks is estimated to be around £10 billion a year by 2022-23. The additional cost of improved clinical governance is estimated to be around £1.4 billion a year by 2022-23, with most of this coming through during the first five-year period.



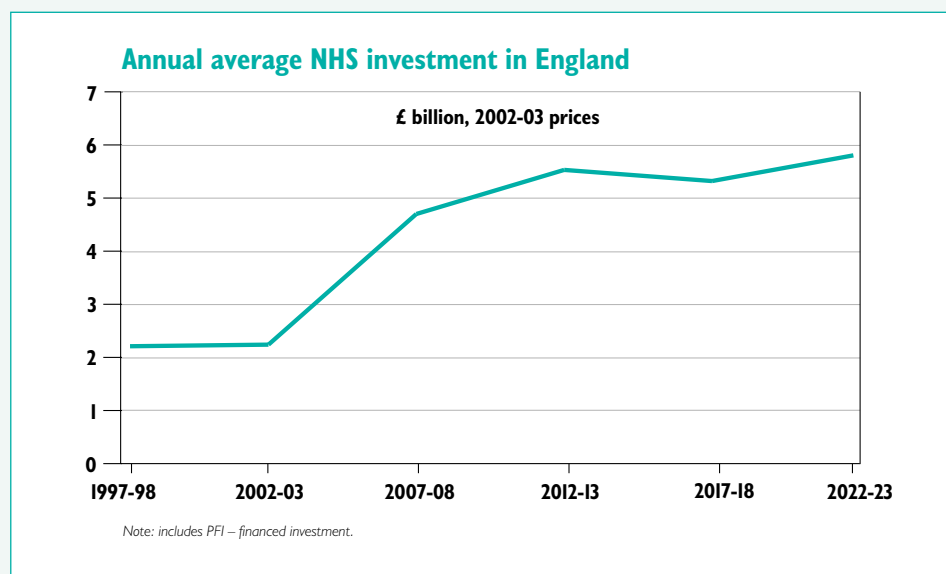
5.26 The costs of implementing the NSFs show a similar pattern (see Chart 5.4). Here, the cost of the *fully engaged* scenario is lower than simple population differences would suggest as a result of the reduced expenditure on statins (see Box 2.3 in Chapter 2), which the Review has assumed as part of the substantial improvement in public health in this scenario. As a result, the only NSF cost which is substantially different between the *fully engaged* and *solid progress* scenario is for coronary heart disease (CHD). This reduced expenditure is also reflected in the number of prescriptions which by 2022-23, are estimated to be around 15 per cent lower in *fully engaged* than in the other two scenarios.

5.27 As set out in Chapter 2, the Review has used its estimates for these five NSF areas to extrapolate the costs of ‘catching up’ to internationally comparable standards for other disease areas. As with the five NSFs, the cost of delivering these is fairly uniform across all scenarios.

5.28 The cost of delivering higher quality in the five specific disease areas and generalising to other disease areas from the results covers only the cost of ‘catching up’. The Review has also accounted for the increased costs of ‘keeping up’ once the NSFs have been implemented as well as increased costs before implementation. These costs are not common across the scenarios. This reflects the Review’s alternative technology assumption which contributes 2 percentage points to spending growth in the *slow uptake* scenario and 3 percentage points in the *solid progress* and *fully engaged* scenarios (see Chapter 3).

5.29 Box 5.2 describes the projections used by the Review of capital spending.

Box 5.2: Capital spending



The above chart shows NHS capital investment spending over the recent past and the projected increase in expenditure over the Review period. It includes expenditure on both new and replacement hospitals, equipment and capital investment in ICT (based on the *solid progress* and *fully engaged* scenarios). Over the first 10 years of the Review period, average annual capital spending (including PFI-financed investment) increases from £2.2 billion to £5.5 billion. The subsequent dip reflects some modest fall back in the level of ICT capital spending from the high levels of infrastructure investment over the first decade. ICT capital spending is discussed later in this chapter.

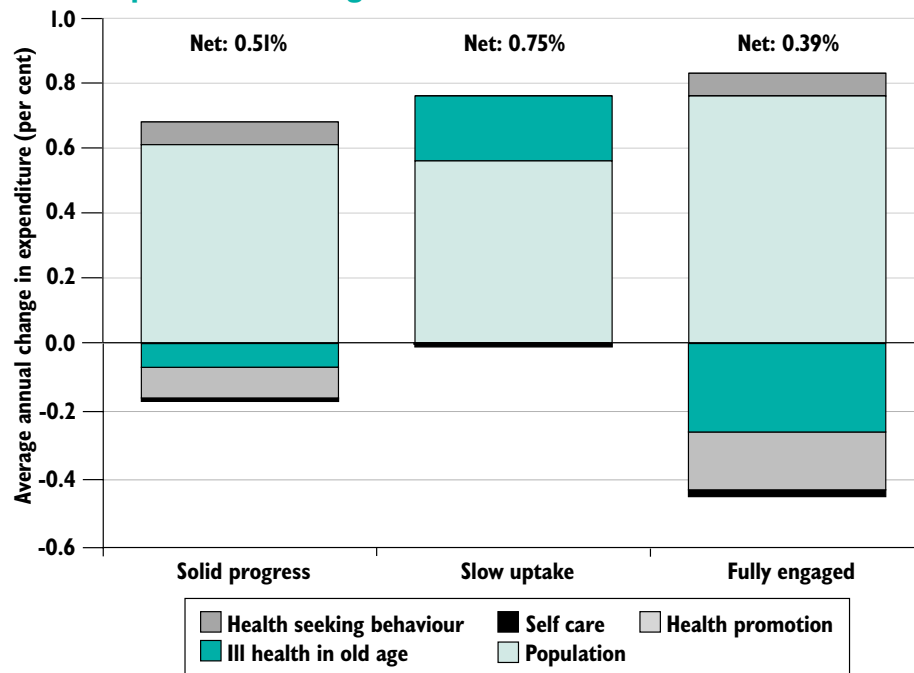
These projections represent a significant increase in investment. For example, the NHS Plan committed to delivering “over 100 new hospital schemes between 2000 and 2010”. This includes 38 major hospital schemes already approved to go ahead. Since then, 30 major schemes with a capital value of almost £3.6 billion have also been approved, with the cost varying between £26 million for a new Diagnostic and Treatment Centre (DTC) and £400 million for a ‘super’ hospital.

The Review’s assumptions set out in Chapter 2, which have been fed into the resource modelling, imply an additional cumulative spend on new hospitals of £42 billion over the next 20 years. Assuming a cost of around £200 million to build a 500-bed district general hospital with 75 per cent single en-suite rooms, this translates to around 205 new hospitals over the entire period. This represents an extremely ambitious capital building programme, substantially in excess of current NHS Plan estimates – current targets include all schemes with a capital spend in excess of £25 million such as DTCs.

Differences between scenarios

- 5.30 The scenarios impact on the resources required for the health service over the next 20 years by either affecting demand for care or the cost and configuration of the supply of care. Some factors increase costs while others decrease them. Changes in the detailed breakdown of costs are greater than changes in the overall cost between the three scenarios, as some changes offset each other in the modelling. Supply differences have the larger impact. But demand differences cannot be ignored as they are closely linked to substantial differences in health outcomes.
- 5.31 While the Review's estimates are based on reasonable and informed assumptions, even slight changes to these assumptions would have a substantial cost impact. The sensitivity of the projections of the supply factors can be illustrated by considering the case of productivity. As set out in Chapter 3, in the *solid progress* and *fully engaged* scenarios, quality-adjusted productivity growth is assumed to rise from 2 per cent a year in the short term to 3 per cent a year in the second decade. Around half of this is assumed to comprise unit cost reductions and around half higher quality. In the *solid progress* scenario, UK health spending is projected to rise to 11.1 per cent of GDP by 2022–23. If, for example, the cost-reducing elements of productivity growth were to be 1 percentage point a year lower than assumed over the 20 year period, and nothing else changed, the equivalent spending figure would be 13.1 per cent of GDP. Conversely, if productivity growth were to be 1 percentage point a year higher over the 20 years, the percentage of GDP devoted to health care, all other things being equal, would be 9.4 per cent by 2022–23.
- 5.32 Chapter 3 set out the Review's ambitious assumptions for an increase in ICT expenditure over the next 20 years. The Review's projections show ICT expenditure stabilising at around £2 billion a year in 2002-03 prices during the second decade, roughly double its level today. However, the pace of investment varies between the scenarios. In the *solid progress* and *fully engaged* scenarios the initial pace is rapid, with investment peaking in the middle of the first decade at around £2.4 billion; in the *slow uptake* scenario the pace is slower, peaking around two years later but at a higher level to reflect a catch up to the same level of cumulative spending given the slower start. The Review believes that there is a strong case for a rapid pace of investment, but only if the necessary steps are taken to ensure that this will deliver the required results in a cost effective way. This is considered further in Chapter 6.
- 5.33 Chart 5.5 shows the demand factors described in Chapter 3 and their impact on expenditure. The impact is comparatively small, although rather different between scenarios. Their net contribution to average annual expenditure is lowest in the *fully engaged* scenario, at around 0.4 per cent a year. It is greatest in the *slow uptake* scenario, but even then only around 0.75 per cent a year. This is largely because the expenditure estimates are not particularly sensitive to the different assumptions about life expectancy.

Chart 5.5: Average annual impact of demand drivers on NHS expenditure for England



Note: The demand drivers are considered in isolation of each other and all other factors in the model.

5.34 The population is the largest driver among the demand factors. The impact increases progressively from *slow uptake* to *solid progress* to *fully engaged*, in line with the progressive increase in the overall size of the population and the proportion aged over 85. Across all scenarios, the contribution of demographic change to future costs is relatively modest. This reflects the fact that the Review’s estimates of expenditure on hospital care have incorporated the impact of proximity to death as well as age, as described in Chapter 3. Had the Review not done so, the contribution of population change to NHS expenditure would have been around 0.1 percentage points higher.

5.35 All three scenarios include similar population growth, with fertility and migration assumptions the same across all three and only mortality assumptions varying. The Review has conducted sensitivity analysis on the two additional population projections described in the Interim Report: one (“young”) with high fertility, high migration and low life expectancy which results in high population growth to over 67 million by 2022 and 18 per cent of people aged over 65; and a second (“old”) with low fertility, low migration and high life expectancy which results in low population growth to 61½ million by 2022 and 21 per cent of people aged over 65. Projecting future resource requirements with these population assumptions results in population change contributing 0.71 percentage points a year on average to expenditure for the “young” population projection and 0.62 percentage points a year for the “old” projection. The difference between these two population projections is largely related to overall population growth and the proportion of older people

- 5.36 The *slow uptake* scenario shows the highest overall costs for the demand factors because, although it has the youngest population, the assumption about the deteriorating health of older people in the future leads to increased costs. In addition, there are no factors impacting to reduce costs in this scenario.
- 5.37 The *solid progress* and *fully engaged* scenarios show greater demand from increased health seeking behaviour being more than cancelled out by decreasing demand from improvements in health status for both those aged 15-64 and those aged 65 and over. In the *solid progress* scenario, the impact of improved health status is twice as large as that of increased health seeking behaviour, while in the *fully engaged* it is over six times as large. This explains why, despite having the largest population, *fully engaged* has the lowest demand impact on costs.
- 5.38 This masks some significant impacts of reducing individuals' risk factors associated with key diseases. As noted in Chapter 3, there are wider benefits to individuals, society and the economy of preventing rather than treating ill health and extending healthy life expectancy and overall life expectancy: "healthy communities tend to attract investment and unhealthy ones do not"².

Table 5.2: Percentage difference in annual average activity per person between scenarios in 2022-23

	Inpatients and outpatient	GP visits	Prescriptions
Solid progress compared to fully engaged	+6	+10	+13
Slow uptake compared to fully engaged	+8	-1	+17
Solid progress compared to slow uptake	-2	+11	-3

- 5.39 Although the net expenditure implication of these demand and supply factors (excluding pay and prices) is relatively limited, the activity impact is significant. For inpatient and outpatient visits there is considerably more activity in the *solid progress* and *slow uptake* scenarios than in the *fully engaged* scenario. For example, by 2022-23, average annual inpatient and outpatient activity per person is estimated to be around six to eight per cent higher in *solid progress* and *slow uptake* than in *fully engaged* (see Table 5.2). The higher estimates for *slow uptake* reflect the increased demand arising from greater ill health among the elderly (see Box 5.3). The higher estimates for *solid progress* reflect the strong focus on curative care in this scenario. The lower estimates for *fully engaged* reflect the improvements in health promotion and disease prevention as a result of increased public engagement (see Chart 5.5).

² Hunter D (2002), Wanless with a pinch of salt, Health Service Journal 10 January 2002.

5.40 The projections for GP visits also demonstrate some of the key differences between the scenarios. The average number of GP visits per person per year is estimated to be around 10 per cent higher in *solid progress* than in both *slow uptake* and *fully engaged*. The difference with *slow uptake* reflects the rapid response of the service to investment in *solid progress*, and the knock-on effect in increased demand due to the resulting increased public confidence. The difference with *fully engaged* is the result of high public engagement and lower ill health in old age in that scenario.

WORKFORCE

5.41 The size and composition of the workforce is one of the most important determinants of the capacity of the health service. With such a highly skilled workforce, changing the capacity of the NHS will take time and needs to be actively managed. The Review developed a workforce model in conjunction with the Department of Health to examine the staff resources which would be required under the three scenarios.

5.42 The workforce model compares the projected workforce demand with the likely supply of suitably skilled workers, and has two objectives:

- to check whether the rates of activity growth projected in the three scenarios risk hitting capacity constraints, driving up costs rather than improving the quantity and quality of health care; and
- to identify some of the key implications for workforce demand to feed into the more detailed workforce planning work which is the responsibility of the various workforce planning bodies.

5.43 This work has been limited to England. Although the broad trends are likely to be similar in the other countries within the UK, they may find it helpful to undertake a similar, more detailed analysis of the workforce implications of additional investment at the rates set out in this Review.

5.44 The workforce model assesses the implications of the additional activity for workforce demand. The model assumes current levels of workforce productivity with two changes:

- doctors' working hours fall to 48 hours a week in line with the Working Time Directive; and
- average length of stay for inpatient admissions to hospital falls in line with the estimates set out in the National Beds Inquiry³.

³ See Table 3.3.

5.45 Over the next two decades, many factors are likely to impact on workforce productivity. For example, ICT investment may significantly reduce the amount of time medical and nursing staff have to spend on administration, freeing up more time for patient care. Counterbalancing this, the amount of time spent on clinical governance will increase. For its financial projections, the Review has assumed that 10 per cent of professional staff's time should be devoted to clinical governance (see Chapter 2). For the workforce modelling, the Review has not attempted to quantify the net effect of these different demands on staff time. Any further work by the workforce planning bodies will want to explore these issues in more detail.

5.46 The increased activity projected in the Review would result in a substantial increase in the demand for health care workers. Overall under the three scenarios the health care workforce might need to increase by almost 300,000 over the 20 years⁴. The rates of increase are not uniform across the different staff groups. For illustration, the *solid progress* scenario increases the demand for different groups within the health care workforce as follows:

- 62,000 doctors;
- 108,000 nurses;
- 45,000 professionally qualified therapists and scientists; and
- 74,000 health care assistants (HCAs).

Table 5.3: Growth in the number of doctors¹ in England

	Percentage change on five years earlier			
	2005	2010	2015	2020
Demand				
Solid progress	11	29	15	4
Slow uptake	11	28	15	3
Fully engaged	10	29	13	3
Supply	12	10	7	8

¹ Whole time equivalents. Comprises consultants, junior doctors and GPs.

5.47 Table 5.3 shows the five year growth rate in the demand for doctors under the three scenarios. There is very little overall difference in either the number or mix of staff required between the different scenarios. Under each scenario workforce demand grows the fastest over the second half of this decade.

5.48 All three scenarios project a substantial increase in primary care activity. Without any other changes, and assuming the continuation of current working practices, this leads to a doubling in the demand for GPs, from almost 26,000 in 2000 to more than 55,000 by 2020 in the *solid progress* scenario

⁴ All figures for additional demand and supply are for whole time equivalents.

Chart 5.6: Workforce implications: demand for and supply of nurses, *solid progress*

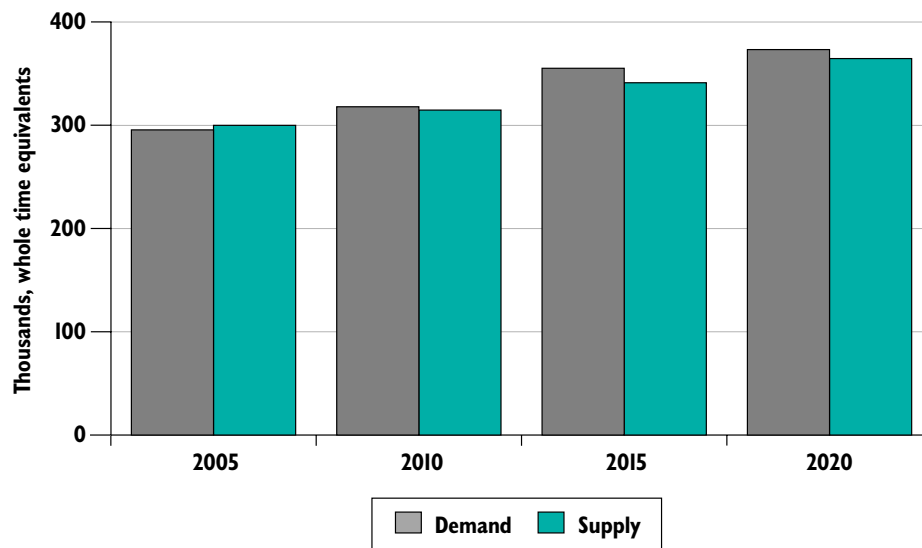
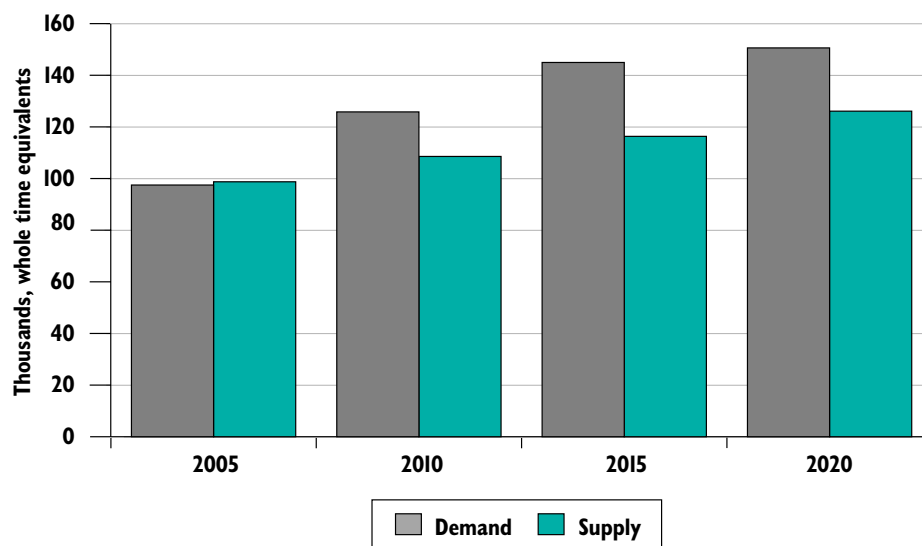


Chart 5.7: Workforce implications: demand for and supply of doctors, *solid progress*



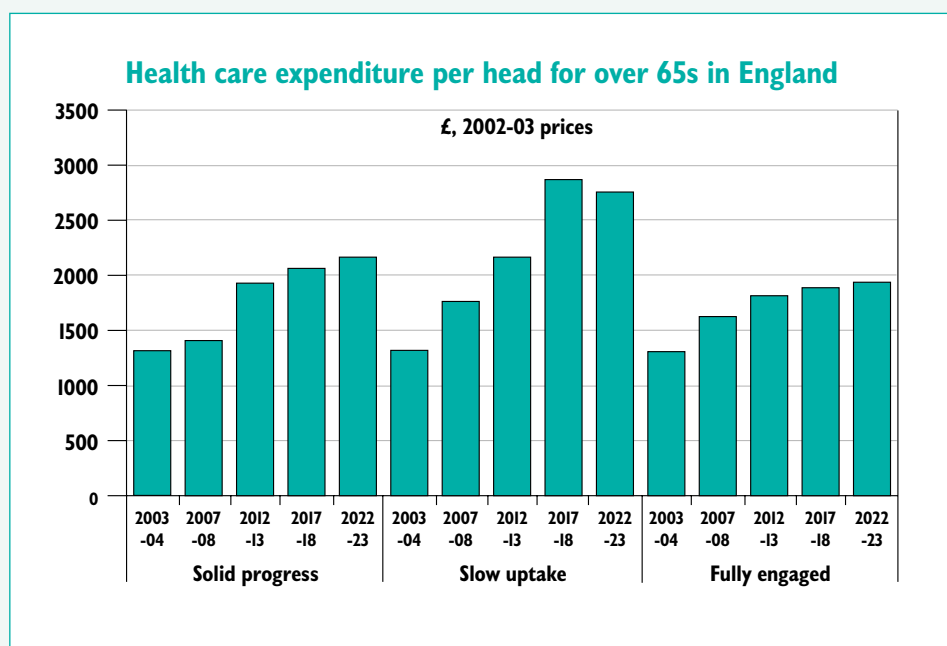
5.49 The Interim Report showed that the UK does not have enough doctors and nurses. The NHS Plan set out targets to increase the number of professionally qualified staff. The Government has embarked upon a programme to increase the numbers in training and improve recruitment and retention rates. This programme is designed to result in a substantial increase in the number of professionally qualified staff in the health service. The Review's workforce model has compared the increased workforce demand implied by the activity projections for each scenario with the increased supply that is expected if the Government achieves its plans for additional training, recruitment and retention. Charts 5.6 and 5.7 compare the projected increase in demand for and supply of nurses and doctors in the *solid progress* scenario. This scenario results in the largest increase in demand although, as noted above, the workforce differences between the scenarios are relatively small.

- 5.50 The charts show that the planned increase in the supply of nurses is almost sufficient to match demand, but the planned increase in doctors is well short of needs. Without some other change, there is likely to be a significant shortfall in the number of doctors. The number of qualified therapists and scientists is projected to slightly exceed demand. However, this may mask a shortfall in individual professions.
- 5.51 The gap in the number of doctors starts to emerge before the end of this decade and is estimated to be around 25,000 after 20 years⁵. The position for nurses is highly dependent on the assumptions made about average length of stay in hospital. If average length of stay falls further than assumed in the National Beds Inquiry, the demand for nurses will be lower. If, however, these assumptions are not met, the demand will be higher and there is the potential for a shortage in the nursing workforce.
- 5.52 The potential shortfall in the number of doctors is based on the current skill mix of the NHS workforce. As the Interim Report outlined, the next 20 years are likely to see significant changes in the roles and responsibilities of different staff groups within the NHS. There is emerging research evidence of considerable scope for changes in the skill mix of the service. The consultation responses showed fairly widespread, but not universal, support for this view.
- 5.53 Alongside the expansion in the number of staff, the NHS Plan set out proposals to introduce new ways of working in the service to break down professional barriers. The NHS Modernisation Agency is leading work to identify best practice and ensure that it takes hold across the service. The Government is also negotiating new contracts with GPs, consultants and nurses. The pay modernisation plans are important for workforce capacity in two regards. First, they should encourage qualified doctors and nurses to stay in the service or, if they have left, to return to the NHS. Second, they should result in a more flexible workforce with greater scope for team working and fewer barriers between different staff groups. This should allow the skill mix in the service to change.

⁵ The global match between demand for and supply of doctors in 2005 masks difficulties in some specialities which the Government has policies to address.

- 5.54 The Review has explored the potential contribution that skill mix changes can make to the potential mismatch between the demand for and supply of doctors. The Interim Report highlighted evidence suggesting that Nurse Practitioners could undertake at least 20 per cent of the work of doctors while maintaining the safety and quality of care. If 20 per cent of GP and junior doctors' work were shifted to Nurse Practitioners, this would eliminate any potential capacity constraint in doctor numbers. However, it would then introduce a potential shortfall in the supply of nurses. Research evidence shows that Nurse Practitioner consultations are longer, so more nurses will be required to deliver a given level of activity. The Review has assumed a 'transformation rate' of 1.5. On this basis, the demand for nurses would increase by around a further 10 per cent. This could be filled if 12.5 per cent of nurse workload could shift to health care assistants (HCAs). But on the basis of a transformation rate of 1.5, this would require additional recruitment of almost 70,000 HCAs in addition to the projected increase in demand of 74,000. Although there is scope to increase the number of HCAs, it may be difficult to recruit this many HCAs on top of the current workforce of around 350,000.
- 5.55 So although skill mix change could make a major contribution to eliminating any potential skills mismatch over the 20 years, the workforce model implies that there will also need to be an increase in the number of doctors and nurses over that already planned. This should be achievable if the pay modernisation currently under negotiation results in improved recruitment and retention.
- 5.56 It is outside the scope of this Review to make recommendations on the precise configuration of staff required over the next 20 years. However, the workforce modelling for this Review shows:
- demand for nurses broadly in line with supply, if the National Beds Inquiry assumptions about average length of inpatient admissions are met;
 - a potential mismatch in the demand and supply of doctors if no other changes are made;
 - pay modernisation could narrow the possible gap through improved recruitment and retention; but
 - a significant change in the skill mix of the health care workforce is likely to be required, with a much greater role for Nurse Practitioners and health care assistants. This should be achievable while maintaining the safety and quality of care.
- 5.57 Changing skill mix and increasing workforce capacity cannot happen quickly; it needs to be planned and actively managed. The workforce modelling suggests that there is sufficient capacity, but only just, in the short term to deliver the activity projected in the three scenarios. But before the end of the decade, there needs to be considerable progress on skill mix and pay modernisation to avoid capacity constraints.

Box 5.3: Costs of caring for older people



Older people are relatively heavy users of health care. The chart above shows how expenditure per head on older people is projected to change over the next 20 years and how it differs between scenarios.

The figures incorporate both the changing cost of delivering high quality care described in Chapter 2 and the different demand and supply assumptions described in Chapter 3. It shows that by 2022-23 expenditure per head in *slow uptake* is substantially higher than in *solid progress* and *fully engaged*. This reflects the overall higher costs associated with *slow uptake* shown earlier in this chapter and is explained by the combination of the costs of delivering a high quality service, relatively low productivity gains and the highest levels of demand of the three scenarios, despite no allowance having been made in that scenario for people aged over 75 to experience similar treatment rates to those aged 65-74.

The lower expenditure per head seen for *solid progress* and *fully engaged* is largely a result of productivity gains and reduced demand because of better health status, which cancels out the additional costs associated with levelling treatment rates between 65-74 year olds and those aged 75 and over.

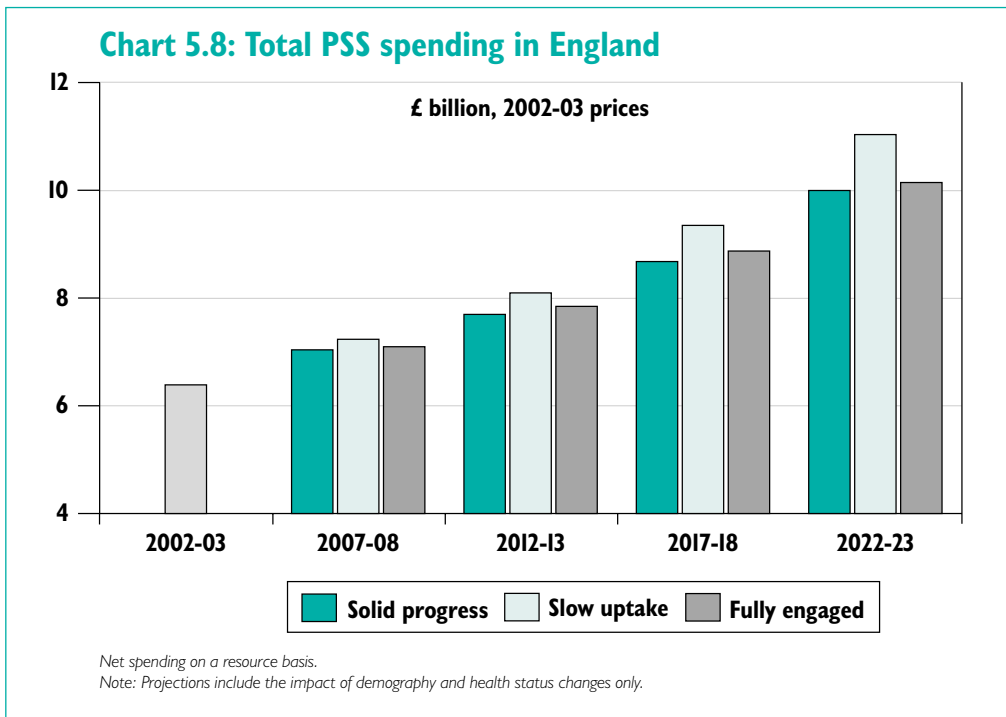
SOCIAL CARE

5.58 Health and social care are inextricably linked. There are many interactions between the two sectors. For example, recent increases in the number of older people being admitted to hospital in an emergency partly reflect reductions in the availability of appropriate social care. In planning the delivery of care, health and social care must be considered together in order to ensure that both provide high quality services for the individuals receiving care and make efficient use of resources.

- 5.59 This demonstrates the need for a greater focus in future on ‘whole systems’ modelling to help provide a better understanding of the interactions between health and social care and the implications for the level of resources required. Chapters 6 and 7 and Annex A make observations and recommendations.
- 5.60 While the Review considered it vital to extend its Terms of Reference to begin to consider social care, it has had neither the information nor the resources to be able to develop a whole systems model, nor indeed to build up projections for social care in the same level of detail as for health care. Significantly, the projections make no allowance for the resource needs of delivering higher quality. It is recommended that future reviews of this type should fully integrate modelling and analysis of health and social care. Indeed, it is for consideration whether a more immediate study is needed of the trends affecting social care.
- 5.61 The projections presented in this section, therefore, simply represent core resource requirements for the next 20 years estimated on the basis of the present position adjusted for population changes and changes in the level of ill health. As a result they will under-estimate the additional resources required.
- 5.62 Specifically, they are aggregate projections of net current expenditure on personal social services (PSS) in England. It has not been possible to obtain a comparable baseline level of expenditure for the other countries of the UK⁶. Social care funded by PSS includes activities such as home help, day centre visits and residential and nursing home care. As described in Chapter 1, the Review has excluded spending on children’s and family services; but it has included all PSS spending on the over 65s and on 18-64 year olds receiving care for mental health problems, physical disabilities and learning disabilities. Together the services which are included in the projections constitute around 60 per cent of total PSS expenditure.
- 5.63 The projections for PSS expenditure on older people were produced for the Review by the Personal Social Services Research Unit (PSSRU) at the LSE⁷ and then adapted for the Review’s model. The projections for social care for 18-64 year olds use baseline data provided by the Department of Health.
- 5.64 The same three scenarios have been considered as for health care, with their differing assumptions about life expectancy and long-term ill health described in Chapter 3.

⁶ The estimates relate to total spending – as financed by both central and local government.

⁷ Details of PSSRU’s methods can be found in Wittenberg R, Pickard L, Comas-Herrera A et al (2001), Demand for long-term care for older people in England to 2031, Health Statistics Quarterly 12, Winter: 5-17. See also <http://www.lse.ac.uk/depts/lsehsc/pssru.htm>



5.65 The projections suggest that, in 2002-03 prices, core PSS spending on services for adults in England will rise from £6.4 billion in 2002-03 to between £10.0 and £11.0 billion in 2022-23 as a result of the impact of demography and health status changes (see Chart 5.8). This represents an average real terms increase of between 2.3 and 2.8 per cent a year over the entire period.

5.66 The projections show that population changes, and in particular the ageing of the population, are a much greater cost pressure for social care than health care.

5.67 Table 5.4 below provides a breakdown of the projected growth in PSS spending. It shows that expenditure grows faster in the *slow uptake* scenario. This pattern is the opposite to what might initially be expected taking into account numbers of people, as the *fully engaged* scenario has the largest number of people aged over 65 and, more significantly, over 85 too.

Table 5.4: Personal social services (PSS) spending in England

	Average annual real growth, per cent				
	1999-00 to 2002-03	Projections			
		2003-04 to 2007-08	2008-09 to 2012-13	2013-14 to 2017-18	2018-19 to 2022-23
Solid progress	1.2	2.0	1.8	2.4	2.9
Slow uptake	1.2	2.5	2.3	2.9	3.4
Fully engaged	1.2	2.1	2.0	2.5	2.7

¹ Net spending on a resource basis, converted to real terms using the GDP deflator at market price. Excludes children's and family services.

² Projections include the impact of demography and health status changes only.

- 5.68 But the key demand driver of future spending on social care for older people is the assumption around their future health. In *fully engaged*, it is assumed that there will be a reduction in ill health, in *solid progress* age-specific rates of ill health remain constant, and in *slow uptake* age-specific rates of ill health increase by 1 per cent a year. This explains why *slow uptake* has the highest growth rate, despite the smallest number of older people.
- 5.69 The projections show a slower growth rate for social care compared to health care. However, as discussed, they do not include resources for delivering higher quality. They do not take account of:
- the need to stabilise the residential and nursing home markets;
 - quality gaps in existing services;
 - the impact which improved technologies will have, for example, on the balance of care at home; and
 - children's and family services.
- 5.70 Despite this, the Review felt it worthwhile to include this brief assessment of social care because of the vital role it must play in a whole systems approach to care. Under-investment and under-capacity in social care puts pressure on hospital care. Many similar improvements in quality to those assumed for health care are needed for social care. Chapter 6 considers the relationship between the two types of care more fully, while Chapter 7 and Annex A reconfirm the Review's recommendation that more sophisticated analysis and modelling of the relationship is needed.

Summary

Success in delivering a high quality service is dependent not just on there being adequate resources, but on those resources being used to maximum effect. This chapter sets out a number of observations about the effective use of resources:

- setting national standards for clinical care and an integrated ICT system;
- establishing the right incentives and targets;
- finding the best balance between nationally-set standards and sensitivity to local circumstances to ensure the smooth delivery of a high quality service;
- finding the right balance between health and social care, primary and secondary care, and treatment and prevention so that health gains are maximised and people receive care in the most appropriate and efficient way;
- ensuring taxpayers' money is being used efficiently and effectively through regular and rigorous independent audit of all health care spending; and
- encouraging greater public engagement in order to increase levels of health awareness and establish a more effective partnership between the public and the health system.

This chapter also reviews consultation responses around the method of financing care and confirms the conclusion of the Interim Report that there is no alternative financing method to that currently in place in the UK which would deliver a given level and quality of health care either at lower cost to the economy or in a more equitable way. In the longer term, the issue is the sustainability of the individual components of the financing mechanism.

INTRODUCTION

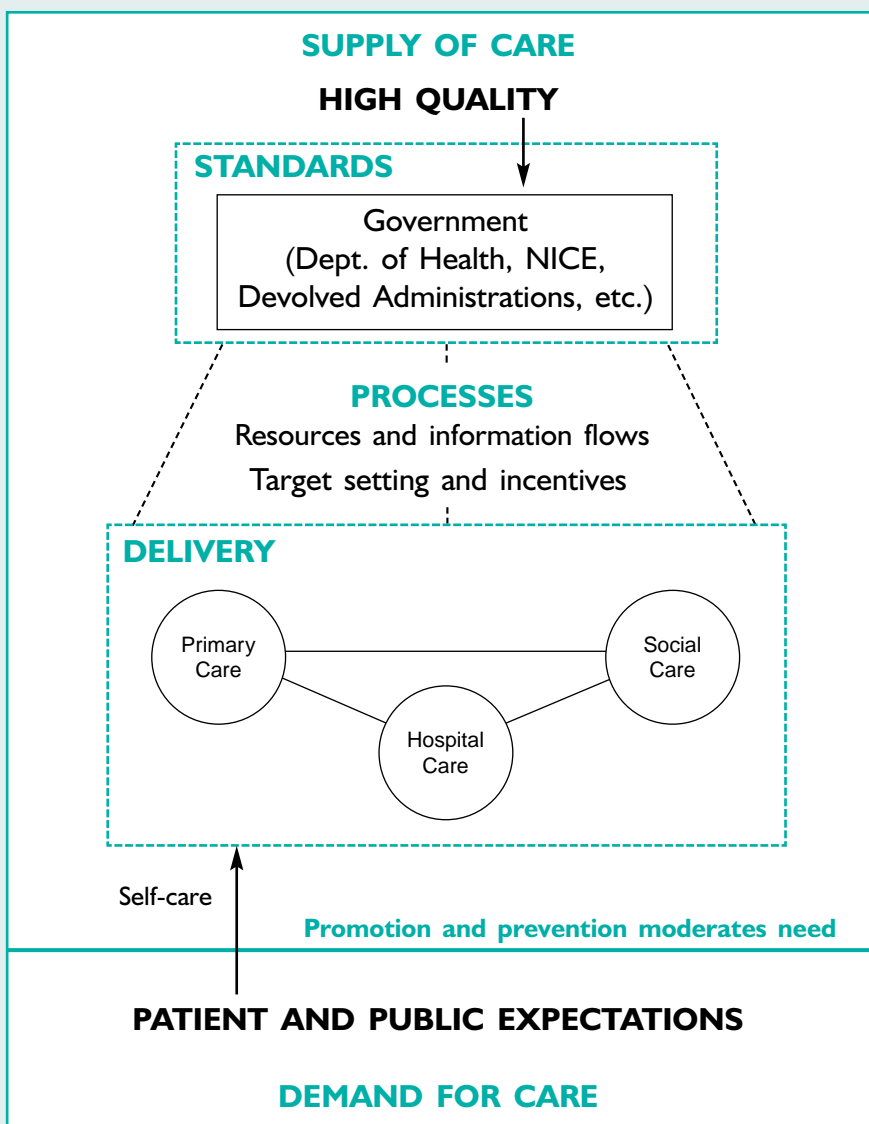
- 6.1 Success in achieving a high quality health service will not be guaranteed simply by spending the amounts of money estimated in the previous chapter. Resources must be used effectively, not only to meet rising patient and public expectations but also to continue to justify the increasing level of expenditure being devoted to the health service, for which in one way or another the public is paying.
- 6.2 The Confederation of British Industry (CBI) backed this view in consultation, stressing that "increasing the level of funding alone would not be a panacea. Increased funding would have to be provided in return for reform and improved performance." The NHS will need to deliver and demonstrate the efficient use of its resources rigorously if it is to rise to the challenge.
- 6.3 The importance of deploying resources effectively is illustrated in the Review's scenarios. For example, there are significant differences in health outcomes between the *slow uptake* and *solid progress* scenarios. Government, those who work in the health service and those who use it all have a role to play in helping to ensure that health resources have the maximum impact on health outcomes.
- 6.4 In working through the modelling and in absorbing the views expressed in consultation, many issues arose about the ways in which resources are currently being used. That is rightly an issue for public debate. It is also the

main area in which political consensus would be valuable to give managers of health service resources a greater degree of certainty. This chapter sets out a number of observations in key areas which the Review hopes will help to inform the debate on the effective use of resources.

6.5 Box 6.1 sets out a conceptual framework of a structure determining how responsibilities could be fixed across the health service:

- **standards** are set by departments and agencies of government, essentially as a regulator;
- **processes** are the devices controlled by government designed to ensure that resources can be used effectively to achieve the standards; and
- **delivery** is the locally determined and controlled set of arrangements for the provision of care to meet the standards, working within the processes established. Generally it is at this local level that management of resources to achieve outcomes should take place.

Box 6.1: Standards-processes-delivery framework



STANDARDS

- 6.6 Standard setting plays an important role in any health system, by defining the objectives and priorities for the service and regulating quality in the delivery of care. If set clearly and openly, such standards provide the basis for allowing all those involved in the provision of health services to satisfy their “prime duty” (as the 1979 Royal Commission¹ put it) “to make it clear to the rest of us what we can reasonably expect”.
- 6.7 Standards should be set by the departments and agencies of government which oversee and regulate the health system. They should be well defined and transparent. Many of the standards set by government for the health service should inevitably focus on clinical standards – for example, defining the minimum quality of care which every citizen has the right to expect irrespective of where they live. But in some cases, there may also be a role for the central setting of non-clinical standards. For example, the Review believes strongly that information and communication technology (ICT) standards must be set firmly from the centre.

Clinical standards

- 6.8 Clinical standards will play two vital roles in the high quality service of the future outlined in this Report. First, by helping to match rising expectations and the effectively infinite demand for care to what can be supplied within finite financial and human resources; and second, by helping to ensure that what is supplied is both clinically and cost effective, delivering value for money for whoever is paying.
- 6.9 Judgements about what is clinically and cost effective are difficult and complex and are becoming more so as the pace of medical advance increases (particularly in cases where the gains to an individual may be significant, but where wider benefits to society will be at best limited).
- 6.10 In order to help make these judgements in a transparent, evidence-based way, the National Institute for Clinical Excellence (NICE) was established in 1999 covering England and Wales. There are two bodies in Scotland which together perform a similar function – the Health Technology Board for Scotland and the Scottish Intercollegiate Guidelines Network (SIGN). Northern Ireland is taking note of the judgements of NICE and a consultation exercise, undertaken in 2001, indicated support for a more formal relationship with the Institute. The current role of NICE is summarised in Box 6.2. The Review found a significant degree of interest in the work of NICE among people it met during its visits to other countries.

¹ Report of the Royal Commission on the National Health Service (1979), Cmd 7615, The Stationery Office, London.

Box 6.2: National Institute for Clinical Excellence (NICE)

NICE's aim is to provide everyone with an interest in health care – from health professionals and those commissioning health services, to patients and their carers – with authoritative, robust and reliable guidance on current best practice in health care, both in terms of individual health technologies (such as medicines, medical devices, diagnostic techniques and procedures) and the clinical management of specific conditions.

It provides three main types of guidance:

- technology appraisals of new and existing health technologies;
- clinical guidelines and protocols for the management of specific diseases and conditions; and
- safety and efficacy decisions about new interventional procedures.

In addition, it produces clinical audit methods to support the technology appraisals and clinical guidelines.

To date, NICE has published around 40 technology appraisals and five clinical guidelines.

- 6.11 The Review strongly supports the role of NICE and believes that it will become increasingly significant over the next 20 years. While NICE's remit covers both new and existing technologies, the focus of its work so far has inevitably been on newer technologies. However, the Review recommends that NICE, in conjunction with similar bodies in the Devolved Administrations, also has a major role to play in examining older technologies and practices which may no longer be appropriate or cost effective.
- 6.12 The Review also welcomes the current consultation² on proposed changes to the way in which the Department of Health and the National Assembly for Wales select appraisal topics for referral to NICE. The main purpose of these changes is to ensure that NICE's various stakeholders have clear opportunities to make an input into the selection process and that NICE's appraisal programme addresses the topics of importance to patients and professionals.
- 6.13 It will also be important to ensure that recommendations from NICE – particularly its clinical guidelines – are properly integrated with the development of National Service Frameworks (NSFs). As it develops, NICE should have a crucial role to play in establishing general principles to help the appraisal of technologies and is likely to form productive relationships with those charged with auditing responsibilities.
- 6.14 The Report has already discussed in Chapter 2 the existing NSFs and their implementation costs. The Review welcomes the proposed extension of the NSFs to other areas of the NHS. It recommends that NSFs should in future

² Department of Health and National Assembly for Wales (2002), Clinical guidance from the National Institute for Clinical Excellence – timing and selection of topics for appraisal, a discussion paper, March 2002.

include estimates of the resources – in terms of the staff, equipment and other technologies and subsequent cash needs – necessary for their delivery. They should also be supported by improved information collection and identification of research needs, to enable monitoring of progress and identification of future plans. The development of NSFs should also take account of the fact that many patients have – and may increasingly have – co-existing conditions, such as diabetes and coronary heart disease (CHD), complicating the definition of high quality treatment.

- 6.15 Taken together, the NSFs and NICE recommendations should form a sound basis for the setting of clinical standards in the health service over the next 20 years. Essentially, they will be defining (and keeping up to date the definition of) “comprehensive” in terms of the services the NHS offers all the population. The setting of these standards is an area in which the Review believes there is a strong argument for close collaboration between the Department of Health in England and its counterparts in Scotland, Wales and Northern Ireland.
- 6.16 An issue which could become more significant over the next 20 years is whether, as patient expectations rise (and provided capacity becomes less constrained) delivery units in the NHS should be able to consider providing treatments and procedures which have been turned aside by NICE on cost effectiveness grounds to patients who are willing to pay a full price for them. The Review believes that this will raise some difficult issues, but it has not been necessary to address them for the purpose of the estimates made in this Report.

Non-clinical standards

- 6.17 Standards should also be extended where appropriate to other dimensions of the NHS’s strategy for delivering a high quality service in an efficient and effective way. They should not only help to inform patients of what they can expect, but also provide the framework for the service to meet these expectations.
- 6.18 The Review believes that there is a particularly strong case for setting common standards in ICT. Chapter 3 describes the health service’s very poor record on ICT investment. There appear to be two key reasons why the state of ICT in today’s health service is as poor as it is:
- ICT budgets – which have traditionally been allocated locally – have frequently been used to fund other areas of spending to help relieve short-term pressures; and
 - there has been inadequate setting of ICT standards from the centre, resulting in a diverse range of incompatible systems across the health service.

- 6.19 These points came through strongly in consultation. The Royal College of Nursing called for stronger central direction on standards and accredited solutions to prevent resources being wasted in the future, while EDS (Electronic Data Systems) argued that the bulk of NHS ICT procurement is still undertaken at local level leading to expensive “reinvention of the wheel” and failure to take advantage of NHS purchasing power. They suggested the need to “ring-fence appropriate funding to deliver a National Information Infrastructure for the Health Service”.
- 6.20 The NHS Information Strategy³ in England and similar strategies and plans in the Devolved Administrations have defined ambitious targets for the use of ICT across the health service. For example, the NHS Information Strategy sets out the intention that, by the end of this year, hospitals and GPs should be routinely exchanging electronic requests for referrals, discharge summaries, and laboratory and radiology requests and results. By 2005, it is planned that there will be an electronic patient record system for all acute hospitals, integrated primary and community care records, and 24-hour emergency care access to patient records.
- 6.21 Chapter 3 sets out how the Review’s projections incorporate a doubling of spending on ICT to fund ambitious targets of the kind set out in the NHS Information Strategy. However, before committing to such significant increases in spending, a number of important points will require careful consideration:
- the Government and the health service must ensure that they have clear and well developed views about the benefits which they want to achieve and how they will be delivered, with patients at the core of the system. The implications for staff training will also need to be considered carefully;
 - to avoid duplication of effort and resources and to ensure that the benefits of ICT integration across health and social services are achieved, the Review recommends that stringent standards should be set from the centre to ensure that systems across the UK are fully compatible with each other; and
 - to ensure that resources intended for ICT spending are not diverted to other uses, and are used productively, the Review recommends that budgets should be ring-fenced and achievements audited.
- 6.22 If these issues can be addressed, the Review believes that national, integrated ICT systems across the health service can lay the basis for the delivery of significant quality improvements and cost savings over the next 20 years. Without a major advance in the effective use of ICT (and this is a clear risk given the scale of such an undertaking), the health service will find it increasingly difficult to deliver the efficient, high quality service which the public will demand. This is a major priority which will have a crucial impact on the health service over future years.

³ Department of Health (2001), Building the information core – implementing the NHS Plan, NHS Information Strategy.

PROCESS AND DELIVERY

Incentives and targets

- 6.23 Appropriate processes must be in place to ensure that the nationally-set standards are delivered by the health service. There are many cases where this has not happened and standards of care delivered have fallen short. The vision of the health service in 20 years' time set out in this Report cannot permit this, so the processes of objective setting, incentivisation and targeting have to be sensitively designed to ensure they achieve the required results rather than distort resource allocation.
- 6.24 There are a number of aspects to such 'processes'. They particularly relate to the way in which resources and information flow around the system and in which incentives and targets are used to direct the delivery of efficient and effective levels of care. The flows are vertical, between those setting standards nationally and those delivering them locally, and horizontal, between the different health and social care providers locally.
- 6.25 There is a fine balance to be struck in deciding on the most appropriate way to ensure that central standards are achieved across the service. The setting and auditing of targets is one means which can be used. Financial incentives are another. In consultation, the Association of the British Pharmaceutical Industry commented that "we are strong believers in the maxim 'you get what you measure'. This makes it critically important that any measures used to assess performance in the NHS be meaningful, and measure outputs rather than inputs."
- 6.26 The Government has introduced a number of incentives in an attempt to encourage greater flexibility, for example steps towards 'earned autonomy' for the best performing NHS bodies. This provides those NHS Trusts with a three star performance rating with extra discretion in spending from the NHS Performance Fund and other flexibilities, including less frequent monitoring from the centre, fewer inspections and scope to retain more of the proceeds of local land sales for re-investment in local services⁴. This is an encouraging first step, albeit based on a relatively simplistic measure of performance.
- 6.27 The Government has also set a number of headline targets for the health service, the most high profile being targets for reducing waiting times. Longer-term targets focus on reducing mortality rates from the major killers such as CHD and cancer and narrowing health inequalities.

⁴ Department of Health (2001), NHS Performance Ratings Acute Trusts 2000-01. www.doh.gov.uk/performance/ratings

- 6.28 But targets must be used with care, especially in a service as complex as the NHS. In particular, they must be designed to minimise the risk of creating perverse incentives. In addition, where targets are not achieved, the reasons must be examined carefully and in the context of the whole performance of the unit concerned. In some cases there may be valid reasons why a target was missed which should, for example, result in a re-examination of the specific target rather than any penalty being incurred by the service provider.
- 6.29 In this respect, the Review was interested in work currently being undertaken by RAND Health⁵ to develop a new approach to assessing the quality of care given to children and adults in the US. This addresses quality across a full range of care from screening and diagnosis, to treatment and follow up in 46 different clinical areas. The benefit of such a broad approach to assessing quality is that it takes account of and highlights the wide range of activities and trade-offs which every health care provider has to make. A potential disadvantage is that by spanning such a wide range of indicators health care providers might lose sight of the key priorities. Nevertheless, the Review recommends that the results of this and any similar research about comprehensive measurement of performance should be examined.

Delivery

- 6.30 Finding the balance between nationally-set standards and an appropriate sensitivity to local circumstances will require local discretion to be enhanced. The sheer scale of the NHS makes this vital and there is widespread commitment to making changes in health care delivery, coupled with the recognition that this will only happen through staff on the front-line.
- 6.31 To support this process, resources must be allocated by government in a way which is transparent, takes account of local needs and does not create perverse incentives. Stability and certainty of funding is also important to facilitate long-term planning and investment decisions. A concern frequently expressed to the Review was that the annual resource allocation process is too drawn out and that health care providers have neither the capacity nor the time – often at short notice – to bid for particular allocations of money from the centre.
- 6.32 The health service has been through many reorganisations over the past 20 years, the most recent having taken effect at the beginning of this month with the establishment of 28 Strategic Health Authorities (StHAs) for England. The StHAs will officially take up their role in October 2002, replacing the previous 95 health authorities. The challenge now must be to ensure that this new structure works effectively and involves a high degree of accountability and public involvement at local level. As the Healthcare Improvement Network put it in consultation, “the NHS needs to transform into an organisation that uses resources effectively and accountably and is continuously improving”.

⁵ RAND Health, Quality Assessment Tools and Technologies, The First National Assessment of Quality, www.rand.org/health/tools/qualist.html

- 6.33 The required transformation will need strong management and a willingness to break down some long standing barriers in the health service. Some of these relate to the use of the workforce. In a situation where the NHS needs more highly skilled staff, not only must it recruit and train more of them, but it should ensure that those it already has are being used to full effect. The Interim Report highlighted evidence that relatively little of doctors' and nurses' time was spent with patients. Consultation provided little further specific evidence on this point. The service needs to ensure that its skilled medical and nursing staff are able to spend as much of their time as possible with patients.
- 6.34 The Review agrees that there is significant scope to give more local discretion to those delivering care to nationally set standards. Such flexibility lends itself to maximising the effectiveness of resources. It facilitates the development of innovative approaches and the sharing of best practice, helping to drive up performance across the board. This is a key potential benefit of the decentralisation process, enabling alternative policy approaches to be compared. Devolution of health policy in Scotland, Wales and Northern Ireland has provided further scope in this respect. NHS staff who met the Review team frequently expressed the view that there should be greater local responsibility for delivery, ensuring an appropriate balance between central direction and local autonomy.
- 6.35 The first annual report of the NHS Modernisation Board⁶ makes clear the need for everyone to embrace change on a massive scale, fundamentally shifting working practices and attitudes, some of which have remained unchanged since 1948. It reports good progress in many areas but acknowledges the many enormous challenges to be overcome. It concludes: "in nearly every health community, in the first year, there have been examples of progress which is a significant cause for optimism. But it is perhaps inevitable that so far modernisation is patchy and there is clearly still a long way to go".
- 6.36 The CBI response notes that the Government is making progress to improve the efficiency and effectiveness of health care provision through initiatives to "improve how it works with the private sector, becoming a more challenging and partnering client, developing new areas of collaboration...". The Review agrees with this sentiment and believes that the scope for greater future cooperation between the NHS and the private sector in the delivery of services should be explored, building on the concordat set out in the NHS Plan. This should be seen as just one of the many ways in which the health service – like any organisation – is constantly examining new ways of working to deliver its objectives more effectively. The method of delivery should not be confused with the method of financing.

⁶ The NHS Modernisation Board (2002), The NHS Plan – A Progress Report, The NHS Modernisation Board's Annual Report 2000-2001, January 2002. www.doh.gov.uk/modernisationboardreport

- 6.37 In devolving greater responsibility to the local level there must be strong arrangements for ensuring a high degree of accountability for the effective use of resources. One aspect of this is the role of public engagement discussed later in this chapter, ensuring that people are aware of, and involved in, the decisions being made about health care in their local areas. But there is also a responsibility on government to ensure that taxpayers' money is being used efficiently and effectively across the health service. The Review recommends there should be a mechanism in place to ensure regular and rigorous independent audit of all health care spending and arrangements to ensure it is given maximum publicity.

THE BALANCE OF CARE

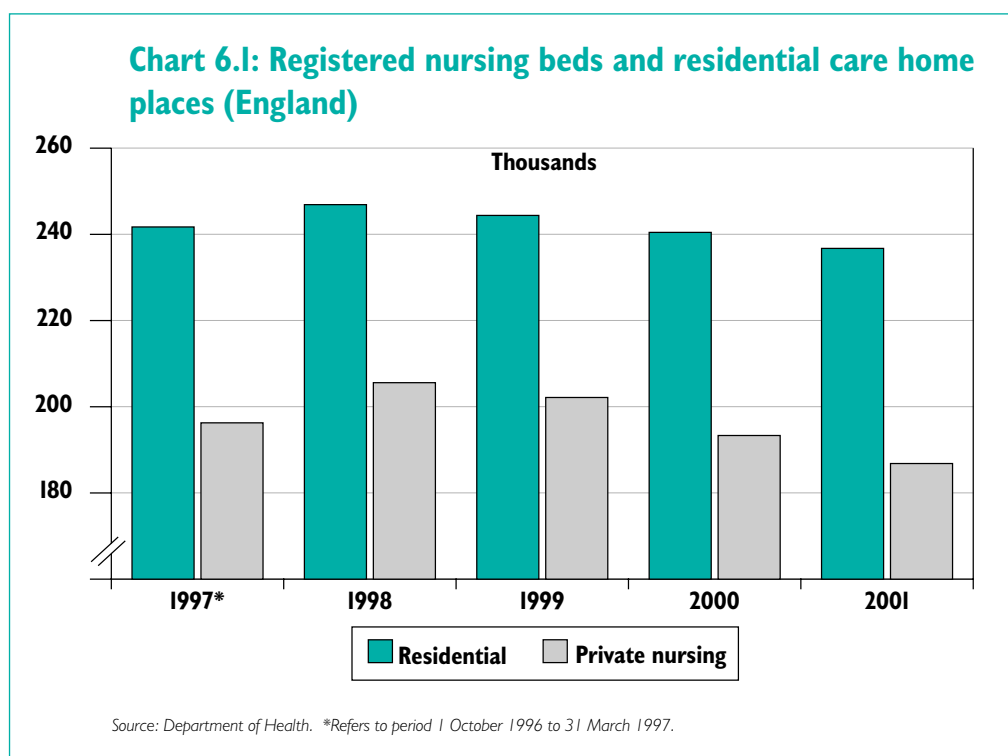
- 6.38 Over the next 20 years, ensuring that care is of a high clinical quality and provided with minimum waiting will not be sufficient to meet patients' demands. Care must also be provided in the right place and at the right time. This requires striking an appropriate balance between different types of care – in particular, between health and social care, between primary and secondary care and between treatment and prevention. The latter is discussed in the section on public engagement at the end of this chapter. In its financial modelling, the Review has not attempted to map out in a detailed way how the balance of care might change over the next 20 years, although some of the possible key developments such as a greater focus on public health are considered in the scenario analysis.
- 6.39 Ensuring that the health service in 20 years' time strikes the right balance will require making sure that its processes work and that there is effective integration between the different types of care, driven by appropriate incentives and efficient flows of information.

Health and social care

- 6.40 The Review believes the current balance between health and social care is wrong: in particular, care is too focused on the acute hospital setting. Acute care should only be needed in the event of serious ill health. As acute care beds are the most costly beds in the NHS – at around £120,000 a year each – only those patients who need to occupy them should do so. This point was made by a number of organisations during the consultation process. In visits to NHS hospitals, it was clear that alternatives to acute care are often lacking.
- 6.41 There is no doubt that some patients spend more time in acute care than they need or indeed wish to. The number of people whose discharge from an acute hospital bed was delayed while awaiting more appropriate care elsewhere has been falling in recent months. Nevertheless, in England, it still stood at 4,500 in March 2002⁷. This inappropriate use of beds – so called 'bed blocking' – impacts on both the overall quality of care which an individual receives and on the cost effectiveness of care more generally. The bottom line is that these valuable resources are not available for those who really need them.

⁷ Department of Health (2002), Chief Executive's Report to the NHS (April 2001 – March 2002).

6.42 The main causes of delayed discharges are patients waiting for assessment or waiting for funding for a nursing home or residential care placement. Such delays stood at 10.5 per cent for patients aged over 75⁸ in the period between October and December 2001. Effective integration between health and social care, supported by the right financial incentives, is the key to tackling such delays. The NHS Confederation referred to the “problems resulting from the allocation of health and social care funding through different mechanisms”. These problems need to be tackled if the NHS and social care are to provide a properly integrated service.



6.43 The number of social care places has been falling. Between 1998 and 2001, the number of private nursing beds⁹ fell by 9.1 per cent (almost 19,000 beds) and residential care places¹⁰ fell by 1.9 per cent (6,700 places). This is shown in Chart 6.1. Councils and care home owners are arguing for higher fees. Appropriate financial incentives are required to sustain a viable nursing and social care home market. The need for regulation and improved standards must be balanced with stable financing to support the quality of care.

⁸ Department of Health (2002), Quarterly return October – December 2001, February 2002. Relates to the number of people aged 75 or over whose hospital discharge is delayed as a percentage of the number of people aged 75 or over occupying an acute hospital bed.

⁹ Department of Health (2002), Community care statistics 2001 – private nursing homes, hospitals and clinics, statistical bulletin 2002/09, March 2002.

¹⁰ Department of Health (2001), Community care statistics 2001 – residential personal social services for adults, England, press release 2001/0577, November 2001.

- 6.44 The Review has noted Sweden's success over the past decade in reducing bed blocking. The 1992 Ädel reforms in Sweden introduced financial incentives to reduce the number of elderly patients waiting to be discharged from acute care hospitals. Under these arrangements, the local authorities (which are responsible for social care) are required to pay the county councils (which run the hospitals) for care delivered to patients in hospital once a patient has been deemed fully medically treated by a hospital doctor.
- 6.45 The Review acknowledges that such a system could lead to the creation of excess capacity in social care. But it demonstrates the importance of taking a 'whole systems' approach and that investment in health care must be accompanied by adequate investment in social care. Recent additional resources for social care to ease bed blocking are therefore welcome. The Review recommends that the Government should examine the merits of employing financial incentives such as those used in Sweden to help reduce the problems of bed blocking.
- 6.46 Within acute care, there are not just delays at the end of a period of treatment. Delays can also occur at the beginning of a hospital stay in identifying appropriate care needs and carrying out a range of tests. Part of the explanation for this is a lack of spare capacity. For example, without sufficient capacity in technologies such as scanners, essential medical tests which are required before treatment can commence may be stretched out over a longer period than necessary. In some cases, a shortage of skilled staff to operate the equipment exacerbates the problem. As an acute bed costs the NHS over £300 a day, this can act as a serious drain on resources. Again a 'whole systems' approach when making investment decisions about resources is needed.

Primary and secondary care

- 6.47 The Royal College of General Practitioners noted that "between 85 and 90 per cent of all consultations with patients take place in primary care rather than in the hospital setting" with primary care providing "the vast majority of medical and nursing input to patients".
- 6.48 The balance between primary and secondary care is also being changed by recent NHS reforms. GPs and nurses in Primary Care Trusts (PCTs) now control around 50 per cent of the NHS budget in England and this figure is set to rise to 75 per cent by 2004. PCTs are responsible for improving the health of the community, developing primary and community health services and commissioning hospital care for their local populations. As discussed later in this chapter, the new role for PCTs in controlling health care locally should offer the opportunity for greater transparency and public engagement in local health issues.

- 6.49 Currently most assessment and treatment of patients in primary care is carried out by general medical practitioners. The Review received views on the extent to which the role of nurses should expand to take on a wider range of clinical work. While the benefits of having continuing care from a GP are high, research¹¹ indicates that there is also a need to reassess what work could be undertaken by nurses and other health care professionals, including therapists and pharmacists. This would not be to diminish primary care but to augment it, with a much wider range of routes for patients to take advice, more diagnostic equipment and more treatment options.
- 6.50 The current position in the UK can be contrasted with, for example, the system run by Kaiser Permanente in California, where both doctors and nurses in primary care are accredited with a much wider range of skills¹². As a result, relatively complicated procedures are dealt with in primary care settings (albeit very different to the typical UK primary care setting), which frees up specialists in secondary care to focus on more complex cases. This is likely to be one of the reasons why Kaiser's average number of acute bed days per 1,000 of the population is significantly lower than that of the NHS.
- 6.51 The Review does not suggest that Kaiser's approach could or should be transferred to the NHS. But it does illustrate that, driven by a modern workforce skill mix, there could be considerable scope for a shift in the balance between primary and secondary care. While this is only one example, wider research¹³ also suggests that a greater proportion of diagnosis and treatment could take place in primary care settings, so reducing the time patients spend in acute care.
- 6.52 As Chapter 5 discussed, the primary care workforce will play an increasingly important role in the health service over the next 20 years, particularly in encouraging public engagement, for example, by supporting self-care or promoting improved public health.
- 6.53 Taking the case of diabetes as a case study, Box 6.3 considers how the balance of care could shift significantly over the next 20 years.

FINANCING OF CARE

- 6.54 The Review was established to estimate the resources needed to deliver a high quality health service over the next two decades. Its remit was not to look at how those resources should be financed. Nevertheless, it has been important to examine whether the way health care is financed might itself be a driver of the total resources required.

¹¹ Kinnersley P, Anderson E et al (2000), Randomised control trial of nurse practitioner versus general practitioner care for patients requesting same day consultation in primary care, *British Medical Journal*, 320: 1043-1048.

¹² Feachem R, Sekhri N et al (2002), Getting more for their dollar: a comparison of the NHS with California's Kaiser Permanente, *British Medical Journal*, 324:135-43.

¹³ Starfield B (1994), Is primary care essential?, *Lancet* 8930:1129-33.

Box 6.3: The care of diabetes in 2022 – a case study

Diabetes provides a good example of how a 'whole systems' approach could work in future. A National Service Framework (NSF) is currently being used to establish standards and monitor quality of care. As it is a risk factor for CHD, stroke and kidney failure, diabetes links across NSF areas: tackling it at root would help to prevent these diseases as well. It exemplifies how all the aspects of health promotion and health care interact and demonstrates the importance of looking at all points of the 'patient journey.' Key facts about diabetes include:

- 3 to 5 per cent of the adult population has diagnosed diabetes. This is predicted to rise due to trends such as the ageing population, dietary changes and reduced activity. There are also up to 1 million people with undiagnosed diabetes in the population;
- Type 1 diabetes is increasing in children and Type 2 diabetes is becoming more common in children, particularly within South Asian populations. Prevalence of Type 2 diabetes within the black and ethnic minority population can be as much as three to five times higher than in the white population; and
- undiagnosed and poorly managed diabetes can lead to serious complications such as blindness, amputation or even death. Prevention of diabetes and its complications is the best way of dealing with the escalating costs of the condition.

Over the next 20 years, there appears to be scope for significant cost savings as well as – more importantly – avoiding the human costs of the disease including sometimes fatal complications. Generating such benefits will, however, require action across many of the fronts which are raised as issues in this chapter and elsewhere in the report:

- **public health:** better diet and increased physical activity should help to reduce the prevalence of obesity, a key risk factor for diabetes. Reductions in socio-economic inequalities will also be important;
- **public expectations:** greater awareness of diabetes will increase demands for top-quality treatment. People with diabetes are 'expert patients' due to the chronic nature of their condition, proactively seeking information and making frequent contact with the health service. It will need to live up to their high expectations, providing them with good information and responding to well-informed questions about treatment and care;
- **primary care:** enhanced awareness of diabetes in primary care could lead to earlier diagnosis and improved diabetes management to prevent complications;
- **self-care:** new technology will allow better testing by remote monitoring or telemedicine. Call centres will phone to remind people to test their glucose levels. Improved access to health education would also help people to maintain the right blood glucose and blood pressure levels;
- **information and communication technology:** in particular, an accessible Electronic Health Record could transform diabetes care, preventing treatment errors and improving patient safety, through improved service co-ordination across the whole system; and
- **workforce:** practice nurses and community pharmacists could use their skills in diabetic care, saving GPs' time and giving a more specialised educational role for secondary care.

- 6.55 Chapter 4 of the Interim Report considered this issue and concluded that the current method by which health care is financed through general taxation is both fair and efficient and that “a continuation of a system of funding broadly similar to that at present is not, in itself, anticipated to be a factor leading to additional resource pressures over the next 20 years”. The Interim Report took the view that “it is therefore appropriate to conduct the Review on the basis of a continuation of the current system for funding UK health care”.
- 6.56 The Interim Report identified four main mechanisms for financing health care:
- **general taxation:** general taxation revenues, incorporating both direct and indirect tax receipts, collected by government;
 - **social insurance:** earnings-related employee contributions and/or employer payroll taxes;
 - **out-of-pocket payments:** payments made directly by patients for the use of particular health services in either the public or private sector; and
 - **private insurance:** private medical insurance taken out by individuals or by employers on their behalf.
- 6.57 Most countries use a combination of these to finance their health care systems, although the balance differs between countries. The UK and Sweden have the highest share of public funding: in both, under a fifth of total health spending is privately financed, compared to between a quarter and a third in the other comparator countries considered in Chapter 5 of the Interim Report.
- 6.58 Drawing on evidence from these comparator countries, the Interim Report considered the four financing mechanisms against three objectives: efficiency, equity and choice. A summary is provided in paragraphs C.15 to C.24 of Annex C.

Consultation views

- 6.59 The consultation responses generally supported the Interim Report’s conclusions about the efficiency and equity of general taxation financing and that the current mechanism of funding health care in the UK is unlikely itself to be a driver of cost. Strong support for a continuation of the current financing system was received from some respondents. The King’s Fund recently stated that “on the grounds of equity and efficiency of collection, the existing financing arrangements – predominantly through general taxation – are currently the best way of paying for health care”¹⁴. UNISON “supported the broad conclusions of the Review, i.e. that the NHS... should continue as a tax funded service.” However, a few responses questioned the Interim Report’s conclusions.

¹⁴ King’s Fund (2002), The future of the NHS: a framework for debate, discussion paper, January 2002.

- 6.60 Some claimed a causal link between financing health care predominantly through general taxation and the historic under-investment in the health service. For example, the Association of British Insurers said that “the UK’s publicly financed health care system has been associated with a significant cumulative under-investment in resources, infrastructure and poor service provision”. While there has undoubtedly been significant under-investment in the NHS in the past as a result of the failure of successive governments to commit sufficient resources to the health service, the Review does not believe that this is an inevitable feature of tax-financed systems. For example Sweden, which has a predominantly tax funded system, is not generally considered to have suffered from such a problem. Levels of health care spending vary significantly across countries irrespective of the particular financing system used.
- 6.61 It was suggested that the UK’s method of financing health care hides the real cost of health care, so impacting adversely on patient responsibility and engagement. The funding of health care from general taxation does obscure its cost, but it is not evident that a greater exposure of patients to the costs involved would necessarily lead them to take more responsibility for their own care. People covered by social and private insurance systems are more directly aware of the amount they are paying but there is no evidence that this constrains demand. In systems such as France where patients face direct charges they often take out additional insurance to cover these costs. The Review accepts that it is important that the public should be better informed about the cost of delivering health care. This is discussed in more detail in the public engagement section below.
- 6.62 It was also suggested that, in private or social insurance schemes, where people choose regularly whether to stay with their existing insurer or move to another, they could exert more influence over what is provided, could show their willingness to pay more for better services and could help exert discipline on total spending. The Review accepts that these are possible benefits although it appears not to have been the recent trend in many countries. For example, benefits packages tend to be the same or very similar across social insurance funds and, as noted in the Interim Report, cost containment has been a growing issue in many countries. The governments of France and Germany have been trying to limit the growth in social insurance contributions.
- 6.63 It has also been suggested that the UK’s method of financing restricts patient choice and limits the responsiveness of the service. The major private medical insurers and some research groups made this point strongly in consultation. The Review believes it is entirely appropriate that under a publicly-funded system choices about what clinical services are and are not provided should be made centrally and transparently on the basis of best available evidence. In England and Wales, this is the developing role of NICE.
- 6.64 But in any insurance system there will be rules laid down about what is and what is not covered. Private providers are free to make their own decisions,

and provide choice about what is covered. In terms of non-clinical services, the Review recognises that people will increasingly demand greater choice and responsiveness, and that financing greater choice in this area through general taxation may be neither acceptable nor equitable. As discussed below, introducing charges for certain additional non-clinical services would be one way of expanding the degree of choice.

- 6.65 It should also be noted that in the UK in the past, and at present, the opportunity for introducing greater choice has been restricted by a lack of capacity in the system. If such capacity constraints can be alleviated in the period ahead, this will open up the possibility of introducing greater choice across the service. The Government has made clear its intention to do so and it is certainly necessary (see Box 2.1). The Review accepts that it will require patients expressing their views to ensure this happens efficiently and in an appropriately responsive way.
- 6.66 The points presented above are all important, although some appear to relate more to the particular experience of the UK in the past than to inevitable consequences of the health care financing mechanism. The Review has carefully analysed the views which were put to it in meetings and in written submissions. It has considered the administrative burden of any changes at a time when the NHS is under such pressure for change. It is clear that there are deeply held beliefs about the extent to which private financing should exist in health care and that other countries, notably Canada, are engaged in similar debates over the best way of funding health care. However, the Review still does not believe that there is an alternative financing method to that currently in place in the UK which would deliver a given level and quality of health care either at lower cost to the economy or in a more equitable way. The issue is the sustainability of the individual components of the financing mechanism, and that needs to be addressed in the context of long-term estimates of the resource requirements.
- 6.67 The projected resource requirements for the health service over the next two decades set out in the previous chapter are very high and, should subsequent reviews confirm projections of similar magnitude, they will clearly present significant financing challenges. As expectations and quality standards rise, there will also be significant challenges in defining both clinical need and what level of patient choice can and should be accommodated through public funding.

Out-of-pocket payments

- 6.68 Out-of-pocket payments could play a role in meeting this challenge, both in terms of generating extra income for the service and in terms of providing extra choice for patients.
- 6.69 What role such payments should play in the future is not a matter for this Review, but for the government of the day. As noted in the Interim Report, decisions on the balance of financing should, on a continuing basis, be addressed in the context of the macroeconomic background against which

the Chancellor considers the implications of the estimates of future resource requirements for the Government's wider economic and fiscal strategy and, in particular, considers the capacity of the UK's general taxation base.

- 6.70 Whatever role they do play, however, such charges should only be considered in cases where the principle that access to health care should be based on clinical need and not ability to pay can be assured. With this in mind, two factors are particularly important in considering the possible role of such payments: the scope of charges and the exemptions applied for those who cannot afford to pay.
- 6.71 Charges already exist in the UK for a limited number of clinical services (mainly prescriptions, dental treatments and sight tests, glasses and contact lenses) and non-clinical services (for example, single maternity rooms, televisions, telephones and car parking).
- 6.72 The Review remains of the view that it would be inappropriate to extend out-of-pocket payments to clinical services such as visits to a GP or a specialist. As discussed in the Interim Report, such charges are inequitable unless accompanied by adequate exemptions and risk increasing inequalities in access to care. A few responses advocated such charges but NACAB's work on patient charges argued strongly against them¹⁵. While they could yield substantial revenues, they would also involve additional administrative costs.
- 6.73 The impact on equity of out-of-pocket payments for items, such as prescriptions, depends on how effective a safety net is in place to exempt all of those who cannot afford such payments.
- 6.74 Currently 50 per cent of the population of England is exempt from prescription charges, including the young, the elderly, the unemployed and those on low incomes. As a result, 85 per cent of prescription items dispensed by community pharmacists and appliance contractors in England in 2000 were free to patients. Yet in consultation, NACAB pointed to research commissioned from MORI showing that of those liable to pay, 1 in 20 had failed to get all of a prescription dispensed and a further 1 in 50 had failed to get part dispensed, because of the cost. On the other hand, some of those who are exempt could easily afford to pay and are unlikely to be deterred by the level of charges, especially as they are capped by pre-payment certificate arrangements.
- 6.75 Recognising the political sensitivities and the limited amount of money which might be raised, this may not be a priority for attention. However, the present structure of exemptions for prescription charges is not logical, nor rooted in the principles of the NHS. If related issues are being considered in future, it is recommended that the opportunity should be taken to think through the rationale for the exemption policy.

¹⁵ National Association of Citizens Advice Bureaux (NACAB) (2001), *Unhealthy charges: CAB evidence on the impact of health charges*, July 2001.

- 6.76 The Review believes that there is an argument for extending out-of-pocket payments for non-clinical services and recommends that they should be kept under review. Such services are likely to become more important as demand for greater patient choice increases and it may prove difficult to justify the public financing of such services. For example, payments could be considered for the provision of IT facilities in patients' rooms. This would offer a way of allowing patients to experience a greater choice in non-clinical services while at the same time enabling the health service to preserve its resources for clinical services. Better information technology will help to ensure that increased administrative costs do not use up the incremental income.

PUBLIC ENGAGEMENT

- 6.77 Prevention, diagnosis and treatment have from the outset been the goals of the NHS. The extent to which resources across the health service are deployed effectively will have a significant impact on each, and particularly on the second and third. But the degree to which the public engages with the health service will also have a significant impact, particularly on the first.
- 6.78 The importance of public engagement is incorporated into the Review's three scenarios (see Chapter 3). The core difference between the health outcomes in the *fully engaged* and *solid progress* scenarios is not the way in which the service responds over the next 20 years, but the way in which the public and patients do.
- 6.79 A public fully engaged on health issues will impact on the health service in many ways. Some have been picked up in the Review's analysis, in particular of increased health promotion and disease prevention, self-care and health seeking behaviour. At one level, engagement could extend, for example, to more people giving blood or carrying organ donor cards. At another, it could involve the public demanding a much greater understanding and role in decisions affecting the organisation and delivery of their local health services.
- 6.80 Effective public engagement will require an active partnership between those who provide care and those who receive it. The traditional relationship has been a passive one, which can be characterised by health professionals providing care to a generally deferential and uninvolved public, based on an underlying assumption that medicine, and those who practice it, can solve all medical problems. The emergence of a more aware public and evidence of clinical failure has, rightly, started to challenge this assumption and is likely to have wide implications, for example in an increasing desire by patients to have second opinions.
- 6.81 The Review therefore believes that a more sophisticated partnership will need to develop over the next 20 years, and indeed is beginning to do so. This view is not new, and has been suggested in a variety of quarters. For example, the British Medical Journal has suggested that over time the traditional relationship has developed into a 'bogus contract' between doctors and

patients, and that it is time for “something more real”, based on a more realistic understanding on the possibilities – and limits – of what health care can achieve¹⁶.

Rights and responsibilities

6.82 A more effective partnership is recommended, based on the twin planks of public and patient rights and responsibilities. This partnership should be focused on a new relationship between health professionals and the public, driven by government and arising from the patient-focused service set out in this Report. For example:

- the setting of standards for the service, as discussed above, to help give people a clearer understanding of what the health service will, and will not, provide for them;
- development of improved health information to help people engage with their care in an informed way. The piloting of NHS Digital TV and advice through NHS Direct are examples of this;
- use of pro-active policies, in parallel with improved information, to encourage reductions in key health risk factors;
- reinforcing patient involvement in NHS accountability arrangements, through measures such as Patients’ Forums, the English National Commission on Patient and Public Involvement and better patient representation on Trust Boards, including the new Primary Care Trusts; and
- finding effective ways to provide the public with a better understanding of how their local health services are performing.

6.83 Such developments should enable patients to become more engaged in an informed way. It will help to provide them with a clearer picture of what they have the right to expect from the health service. In this respect, it is encouraging to note that the NHS Modernisation Board will be exploring the idea of a ‘contract’ between the NHS and local communities. Under this contract, PCTs will set out where the money goes at a local level, put forward their specific proposals for spending in the future and detail what the money will deliver¹⁷. Ensuring an appropriate role for community representatives on the Boards of the new StHAs will also be important. The Review recommends that these Boards should include local patient and business representatives. The business community has a strong interest in a healthy local community and could help bring much-needed skills in resource management as increased local discretion changes the role of delivery units.

6.84 There is also a role for business to play in managing sickness absence from work and providing, wherever possible, high quality occupational health services.

¹⁶ Smith R (2001), *British Medical Journal*, editorial, 5 May 2001, 322:1073-1074.

¹⁷ Department of Health (2002), press release 2002/0167, 1 April 2002.

- 6.85 People have responsibilities to go along with such rights. In particular, they should seek to use health services responsibly and ensure that their actions do not add unnecessarily to the costs of the service.
- 6.86 To facilitate this, there needs to be better public understanding of the costs of delivering the health service. That is not to say – as some have advocated – that a patient should be told how much each appointment or course of treatment has cost. The administrative costs of such a system would be prohibitive. However, the Review recommends that as part of improved public engagement, the Department of Health (with StHA involvement) and the Devolved Administrations consider how a greater public appreciation of the cost of common treatments and appointments could best be achieved. There may be many ways to help focus public attention on the costs of the service.
- 6.87 Missed appointments impact seriously on the health service’s ability to plan and deliver timely care. In 2000, 1.56 million out of a total of 12.5 million outpatient appointments were missed – a rate of 12.5 per cent. Data are not available for missed GP appointments. For illustration, a rate of 12.5 per cent would equate to over 30 million missed GP appointments each year – or around 600,000 a week.
- 6.88 The health service currently tends to build in an element of over-booking based on average non-attendance levels. But on a day-to-day basis, non-attendance varies. If it is higher than average, this risks under-utilising health professionals’ time on the day; while, if it is lower than average, this risks extending patient waiting times on the day. Both impact on the efficiency and quality of the service.
- 6.89 The Review therefore believes that, as an early step down this road towards better engagement of patients in thinking about the health service, there may be an argument for charging for missed appointments. Such a system could deliver benefits through better efficiency in the service arising from increased patient responsibility and thus decreased levels of missed appointments.

Health promotion

- 6.90 The principal way in which the Review’s estimates have taken account of public engagement is through improved public health, as a result of better health promotion and disease prevention. In the framework set out in Box 6.1, promotion and prevention play an important role in moderating the need for care.
- 6.91 Pro-active policies which promote reductions in key risk factors and improved health information will help people to engage with their own health and make informed judgements about how to reduce their risk of ill health. Achieving the very best health outcomes will require people not only to take up the right to high quality health care, but also to take responsibility for their own health status.

- 6.92 At the same time, it will require additional resources to be directed to public health, targeted at those interventions where the long-term impact will be greatest in terms of health gain.
- 6.93 Respondents to the Interim Report expressed the need for clearer links between funding allocation and cost-effectiveness. For example, Action on Smoking and Health commented that “tobacco causes about one in three cancers and about one in seven deaths through CHD, yet the extra money is to be spent overwhelmingly on treatment, palliative care, and secondary prevention”. Professor Sir George Alberti, President of the Royal College of Physicians, noted that “smoking cessation is extraordinarily cost-effective compared to almost everything else the NHS does”.
- 6.94 In particular, interventions that successfully target population groups who currently suffer the most ill health will need to be identified and scaled up appropriately. Evidence to support such decision-making is growing and the Government’s cross-cutting review on health inequalities as part of the 2002 Spending Review is pushing this forward. The desirable health outcomes depicted in the *fully engaged* scenario are only likely to come about with a step change in the way public health is viewed, resourced and delivered nationally. This will support a future public more engaged in maintaining their health.

CONCLUSION

- 6.95 The benefits of reaching such a situation are large: significantly better health outcomes for the same or lower expenditure, as the scenarios illustrate. This is particularly important in thinking beyond the 20 year horizon. The demographic profile becomes much less favourable during the period between 2020 and 2040 as the ‘baby-boom’ cohorts reach older age, increasing pressure not only on health care but also on social care and other areas of public expenditure such as pensions. Thanks to the health outcome benefits associated with investment in public health, the UK would find itself much better placed to deal with such pressures under the *fully engaged* scenario than, say, the *slow uptake* scenario.

- 7.1 The Review has concluded that the UK must expect to devote a significantly larger share of its national income to health care over the next 20 years. It has projected the likely costs of reversing the significant cumulative under-investment over past decades, to catch up with the standards of care seen in other countries and to deliver a wide-ranging, high quality service for the public and individual patients. Given the starting point, this is a very ambitious aim, even over 20 years.
- 7.2 Success or failure will ultimately depend on how effectively the health service uses its resources. They must be used more effectively than has typically been the case in the past. Chapter 6, and indeed this Report more generally, has sought to make a contribution to the necessary debate about how that can be achieved.
- 7.3 The actual requirement could, of course, be higher or lower than the range of projections set out in this Report and the three scenarios have illustrated how different the outcomes might be. The *slow uptake* scenario illustrates the very high (possibly unsustainable) costs associated with delivering high quality outcomes through a less responsive system to a less well engaged public. The range of uncertainty is large and grows rapidly the further ahead one looks. From a financial perspective, the key question is likely to be whether the magnitude of spending projected is considered affordable and that too will depend in part on what improvements are seen to be achieved. Five factors which would result in lower projected overall resource requirements would be:
- **better productivity:** a significantly better productivity performance than assumed in the *solid progress* and *fully engaged* scenarios as a result of a substantial improvement in the way in which the health service uses its resources;
 - **more success in public health:** a substantially larger positive impact on health needs from the focus on health promotion and disease prevention than assumed in the *fully engaged* scenario;
 - **delivering a high quality service, but over a longer period:** a less ambitious programme of delivering higher quality across the service, either through raising standards to a less ambitious level than outlined in this Report or taking longer than 20 years to achieve these standards;
 - **generalising NSFs costs less than anticipated:** if, on average, other disease areas prove to be less expensive than the current areas suggest; or
 - **developments are not considered value for money:** if, when examined in detail, some improvements outlined in this Report are not considered cost effective.

- 7.4 The importance of rigorous independent audit has been stressed to ensure that money is being well spent, to enable policy to be periodically re-assessed and to allow the continuing trade-offs to be made and debated publicly.
- 7.5 An exercise such as this Review is most valuable if it is repeated at regular intervals so that changing trends become more clearly apparent earlier. There are several reasons for regular review:
- estimates like this are subject to a large degree of uncertainty and it is important to reassess the results and conclusions on the basis of any fresh information about developments in the main trends and any newly emerging areas;
 - new knowledge and research will evolve, enabling better analysis to be conducted; and
 - the availability of such a long-term assessment is important to assist planning in those areas where long-term resourcing decisions must be made, for example, in training people, providing technological support and in re-building programmes, as well as in thinking through the funding sustainability implications.
- 7.6 It is therefore the Review's final recommendation that a further review should be conducted in, say, five years' time to re-assess the future resource requirements for both health and social care. It should be able to draw upon the better information, research findings and international knowledge base which the recommendations in Annex A are intended to deliver; and have the benefit of the accumulated knowledge from the bodies charged with auditing the success of the service and its change programme.

Recommendations

This Box draws together the recommendations made throughout the Report. In addition, Annex A – which follows this chapter – makes detailed recommendations on the analysis and data issues:

- the Review welcomes the Government's intention to extend the NSF approach to other disease areas and recommends that NSFs, and their equivalents in the Devolved Administrations, are rolled out in a similar way to the diseases already covered (2.33);
- the Review recommends that the NHS workforce planning bodies should examine the implications of this Review's findings for their projections over the next 20 years (3.82);
- while the Review considered it vital to extend its Terms of Reference to begin to consider social care, it has had neither the information nor the resources to be able to develop a 'whole systems' model, nor indeed to build up projections for social care in the same level of detail as for health care. It is recommended that future reviews of this type should fully integrate modelling and analysis of health and social care. Indeed, it is for consideration whether a more immediate study is needed of the trends affecting social care (5.60);

- the Review recommends that the National Institute for Clinical Excellence (NICE), in conjunction with similar bodies in the Devolved Administrations, also has a major role to play in examining older technologies and practices which may no longer be appropriate or cost effective (6.11);
- it will also be important to ensure that recommendations from NICE – particularly its clinical guidelines - are properly integrated with the development of NSFs (6.13);
- the Review welcomes the proposed extension of the NSFs to other areas of the NHS. It recommends that NSFs should in future include estimates of the resources – in terms of the staff, equipment and other technologies and subsequent cash needs – necessary for their delivery (6.14);
- the Review’s projections incorporate a doubling of spending on ICT to fund ambitious targets of the kind set out in the NHS Information Strategy. To avoid duplication of effort and resources and to ensure that the benefits of ICT integration across health and social services are achieved, the Review recommends that stringent standards should be set from the centre to ensure that systems across the UK are fully compatible with each other (6.21);
- to ensure that resources intended for ICT spending are not diverted to other uses and are used productively, the Review recommends that budgets should be ring-fenced and achievements audited (6.21);
- in thinking about the level of detail to which objective setting should be taken, the Review was interested in work currently being undertaken by RAND Health to develop a new approach to assessing the quality of care given to children and adults in the US. The Review recommends that the results of this and any similar research about comprehensive measurement of performance should be examined (6.29);
- the Review believes that the scope for greater future cooperation between the NHS and the private sector in the delivery of services should be explored, building on the concordat set out in the NHS Plan (6.36);
- the Review recommends that there should be a mechanism in place to ensure regular and rigorous independent audit of all health care spending and arrangements to ensure it is given maximum publicity (6.37);
- the Review recommends that the Government should examine the merits of employing financial incentives such as those used in Sweden to help reduce the problems of bed blocking (6.45);
- the Review believes that the present structure of exemptions for prescription charges is not logical, nor rooted in the principles of the NHS. If related issues are being considered in future, it is recommended that the opportunity should be taken to think through the rationale for the exemption policy (6.75);
- the Review believes that there is an argument for extending out-of-pocket payments for non-clinical services and recommends that they should be kept under review (6.76);

- the Review recommends that a more effective partnership between health professionals and the public should be facilitated, for example, by:
 - the setting of standards for the service to help give people a clearer understanding of what the health service will, and will not, provide for them;
 - development of improved health information to help people engage with their care in an informed way;
 - in parallel with improved information, the use of pro-active policies driven by evidence of cost-effectiveness, to encourage reductions in key health risk factors;
 - reinforcing patient involvement in NHS accountability arrangements, through measures such as Patients' Forums, the English National Commission on Patient and Public Involvement and better patient representation on Trust Boards, including the new Primary Care Trusts; and
 - finding effective ways to provide the public with a better understanding of how their local health services are performing (6.82);
- the Review recommends that the Boards of Strategic Health Authorities (StHAs) should include local patient and business representatives (6.83);
- the Review recommends that, as part of improved public engagement, the Department of Health (with StHA involvement) and the Devolved Administrations consider how a greater public appreciation of the cost of common treatments and appointments could best be achieved (6.86);
- the Review believes that, as an early step down this road towards better engagement of patients in thinking about the health service, there may be an argument for charging for missed appointments (6.89); and
- the Review's final recommendation is that a further review should be conducted in, say, five years' time to re-assess the future resource requirements for both health and social care. It should be able to draw upon the better information, research findings and international knowledge base which the recommendations in Annex A are intended to deliver; and have the benefit of accumulated knowledge from the bodies charged with auditing the success of the service and its change programme (7.6).

FUTURE INFORMATION AND RESEARCH NEEDS

Introduction

- A.1 The Review has sought to use the best and most comprehensive information available to it. A large amount of data and research has been analysed with the assistance of people in the UK and internationally, in government, agencies, academia and industry.
- A.2 Inevitably, however, there have been areas in which the Review would have wished to know more but where data were not available or primary research would need to have been undertaken. In addition, this Review represents the first time such a comprehensive assessment of future resource requirements for the NHS has been undertaken. Given this, and the relatively short time available in which to conduct the Review, there is scope for further development of the methods used, particularly in terms of modelling work.
- A.3 In this annex, the main gaps in knowledge and research are identified and recommendations made for consideration of future work. Any data collection exercise or research costs money, so the recommendations would require cost-benefit analysis before implementation. Production of that information which comes from within the NHS should be assisted by the programme of ICT investment which is currently being implemented. Administrative data, coupled with patient identifiers, opens up the possibility of considerably enriched information, provided, of course, all required confidentiality is preserved.

Access to information

- A.4 The Review has created a detailed picture of activity, unit costs and expenditure across the major elements of the health and social care systems. Bringing these data together has been a complicated and time consuming task, as different elements of the data were held in different places and were not always directly comparable. The Review recommends that each of the UK Health Departments should have a single source of validated health and social care related information based, as far as possible, on common definitions.

Geographic coverage and comparability of data

- A.5 **Country specific:** In bringing together various sources of health-related information, it became clear that comparability was sometimes difficult. For example, age groups used to summarise the information, the frequency of

data collection and the method of calculating the costs of a particular type of care varied. The Review recommends that, where practical, data which are commonly compared or could be usefully aggregated should be easily comparable.

- A.6 UK:** The Review's Terms of Reference required it to take account of the devolved nature of health spending in the UK, and the Review invited and received the participation of relevant people from the Devolved Administrations. As set out earlier in this Report, in line with the Review's Terms of Reference, the estimates of resource requirements in Chapter 5 are presented for the UK as a whole, but are based on a detailed assessment of the English situation. This was necessary because of data comparability difficulties across the four countries and time constraints. This was because of data comparability difficulties across the four countries.

Chapter 12 of the Interim Report set out some of the similarities and differences in health needs between different parts of the UK. In particular, it highlighted the link with socio-economic inequalities. The Review would have liked to explore these differences further to inform its estimates, but again data difficulties and time constraints prevented this. These issues are explored further in Box A.1.

Against this background, the Review strongly recommends that there should be greater harmonisation of data definitions within and across the UK, and greater comparability of indicators of socio-economic inequality.

- A.7 International:** The Interim Report compared the health system and health outcomes in the UK with those found in other major countries. The usefulness of this comparison was confirmed during the consultation process and a fuller comparison was commissioned from the European Observatory on Health Care Systems. It has been published alongside this Report. This provides a helpful start but the work needs to be regularly updated and developed to provide a better understanding of differences between countries.

The Interim Report referred to useful work by the Organisation for Economic Co-operation and Development (OECD), examining the relative importance of a wide range of factors in explaining health outcomes. As with the UK, a better understanding of the role of income and other socio-economic inequalities in explaining differences in health outcomes would be particularly helpful.

The Review welcomes the ongoing work to provide greater comparability of international health data through the production of Health Accounts. This needs to be accompanied by improved epidemiological comparisons of outcomes.

Box A.1: Similarities and differences within the UK¹

Chapter 12 of the Interim Report outlined the similarities and differences in health within the UK and asked for views on these in its consultation.

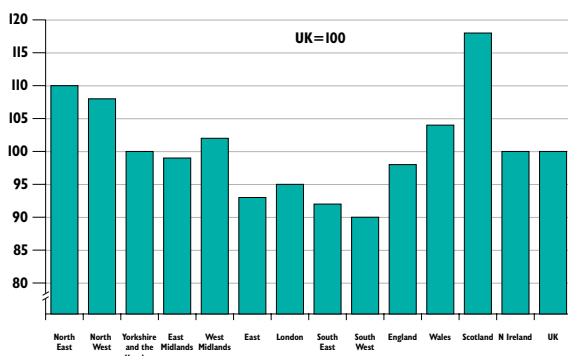
The Interim Report noted that the major drivers of future expenditure are expected to be common throughout the UK. Consultation discussions in Scotland, Wales, Northern Ireland and the English regions have reinforced the view that the impact of increasing public expectations, advances in technology, and workforce, and productivity changes are likely to be common.

The main differences highlighted were the rurality and remoteness of some areas and the pockets of severe urban deprivation in others. In particular, Chapter 12 noted that health differences within the UK were likely to be strongly linked to socio-economic differences, and undertook to examine how significant this link is. The consultation supported the link but was unable to clarify the issue. For example, the Northern Ireland Executive agreed that it is difficult to give a definitive quantitative answer to this question.

There are two main reasons for this. First, as discussed in Chapter 3, it is extremely difficult to attribute a resource requirement to these differences. Second, available data on these differences are limited, while what is available is often conflicting.

Charts A and B show differences in the standardised mortality ratio (SMR) and in self-reported health status within the UK. Charts C and D show differences in waiting times and hospital activity, measured in terms of intensity of bed use². Scotland has a much higher mortality rate than England, but a similar level of self-reported good health. It also has considerably lower numbers of people waiting more than six months for hospital treatment. Northern Ireland has a similar SMR to the UK average, but the highest percentage of people waiting more than six months. The South West of England has the lowest incidence of lung cancer but the highest incidence of breast cancer in the UK³. There is no firm relationship between waiting times and activity, even though the two are obviously connected. The absence of a clear link between inputs and outputs underlines the importance of using resources effectively, but also the difficulty of drawing conclusions about resource implications from some of these issues.

(A): Standardised mortality ratios within the UK: 1999



(B): Proportion of population reporting 'good' state of health 1998-9: adults aged 16 or over

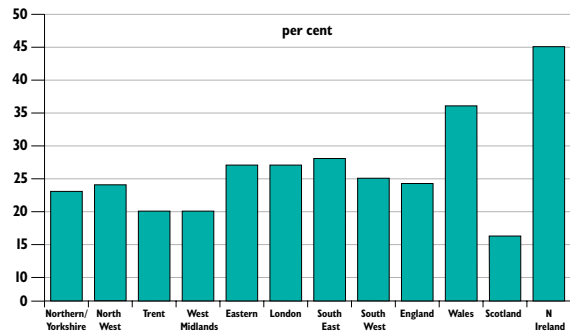


¹ Source for charts and figures (excluding Chart C): National Statistics (2001), Regional Trends No. 36, ISSN 0261-1783.

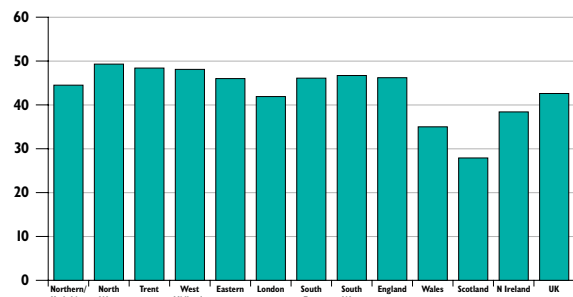
² Finished consultant episodes in English NHS regions and discharges and deaths in Wales. Data for Scotland relate to discharges and deaths and transfers to other specialities and hospitals. Data for Northern Ireland relate to discharges and transfers to another hospital. Healthy new-born babies are included in Northern Ireland but excluded for the other countries.

³ SMR (standardised mortality ratio) is the ratio of observed deaths to those expected by applying a standard death rate to the regional population (UK=100). SMR figure for 1999, cancer incidence figures for 1997.

(C): NHS hospital waiting times: percentage waiting 6 months or more at 31 December 2001⁴



(D): NHS hospital activity: cases treated per available bed 1999-00



Therefore, in order to reach a considered view about the impact of health inequalities across the regions and countries of the UK, a major exercise which both gathered and assessed information would be needed. Such an exercise was outside both the scope and capacity of this Review.

More UK-wide research and better data on inequalities (both socio-economic and geographical) and their impact on health need and costs would be desirable, given the impact which health inequalities have on health outcomes. This should help in ensuring the effective use of health service resources to maximise improvements in health outcomes.

Workforce

- A.8 The Interim Report recognised that the use of staff time is the key factor in the productivity of the health care workforce. The consultation provided little additional firm evidence on how staff time is currently deployed and how it might change. Further research to explore how more of the time of professional staff can be freed up to spend with patients is recommended.

⁴ Source: Department of Health; National Assembly for Wales, Information and Statistics Division, NHS in Scotland; DHSSPS, Northern Ireland. Scotland Figure: 31 March 2001.

Modelling health and social care

A.9 This exercise has been the first attempt at an assessment of the resources required for the UK health service over a period of 20 years. The Review has created a model which allows estimates of future resources to be produced. Although the Review attempted to combine a disease-specific approach with a life-course approach, it was unable to do either in a truly comprehensive way. This was largely because of data unavailability and the time constraint.

- **Disease specific data:** The work on estimating the cost of implementing the National Service Frameworks (NSFs) was, where possible, carried out for specific diseases. The Review recommends that all future NSFs are accompanied by detailed cost-benefit analyses so that a greater understanding of the economic and societal impacts of the investment in change and transformation can be achieved. The benefits should incorporate both immediate and long-term cost savings and the health gains anticipated. In addition, where inevitably there are uncertainties, the NSFs should include proposals for research. When comprehensive, the NSFs should also provide the basis for detailed assessments of delivery requirements.
- **Measures of productivity:** The Review recommends further work be conducted into measures of productivity in the health sector. Measures that take account of changes in quality and outcomes as well as intermediate outputs are urgently required.
- **Impact of technology:** The Review recommends that further research is required in attempting to isolate the impact of technological change on health care spending.
- **Health promotion impacts:** The Review has captured the likely costs and benefits of success in health promotion interventions in a rather simplistic way. In order to carry out more sophisticated analyses, data on the long-term costs and benefits to the health service and population health outcomes are required. This would need to cover a range of risk factors and a whole population perspective. Greater research effort is needed in order to model the major determinants of health with greater precision than is currently possible, to include macroeconomic policy, individual human behaviour, environmental factors and therapeutic and preventive interventions.
- **People's needs:** Enhanced ICT could provide the health service with more knowledge of its 'customer base'. Clearly there are cost implications of such a system, but the benefits would include addressing the comment that the NHS does not understand what the public wants. Improved data would facilitate a better understanding of people's health needs, particularly if

information on health-related behaviour and wider risk factors are included. But decisions to invest in ICT need to be accompanied by firm evidence of the costs and benefits. Better ICT embedded in the health service could enable wider cohort studies to assist in the assessment of the population's health status, enabling future predictions of demand to be made with more confidence.

- The **model** does not fully capture the interdependence of health and social care. Nor does it incorporate optimally the dynamic interaction between health spending and health outcomes and other demand-supply links. In order to capture such links, it is likely that a whole systems simulation model would be required. This would fully take into account the resources required to deliver the most appropriate care (e.g. promotion, prevention, diagnosis, treatment, rehabilitation) in the most appropriate place (e.g. own home, care home, GP surgery, hospital) at the most appropriate time, given the characteristics of the population (e.g. socio-economic status, age, sex, ethnic group, health status and health-related behaviours). It would also facilitate better understanding of the links between inputs, organisational structure, outputs and outcomes.

Strategic planning

- A.10 The Department of Health and its counterparts in the Devolved Administrations should keep the major change management issues which have been identified in view. The Review suggests that a capacity for 'over the horizon' scanning should be maintained in the UK Health Departments. In addition, HM Treasury should keep long-term trends in health and social care spending under review between Spending Reviews.
- A.11 Health and social care must be considered together. The Review, as discussed, has only been able to examine social care in a limited way, focusing on the impact of demographics and changing ill health. Subsequent reviews of this kind should examine in more detail the balance between residential care and care at home, and the changing needs of people in both settings. This will become more important the number of older people increases more sharply in the years beyond 2022.

CONSULTATION BY THE REVIEW

- B.1 In the first phase of the Review, stakeholder workshops were held with the Nuffield Trust, the Association of the British Pharmaceutical Industry and the Association of the British Health Care Industry and the King's Fund. Workshops were also held in Scotland, Wales and Northern Ireland to discuss variations within the UK. A conference was also held at the Barbican Centre on 18 and 19 October 2001 and proceedings were published alongside the Interim Report. The Interim Report published on 27 November 2001, included a list of those who attended the conference attendees and the members of the Review's Advisory Group. The Interim Report outlined a series of questions for consultation (see Annex C). A summary of the consultation responses will be available on the Review's website.
- B.2 Written responses were received from:

NHS

The Ambulance Service Association
 Birmingham Health Authority
 East London and The City Health Authority
 Essex Local Medical Committee
 Greater Glasgow NHS Board
 Health Development Agency
 Highland NHS Board
 NHS Information Authority
 North Essex Health Authority
 North Staffordshire Health Authority
 Northamptonshire NHS Trust
 Nottingham City PCT
 Nuffield Orthopaedic Centre NHS Trust
 Pinderfields and Pontefract Hospitals NHS Trust
 South Staffordshire Health Authority
 South West Kent PCT
 Walsall Hospitals NHS Trust
 West Hampshire NHS Trust
 West Hull PCT
 West Sussex Health Authority

Royal Colleges

Academy of Medical Royal Colleges
 Faculty of Public Health Medicine
 Royal College of General Practitioners
 Royal College of Nursing

Royal College of Physicians
Royal College of Physicians and Surgeons of Glasgow
Royal College of Surgeons of Edinburgh

Academic institutions

Centre for Health Economics, University of York (Diane Dawson, Maria Goddard and Peter C Smith)
Council of Heads of Medical Schools (Professor Robert Boyd)
Institute for Applied Health and Social Policy, King's College London (Dr Perri 6 and Dr Edward Peck)
London School of Economics and Political Science (Professor Walter Holland)
London School of Hygiene & Tropical Medicine (Dr David Metz)
University of Essex (Professor Joan Busfield)
University of Leicester (Professor Richard Baker)
University of Southampton (Professor Dame Jill Macleod Clark)

Professional bodies and organisations

AIM UK
Association of British Insurers
Association of the British Pharmaceutical Industry
Association of Chartered Certified Accountants
British Generic Manufacturers Association
British Health Care Association
British Medical Association
Business Services Association
Confederation of British Industry
Continuing Care Conference
NHS Confederation
Proprietary Association of Great Britain
Royal Pharmaceutical Society of Great Britain
Scottish Specialists in Pharmaceutical Public Health Group
The British Computer Society
The Chartered Society of Physiotherapy
The Chartered Institute of Public Finance and Accountancy
The Society of Chiropractors and Podiatrists
The College of Optometrists
Worshipful Company of Information Technologists

Business and industry

Andstrom Consulting Ltd
Aventis Pasteur MSD
Boots the Chemists
BUPA
Celtic Dimensions
DPP 2000 Ltd
Electronic Data Systems Ltd (EDS)
Glaxo SmithKline
Haden Young
Inventures
iSOFT Group plc
Lilly UK
Microsoft
Norwich Union
Novo Nordisk
Pharmaceutical Schizophrenia Initiative (PSI)
PPP healthcare
SmartSensor Telemed Ltd
Standard Life Healthcare
Swiss Re Life & Health
Unilever

Trades Unions

UNISON

Patient organisations, charitable and voluntary organisations

Action on Smoking and Health (ASH)
Age Concern
Association of Community Health Councils for England & Wales (ACHCEW)
Association of Welsh CHCs
Cardiff Community Health Council
Carers UK
Diabetes UK
Gwent CHC
Gwynedd CHC
The Healthcare Improvement Network
Help the Aged
National Association of Citizens Advice Bureaux
National Cancer Research Network & BT Health
National Council for Hospice and Specialist Palliative Care Services

National Heart Forum
No Smoking Day
Pharmacy Healthcare Scheme
Royal National Institute for Deaf People
SCOPE
Smoking Control Network
The British Thoracic Society
The College of Health
The Enhancement Trust
The Isabel Medical Charity
The Nuffield Trust
The Stroke Association
UK Public Health Association
YMCA England

Political Parties

Crawley Constituency Labour Party

Research Groups

GeneWatch UK
Institute for Alternative Futures
REFORM

Devolved Administrations

Northern Ireland Dept of Health, Social Services & Public Safety
Scottish Executive
The National Assembly for Wales

Overseas governments

National Institute of Public Health and the Environment, Netherlands

Individuals

Pam Alford
Frank Arnold
Tom Brooks
Christine Glover
Ian Hopkinson
John Roberts
Malcolm McAlpine
Michael Miller
Michael Place
Rachel Paton

Dr Simon Price
Anna Richell
Anthony Roberts
Dr Dominic Smethurst
Tony Tarrega
Walter Stanners
Rosemary Lever
Dr J Wardrope
Dr Paul Weston-Smith
Dr JG Whittle

B.3 The Review met with the following UK health organisations, academic institutions, companies, associations and individuals:

Adam Smith Institute
Age Concern
Association of British Pharmaceutical Industries
Baroness Sally Greengross
Beeson Gregory
Boots the Chemist plc
British Medical Association
BT Health
BUPA
Camden and Islington Mental Health NHS Trust
Centre for Policy Studies
CIVITAS
Confederation of British Industry
Crisp Street Health Centre
Diabetes UK
East London and the City Health Authority
European Observatory on Health Care Systems
Guys and St Thomas's NHS Trust
Health Development Agency
Health Unions (Amicus, AUEW, CDNA ,SCP, HCSA, TGWU, CSP, BDA, GMB, UNISON, MSF, SOR)
Homerton Hospital
Prof Sir Richard Sykes, Imperial College London
Institute for Fiscal Studies
John Radcliffe Hospital
Judge Institute for Management Studies
King's Fund
Medical, management staff and patient groups in Scotland, Wales and Northern Ireland

Medical Research Council
National Horizon Scanning Centre, University of Birmingham
Nestor Healthcare
NHS Alliance
NHS Confederation
NHS Northern and Yorkshire
NHS South Eastern Region
NHS West Midlands
National Institute for Clinical Excellence (NICE)
North Durham Health Care NHS Trust
Nuffield Trust regional meeting, Exeter
Patients' Association
Pinderfields Hospital
Prof Sir Michael Peckham, University College London
Prof Tom Kirkwood, University of Newcastle
Queen Mary & Westfield College (QMWC)
Royal College of General Practitioners
Royal College of Nursing
Royal College of Physicians
Royal College of Surgeons
Royal London Hospital
Social Market Foundation
Standard Life Healthcare
Tomorrow Project
Trades Union Congress

B.4 The Review has met with the following overseas government departments, organisations and individuals:

Australian Commonwealth of Health and Aged Care
Bundestag Health Committee
Canadian Health Ministry
Centenary of Australian Federation Seminar on Sustainable Health Financing,
Canberra (involving UK, Australian and New Zealand representatives)
Dutch Health Ministry
French Social Security Ministry
French Ministry of Employment and Solidarity
German Federal Health Ministry
German National Advisory Group
Health Canada
Mark McClellan, Council of Economic Advisers, White House, Washington DC
Organisation for Economic Cooperation and Development (OECD)
Professor Patricia Danzon, Wharton School, University of Pennsylvania

Queensland Health
Swedish Association of Local Authorities
Swedish Federation of County Councils
Swedish Ministry of Finance
Swedish National Board of Health and Welfare
Urban Institute, Washington DC
US Agency for Healthcare Research and Quality
US Centers for Medicare and Medicaid Services (formerly Health Care Financing Administration)
US Congressional Budget Office
World Health Organisation

B.5 In addition, the Review also worked closely with:

Department of Health and its equivalents in Scotland, Wales and Northern Ireland
Government Actuary's Department
Office for National Statistics
Personal Social Services Research Unit
European Observatory on Health Care Systems at the London School of Economics and Political Science

OVERVIEW OF INTERIM REPORT AND ISSUES FOR CONSULTATION

- C.1 This annex was originally published as Chapter 2 to the Interim Report, as a summary of its analysis. Subsequent chapters of that report discuss the issues in this annex in further detail. A full version of the Interim Report is available on the Review's website.

Introduction

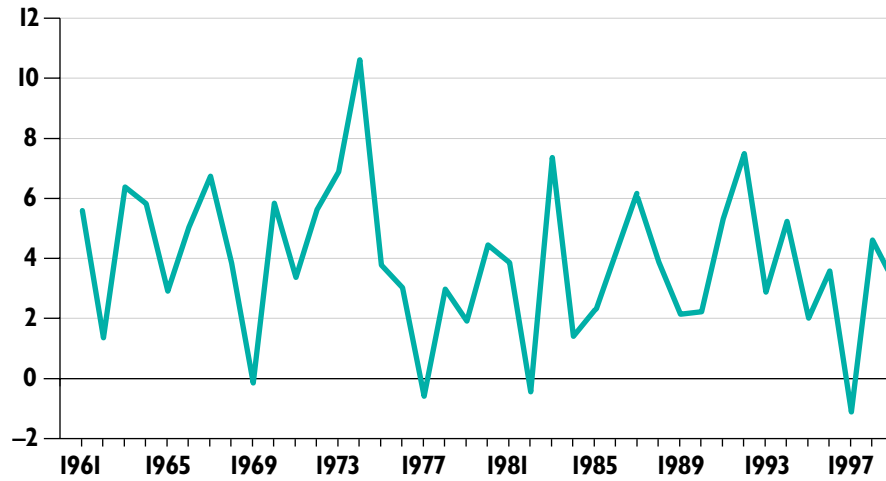
- C.2 The health service is immensely important. The quality of the health service in the UK will have an impact on our life expectancy, quality of life and life chances. Health and well-being in childhood affect educational attainment with consequences for people throughout their lives. Ill health in adulthood is associated with poverty.
- C.3 The health service is also very important to our economy. It is the largest employer in the country. We spend one in every 14 pounds of our nation's income on public and privately funded health care. After social security payments, health is the biggest single component of public expenditure. 15 per cent of our tax and National Insurance Contributions (NICs) go to pay for the health service.
- C.4 The health service also affects the productivity of UK business. Almost half of all NHS spending is for people of working age. Ill health imposes a significant restriction on the potential of the UK economy. Around 2 per cent of working days are lost due to short-term sickness, while more than 7 per cent of the UK's working age population is unable to work due to long-term sickness or disability at a cost of over £12 billion a year in welfare benefits. Research has shown that if average life expectancy could be increased by five years (i.e. to Japanese levels) then UK GDP could be between £3 billion and £5 billion a year higher.
- C.5 The NHS is an institution which the vast majority of people value and wish to retain:
- 80 per cent of people think that the NHS is critical to British society and must be maintained; and
 - 75 per cent want to retain a universal health service and oppose a two-tier health service.

- C.6 Although it does many things very well, standards of health care in the UK have fallen behind people's expectations. We are not keeping up with the quality of service provided routinely in many other countries. A combination of cumulative under-investment over at least 30 years and organisational and delivery arrangements which are not designed to meet the challenges of providing health care in the 21st Century are generally held to be responsible.
- C.7 To tackle these problems, in the March 2000 Budget, the Chancellor of the Exchequer announced a substantial increase in spending on health care. Health spending will rise by more than a third in real terms over a five year period. In July 2000, the Government set out a 10-year programme to modernise the health service in its NHS Plan for England (similar plans have been published for Scotland and Wales).

The Review's objectives

- C.8 Building on these steps, the Chancellor has asked me to examine the long-term resource requirements for the UK health service. In doing so, my starting point is the NHS Plan. This Review is focused on the long term; where do we need to be in 20 years' time? It does not attempt to plot a detailed path from where we are now to where we need to be in 20 years. That would require consideration of very many other factors, such as the capacity for change.
- C.9 This is the first time in the history of the NHS that the Government has commissioned a long-term assessment of the resources required to fund the health service. Although making long-term projections is fraught with uncertainty, I am convinced that it is an important and valuable exercise. The NHS Plan sets out a long-term programme of modernisation. Coupled with the clarity about long-term funding requirements which I hope this Review can provide, this sets in place the basis for much greater transparency about what patients and the public in the UK can expect from their health service in return for their tax and NICs contributions.
- C.10 It should also have considerable benefits for the management of the health service. The NHS cannot be effectively managed on a short-term basis. Good management requires clarity about the long-term, strategic direction of the service coupled with the flexibility to respond decisively and appropriately to changes as they occur.
- C.11 Over the past 40 years, spending increases have varied considerably from year to year (see Chart C.1). This variability can only have added to the difficulty of managing the service effectively and efficiently.

Chart C.1: Annual real growth in total UK health spending, per cent

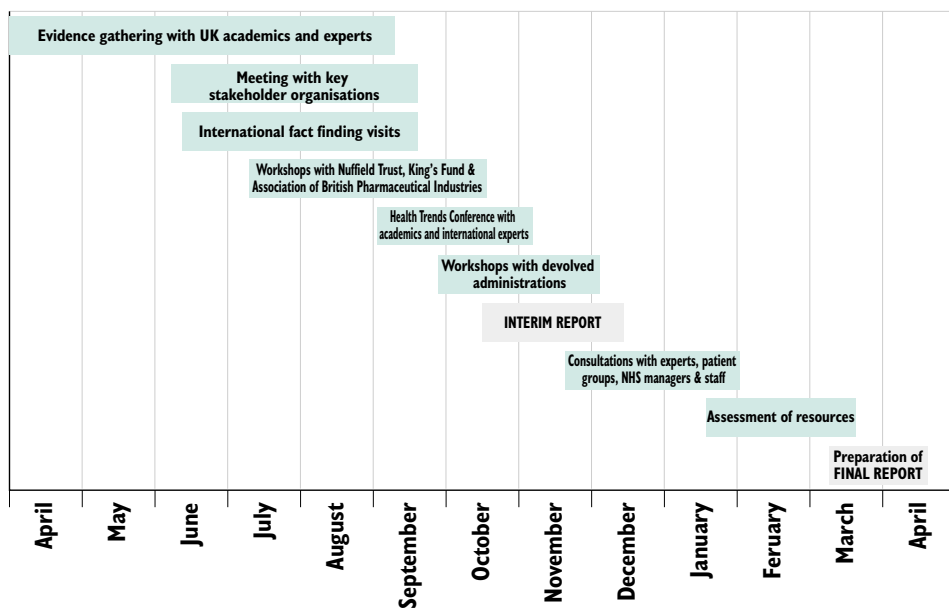


Source: OECD Health Data 2001 and ONS.

Review process

C.12 In undertaking this Review, I have been conscious of the wide range of information and expertise which already exists both around the UK and internationally on these issues. Within the time we have available to undertake our analysis, the wide scale commissioning of new research is not possible. For this Review, my approach has been to draw together the best available information from as wide a range of sources as possible. Inevitably, there are some important gaps in the knowledge base. In these areas I have sought to work with experts to see if further work can be undertaken to improve the robustness of the evidence. Chart C.2 provides an overview of the Review process.

Chart C.2: Health Trends Review – process



C.13 In this, my interim report to the Chancellor, I have not tried to estimate the resources required over the next two decades. To do so would be premature. The report sets out the evidence gathered to date and the resulting issues on which I need to take a view before I can consider the overall resource requirements. Although I have been able to gather a large amount of evidence, I am aware that many other people will have useful contributions to make. I want to take account of these views and assess the most robust evidence possible before coming to a judgement about the expected resource requirement.

Scope of the Review

C.14 In commissioning this Review, the Chancellor recognised that the UK in 20 years' time will have become a very different place. Any assessment of the resources required to deliver a high quality NHS needs to take account of that changing environment. Specifically, the Chancellor asked me to assess how changes in technological, demographic and medical trends would affect the cost of providing a high quality health service.

C.15 Consultation with experts has identified three further factors which the Review must consider. These are changes in:

- patient and public expectations;
- health needs given different patterns of disease; and
- the roles and pay of the health service workforce and the overall productivity of the health service.

Over the next 10 years, the commitments to modernise the service set out in the NHS Plans and National Service Frameworks (NSFs) will begin the process of catch up and the achievement of consistency. This has long-term cost implications which will be considered in the Review.

Financing health care

C.16 This Review has been commissioned to estimate the resources required to run the NHS in 20 years' time. It is not set up to examine the way in which those resources are financed. My Terms of Reference specify that I should examine the resources required for a *publicly funded, comprehensive and high quality* health service and I am asked to identify the key factors that will determine the resources required. I have therefore needed to consider whether the method of funding the health service is itself a factor determining the resources required.

- C.17 Health spending in most major countries is predominantly publicly financed – the US being the main exception. In the UK, 83 per cent of health spending is publicly funded. This is high by international standards – the EU average is 75 per cent¹. Although a higher proportion of health spending is publicly funded in the UK, publicly-funded health spending accounts for a smaller share of GDP than in any of the seven European and Commonwealth countries considered as the most important comparators for this Review².
- C.18 Public funding of health care can come from two sources: general taxation and social insurance. Private funding comes mainly from medical insurance and out-of-pocket payments by patients. Work by the OECD (Organisation for Economic Development and Co-operation) suggests that a greater share of public financing of health care is associated with better population health outcomes for a given level of expenditure. In terms of its impact on the economy, the evidence suggests that, in general: *“private health spending has no advantages over public health spending. The most obvious consequence of shifting from public to private spending is to shift the burden from the relatively rich to the relatively poor”*³.
- C.19 There are relatively high levels of dissatisfaction with health systems in many developed countries, whatever the funding system and overall level of resources devoted to health. The UK system of financing appears to be relatively efficient and equitable. It delivers strong cost control and prioritisation and minimises economic distortions and disincentives. A further key advantage of the UK’s funding system is its fairness, providing maximum separation between an individual’s financial contributions and their use of health care.
- C.20 The main disadvantage of a predominantly social insurance based model is that the revenue base is more concentrated, falling on employment to a greater extent than in countries with a higher proportion of general taxation funding. As a result, many countries such as France with a tradition of social insurance have been shifting the balance in their funding towards general taxation.
- C.21 Private funding mechanisms tend to be inequitable, regressive (those with greater health needs pay the most), have weak incentives for cost control, high administration costs and can deter appropriate use.

¹ 1998 unweighted average.

² France, Germany, the Netherlands, Sweden, Australia, Canada and New Zealand

³ Normand C (1998), Ten popular health economic fallacies, *Journal of Public Health Medicine* 20: 129–132.

- C.22 My conclusion is that there is no evidence that any alternative financing method to the UK's would deliver a given quality of health care at a lower cost to the economy. Indeed other systems seem likely to prove more costly. Nor do alternative balances of funding appear to offer scope to increase equity.
- C.23 The main weakness of public financing of health care (whether through general taxation or social insurance) is that it provides limited scope for expression of individual preferences and choice. Where there is a clinical need for a particular service, a process is needed to decide whether the service will be available through the NHS or not. Such a process must be acceptable to the public. The National Institute for Clinical Excellence (NICE) and NSFs provide the main building blocks for this process. On equity grounds, I do not think it right that some individuals should be able to access clinically necessary services through the NHS by paying when others whose need is at least as great could not simply because they could not afford to pay.
- C.24 However, as patient expectations increase, the UK will need to consider whether to provide a mechanism to allow patients to express their preferences for greater choice in non-clinical services. There are currently limited charges for non-clinical services such as single maternity rooms and car parking. The NHS Plan announced the Government's intention to negotiate contracts with private companies to install bedside TVs and phones with modest charges for the service. It may not be considered appropriate for public money to be used to offer patients greater choice of non-clinical services when these resources could be used for better treatment and clinical care for all. Such patient charges for non-clinical services may offer a way to extend choice for these services without diverting NHS resources away from clinical care. These are matters for consideration, if thought necessary, after this Review, or subsequent reviews, have reported on the likely total resources required in the long term.
- C.25 The key conclusion for my Review is that the current method by which health care is financed through general taxation is both a fair and efficient one. I believe that a continuation of a system of funding broadly similar to that at present is not, in itself, a factor which will lead to additional resource pressures over the next two decades.

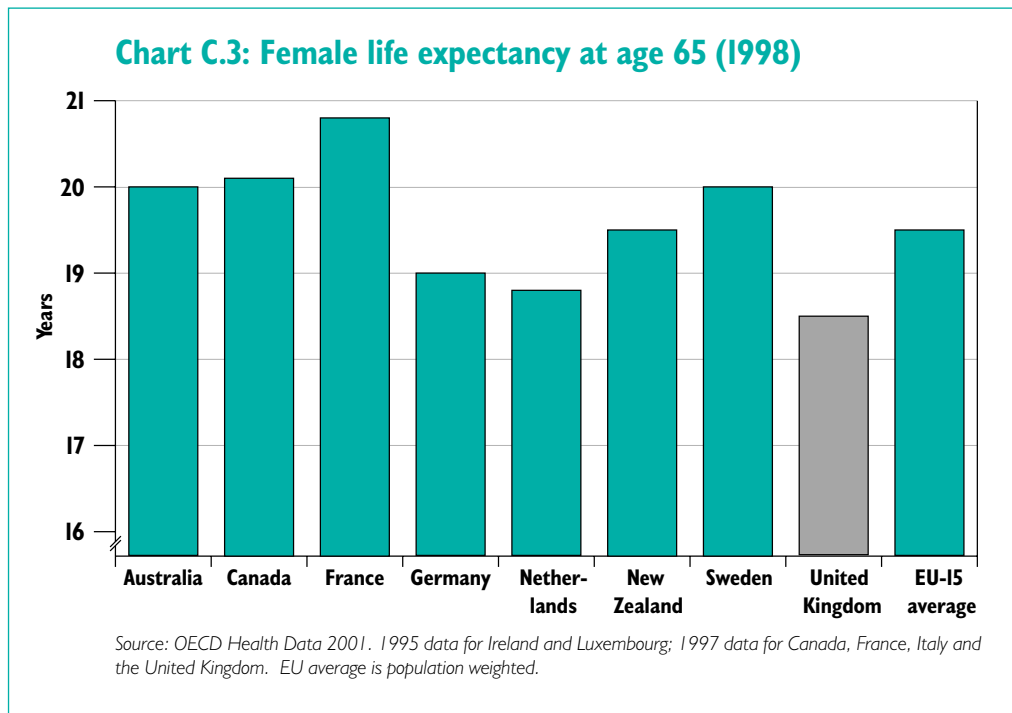
How the UK compares with other countries

- C.26 Seven countries have been identified for the Review to provide a relevant benchmark for standards in the health service. These are countries that all have broadly similar levels of income per head of population and which all aspire to provide comprehensive, high quality health care to their populations. The seven countries are:

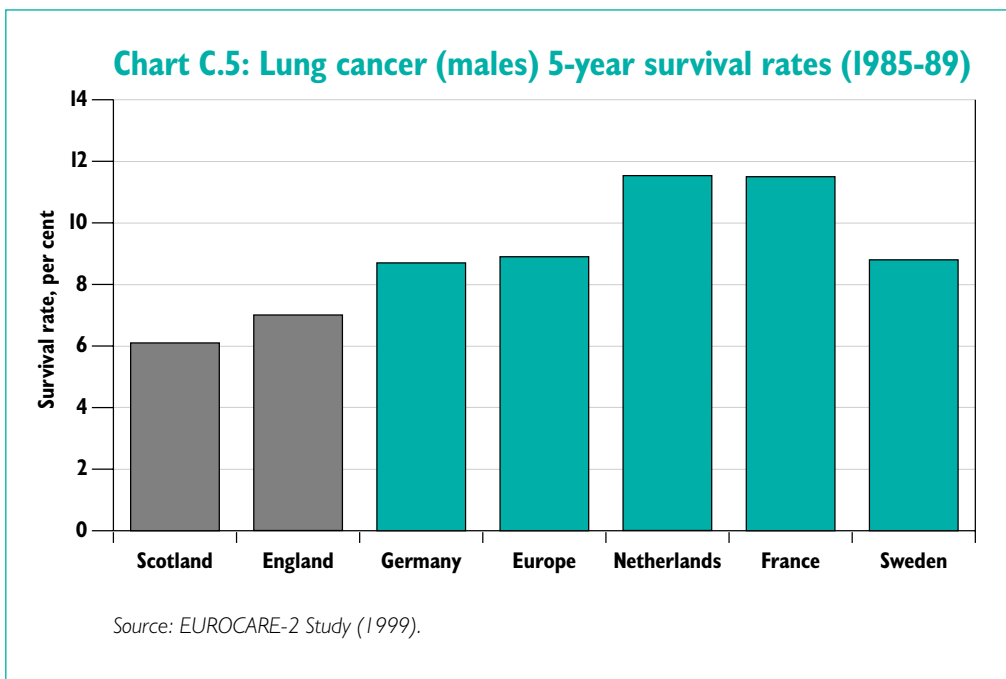
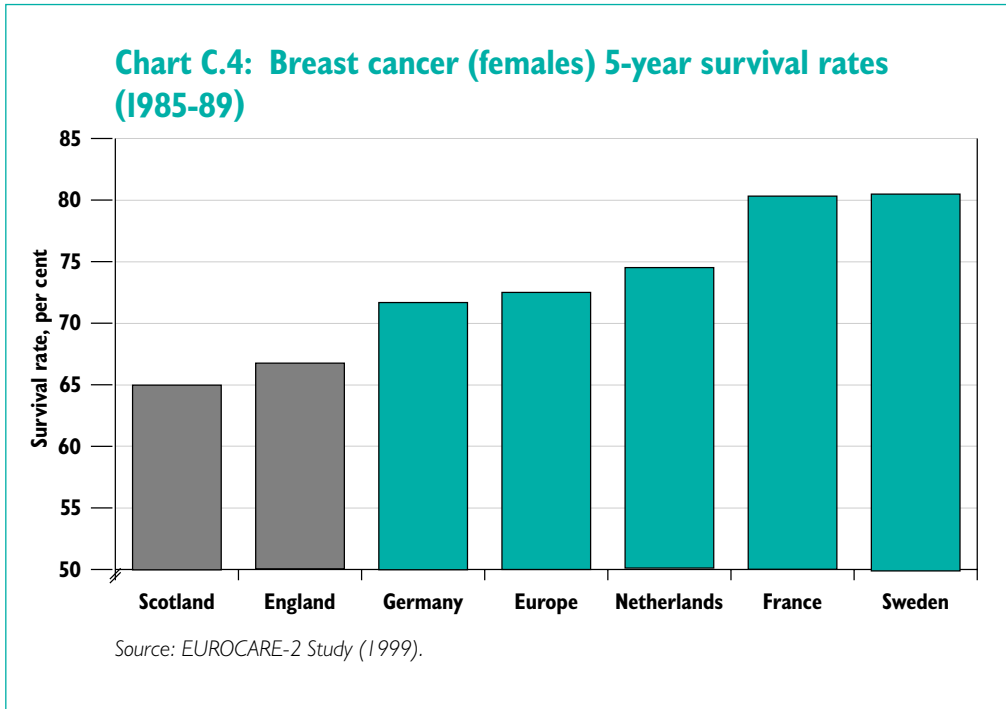
- **European:** France, Germany, the Netherlands and Sweden; and
- **Commonwealth:** Australia, Canada and New Zealand.

Health outcomes in the UK are generally poor in comparison with these seven countries. The outcomes for women are relatively worse than for men. Some of the headline facts are:

- in the UK, women have a shorter life expectancy at birth and at age 65 than in any of the seven comparator countries (Chart C.3);
- more women in the UK die prematurely than in any of the other countries with the exception of New Zealand;
- more children die in the first year of life in the UK than in any of the other countries, again with the exception of New Zealand. With some countries the differences are marked: 5.8 children per thousand in the UK die before their first birthday compared with 3.4 in Sweden;
- life expectancy at birth and premature mortality for men in the UK rank around the middle of the group of comparator countries; and
- life expectancy at 65 for men in the UK is lower than in all the countries except the Netherlands.



C.27 Survival rates for cancer, which accounts for a quarter of all deaths in the UK, are improving but lag well behind those in other European countries.



C.28 These measures focus on population mortality which is an important measure of the outcomes achieved by a country's health care system. But there are other aspects of quality which are important to people. The comparative data on these are more limited. However, the data that do exist suggest that we lag behind. For example, waiting times in the UK are above those in other

countries and more UK patients report difficulties seeing a specialist when they need to.

Why are UK health outcomes below other countries?

C.29 The health of a country's population is the result of a complex mix of factors. Population health depends on:

- the age structure of the population;
- the population's genetic profile;
- lifestyle, environmental and socio-economic conditions; and
- the effectiveness of the health service.

There is considerable debate about the relative contribution of these different factors. Thomas McKeown⁴ most famously argued that health care had only a limited role to play in population health. He attributed most of the improvement in mortality over the past century to other determinants of health. More recent evidence suggests health care can nevertheless make an important contribution to health, attributing around one sixth of the increase in life expectancy during the last century to medical interventions⁵.

C.30 Recent work by the OECD has sought to explain the reasons for the differences in health outcomes between countries. The work indicates that health outcomes are influenced by a range of economic, environmental and lifestyle factors including:

- GDP per head (positive effect);
- the proportion of white-collar workers (positive effect);
- alcohol consumption (negative effect);
- smoking (negative effect); and
- pollution (negative effect).

The OECD analysis also finds that the health service is a significant factor. More health care resources and a larger share of publicly-funded health care are associated with better health outcomes.

⁴ McKeown T (1976), *The Role of Medicine, Dream, Mirage or Nemesis?* The Nuffield Provincial Hospitals Trust, London.

⁵ Much of this work has been undertaken by Bunker and colleagues in the US, for example Bunker JP (1995), *Medicine matters after all*, *Journal of the Royal College of Physicians of London* 29:105-12.

- C.31 The work suggests that much of the difference in the UK's health outcomes can be explained by the UK's comparatively low level of health care resources. In this analysis, the number of doctors per head of the population is used as a proxy. The negative impact on health outcomes of the UK's low number of doctors per head compared to other countries is partly offset by the positive effect of the UK's reliance on public funding of health care and its relatively high proportion of white-collar workers. *Alongside the consultation questions raised later, I would welcome views on the value of this work and any other related research which helps to provide a better understanding of the reasons behind the difference in health outcomes between the UK and other countries.*

Economic environment

- C.32 One of the most important determinants of health spending is the robustness of the economy. Countries with a higher level of GDP per head are able to spend more on health in absolute terms and typically devote a greater share of their nation's income to health care. The economic climate also impacts on many of the trends affecting the health service, for example, levels of poverty and inequality will influence the pattern of morbidity and the use of health services.
- C.33 For this Review we will not be looking at the implications of different macroeconomic environments for the resources required for the health service over the next 20 years. The Review assumes that the Government achieves its central economic objective of delivering economic stability and rising prosperity.

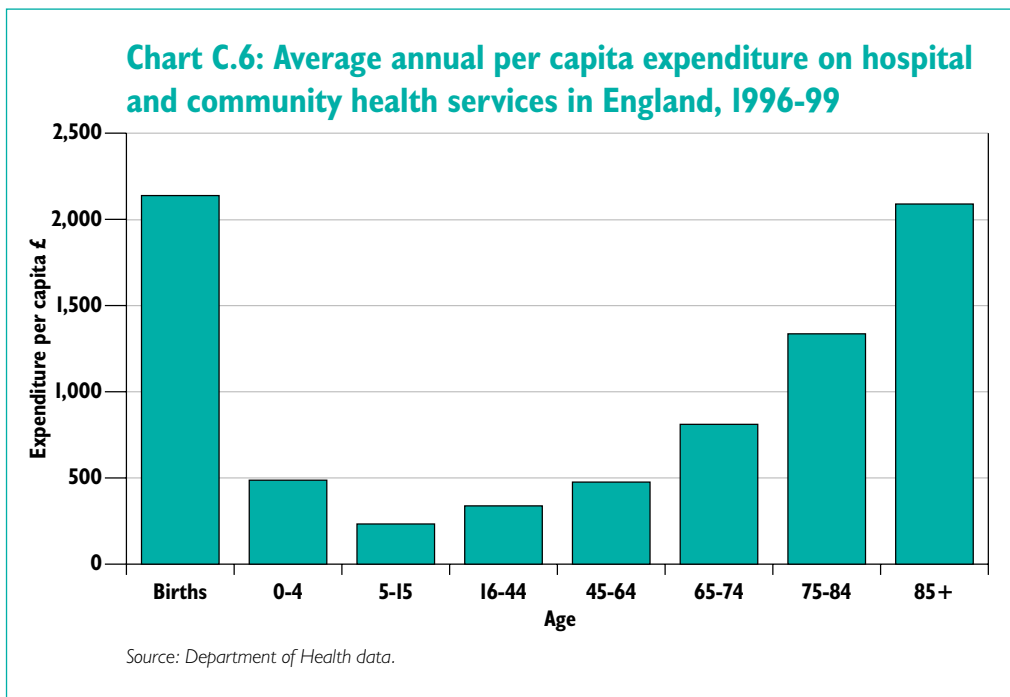
Approach

- C.34 My preferred approach to assessing the resources required to deliver a high quality health service was to make estimates on a disease-by-disease basis. When I began the Review, I hoped to focus on those diseases accounting for the majority of the burden of disease and cost in the UK. We could then quantify the estimated cost of providing a high quality service in these disease areas and assess how this would change over the next two decades in the light of changes in expectations, technology, demography and health care needs and productivity. The advantage of this approach is that it would be transparent and provide a clear link between health outcomes and cost. Unfortunately, it has not been possible to follow this approach in a comprehensive way. We have only been able to use this disease-based approach for five areas, covering around 10 per cent of NHS expenditure:

- coronary heart disease (CHD);
- cancer;
- renal disease;
- mental health; and
- diabetes.

C.35 In other areas the quality standards have not been specified and there are insufficient data on health care costs by disease. As the Government extends the NSFs to more diseases, it will be possible to use the approach more widely. However, to do this, the NSFs will need to include better information on their long-term cost implications and the possible impact of new technologies.

C.36 To complement the disease-specific work, we are therefore developing a life course approach which involves assessing how changes in the factors affecting health care will impact on the cost of delivering a high quality health service at the different stages of people’s lives. (Chart C.6)



Changing patient and public expectations

C.37 One of the main factors affecting the resources required for the health service in 20 years’ time will be the quality standards the service seeks to deliver. The starting point for the Review has therefore been an attempt to understand how quality standards will change over the next two decades.

C.38 For this Review, McKinseys have looked at how wider trends in society and customer experiences in other sectors are likely to affect the expectations of patients and the public in the future. In 20 years' time, patients are likely to be very different (see Box C.1).

Box C.1: Tomorrow's patient

The patient of the future will:

- be better informed;
- be more educated;
- not have enough time to get things done;
- be more affluent;
- be less deferential to authority and professionals;
- have more to compare the health service against; and
- will want more control and more choice – they will reject “one size fits all” services.

For example by 2004, almost 40 per cent of the adult population in the UK is forecast to be using the internet. Over half of current users have used the internet for health-related issues. There are around 10,000 health information websites within the EU and this is growing by 300 per month. This is increasing patients' access to information but also raises issues about its quality and reliability.

C.39 We will therefore be basing our projections on the belief that patients will expect the health service to provide:

- **Safe, high quality treatment**
 - the best treatment outcomes with minimum variation between hospitals and different parts of the country
 - more rapid uptake of effective, new technologies
 - more proactive primary care services
 - staff who are 'at their best'
- **Waiting within reason**
 - for months, read days or weeks
 - for weeks, read hours or days
 - for hours, read minutes

- **An integrated, joined up system**
 - a hassle free service where there are effective links and good communications between the different parts of the service and beyond
- **Comfortable accommodation services**
- **A patient-centred service**
 - people are not all the same – their attitudes to health and priorities are different. The health service will need to respond to this to meet people’s needs as individuals
 - More choice - but over what? Accommodation services? Timing of treatment? Range of treatment?

C.40 Despite these changing expectations, it is assumed that patients and the public will continue to support the NHS and its core values. The ethos of the health service – care based on need – commands almost universal support in the UK. Over the next two decades, despite the move to a more consumerist society, patients and the public are likely to continue to expect the health service to be equitable and fair.

Questions for consultation

- Q7.1 The Review is based on the assumption that the core principles for the health service set out in the NHS Plan will remain valid over the next 20 years. Are there any further important principles that will emerge?
- Q7.2 How do standards of health care in the UK currently compare with patients’ expectations for a high quality, comprehensive NHS?
- Q7.3 What will patients and the public expect from a high quality, comprehensive health service in 20 years’ time? Is it right for the Review to base its projections on:
- safer, higher quality treatment;
 - faster access, ‘waiting within reason’;
 - a more integrated, joined-up system;
 - more comfortable accommodation services; and
 - a more patient-centred service?
- Q7.4 In 20 years’ time will patients continue to expect the health service to be equitable and fair?

Delivering high quality health care

- C.41 Delivering a high quality health service means implementing world-class standards. The NHS Plan and the NSFs set out a 10-year programme to modernise the health service in England (Plans have also been produced for Scotland and Wales). Implementing these plans will be a major step along the way towards delivering what patients and the public expect from their health service and which matches the outcomes achieved by other health care systems.
- C.42 Implementing the NSFs would reduce cancer deaths by a fifth and save 20,000 lives each year from CHD alone. Delivering best practice in the five disease areas identified for the Review will increase costs. The amount of additional investment required varies considerably between different disease areas. One of the most significant increases is the additional costs of prescribing cholesterol reducing drugs (statins). These have been found to have significant health benefits for people at risk of CHD. The evidence suggests that it costs around £8,000 for each life year saved from heart attack. If all 6 million people considered at high risk of CHD were treated with statins this could add up to £2 billion a year to health service costs.
- C.43 The Review will need to assess whether the areas identified are the main cost drivers and whether the estimates of their impact on resources are robust.
- C.44 Delivering high quality will require improvements beyond the NSFs. The main areas will be:
- improving clinical governance across the NHS;
 - reducing waiting times;
 - modernising the NHS estate and improving accommodation services; and
 - improving patient information, using ICT more effectively to help people to take more responsibility for their own care.

Questions for consultation

Q8.1 Has the Review identified the main trends and cost drivers associated with 'universalising the best':

- delivering the National Service Frameworks;
- improving clinical governance across the NHS;
- reducing waiting times;
- modernising the NHS estate and improving accommodation services; and
- improving patient information, using ICT more effectively to help people to take more responsibility for their own care?

Are these the right areas and are the cost estimates robust?

Q8.2 Will patients in future want more choice? What aspects of increased choice in the NHS should the Review examine?

Changing health care needs

C.45 We have identified three main areas that may lead to important changes in the health needs of people in the UK over the next 20 years. These are:

- **demography** - including changes in both the overall size and the age structure of the population;
- **morbidity** - the level of ill health and pattern of disease and disability; and
- **the likelihood of seeking care** - the extent to which people look to the health service to manage their health needs.

Demographic changes

C.46 The UK population is growing and it is ageing. The conditions that account for the majority of the burden of disease in the UK are primarily related to old age, for example, cancer and CHD. As a result, spending on health varies significantly with age. The beginning and end of life are the most expensive. Just over a third of all spending on hospital and community health services is for people who are over the age of 65.

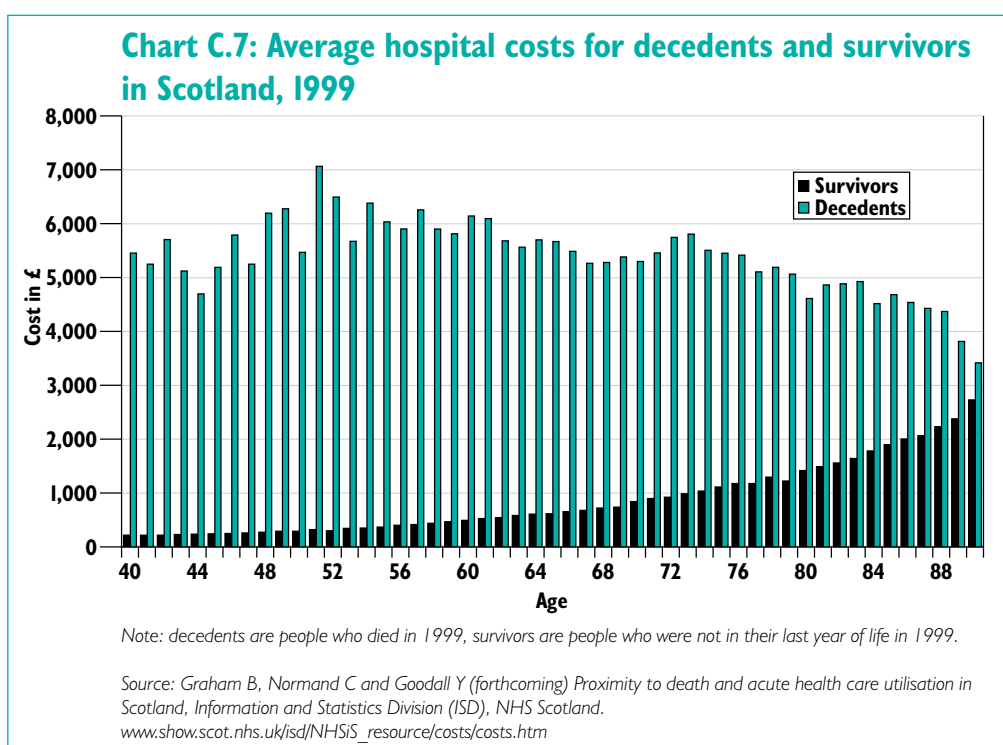
C.47 Changes in the size and age structure of the population will affect the level of resources required for the health service. Over the next 20 years, the UK population is projected to increase by around 5 million people. The number and proportion of elderly people will rise as the baby boom generations reach

older age and mortality rates continue to fall. The number of the very elderly will increase over the next two decades by more than a third.

C.48 Unfortunately, in the past, official projections of the population have not been very accurate. They have regularly overestimated both the number of deaths and the number of births. Over the next two decades, depending on the assumptions made about the birth and death rates and the amount of net migration into the UK, the population increase could vary from just under 2 million people to almost 8 million people (an increase of between 3 and 13 per cent). This is based on relatively conservative assumptions about the improvements we can expect in life expectancy. They are clearly challengeable.

The impact of an ageing population

C.49 Although this degree of uncertainty will impact on the robustness of any expenditure plans for the health service, demographic changes have had less of an impact on health spending than many people tend to think. There is a widening body of evidence which shows that proximity to death has a larger impact on health care costs than age. On average, around a quarter of all the health care someone consumes in their lifetime is consumed in the last year of their life. As Chart C.7 shows, the cost of the last year of life does not rise with age; if anything, it appears to fall.



C.50 It is therefore possible that the effect of an ageing population will be to postpone rather than increase health service costs. Previous studies have suggested that demographic change will add less than 1 per cent a year to costs. If ageing postpones costs the impact on costs could be lower.

C.51 The accuracy of the population projections is an issue for other parts of the public and private sectors. Accurate projections of the number of old people and life expectancy are very important for social care services and for pension planning. The evidence suggests that the need for social care services rises sharply with age.

The changing needs of the elderly

C.52 The studies which suggest that the UK's ageing population will not have a major impact on the cost of the health service tend to assume that the health needs of the elderly do not change. The evidence presented to me for this Review so far suggests that this assumption is questionable. There are two particular factors which the Review needs to focus on:

- whether longer life expectancy will be matched by longer, healthy life expectancy; and
- whether older people in the future will have higher expectations.

C.53 The evidence on the former is mixed. Healthy life expectancy in the UK has been increasing but not at the same rate as overall life expectancy. Research in the US shows strong evidence of a substantial decline in the number of old people with severe disability. UK evidence backs this up. But the trend in the UK is for more people to report health problems. This suggests that while severe disability may decline, the number of minor health problems may well increase as more of us live longer.

C.54 The generation of old people who are alive in 20 years' time will have lived very different lives to those of their parents. But the likely impact on their health is not clear cut. On the positive side, they are less likely to smoke, will have had access to health care throughout their lives thanks to the NHS and will be on average better off. On the negative side, they are more likely to be obese, have led sedentary lifestyles and lived in a society with greater income inequality.

C.55 The greater affluence of the next generation of older people is one of the factors which is likely to drive up the expectations of older people over the next 20 years. US health insurers are reporting a growing trend for elective operations to be performed on increasing numbers of people at older ages. These include, for example, cataract operations and hip and knee replacements. Age discrimination is a recognised problem in the UK health

service. It is becoming, and will continue to be, increasingly unacceptable. This will lead to more health care use among older people.

Changing morbidity and the impact of health promotion

C.56 The age structure of the population is one of the most important factors determining the pattern of morbidity in the UK. Over the next 20 years, as a result of the ageing of the population, chronic conditions will account for an ever increasing share of the burden of disease. But there is unlikely to be a significant change in the major burdens of disease within the UK. There is considerable evidence of a large environmental and lifestyle element underlying most of the chronic diseases which account for the majority of the spending in the health service today. To change the level and pattern of morbidity requires more fundamental changes in these environmental and lifestyle factors. The most important include:

- smoking;
- poverty and inequality;
- diet;
- exercise;
- alcohol; and
- pollution.

C.57 The effects of changes in these underlying influences on health will extend well beyond the 20 year timescale of the Review. So we cannot do justice to the potential beneficial impact that initiatives in this area could have, reducing the burden of disease and potentially some of the costs of the health service. But, over the next two decades, change could have some impact.

C.58 Tackling poverty or pollution or reducing smoking will require action beyond the health service. Indeed, in some cases, other parts of government or society have more scope to influence these factors than the NHS. In some areas, the Government has already set itself targets to improve the UK's performance - for example for smoking and poverty. This raises the question of how much of any additional resources for health should be spent on health care and in particular on the NHS. A full investigation of this is beyond the scope of my Review, but is clearly an important question. It is not easy to address - the potential benefits of reducing people's exposure to these lifestyle or environmental risks are clear. But evidence on the best ways to achieve this is often more limited. I greatly welcome the Government's Review of Inequalities in Health which is being undertaken for the 2002 Spending Review.

Questions for consultation

Q9.1 Are there any other key changes in the health needs of the UK population that are likely to have a significant impact on expenditure over the next 20 years? Are there data available so that their impact can be quantified?

Q9.2 How will the trends in the number of elderly people, their morbidity and expectations affect social care and its relationship with health care in the future? How will the impact on health and social care differ?

Demography:

Q9.3 How is life expectancy likely to change over the next 20 years? What do the changes mean for the assumptions the Review should make about the future size and structure of the population and the future patterns of disease?

Morbidity:

Q9.4 Will there be a compression or expansion of morbidity among future elderly people?

Q9.5 What health promotion and disease prevention interventions over and above smoking cessation are likely to have a significant, sustained impact on health service utilisation over the next 20 years? To what extent will health inequalities change? What impact will this have?

Likelihood of seeking health care and expectations:

Q9.6 How are future elderly people's demands for health care likely to differ from the current elderly? How will their changing expectations relate to health service use?

Q9.7 What evidence is available on trends in the likelihood of people seeking care for a given health problem?

Technology and medical advance

C.59 Technology is one of the most important drivers of health spending. A survey of 50 leading health economists in 1995 found that some 80 per cent agreed with the statement "The primary reason for the increase in the health sector's share of GDP over the past 30 years is technological change in medicine"⁶.

C.60 Over the past 20 years, technological change is estimated to have contributed around 2 percentage points a year to health service spending. This is similar to the estimated impact in the US, although it equates to a significantly higher level of spending on technology in the US.

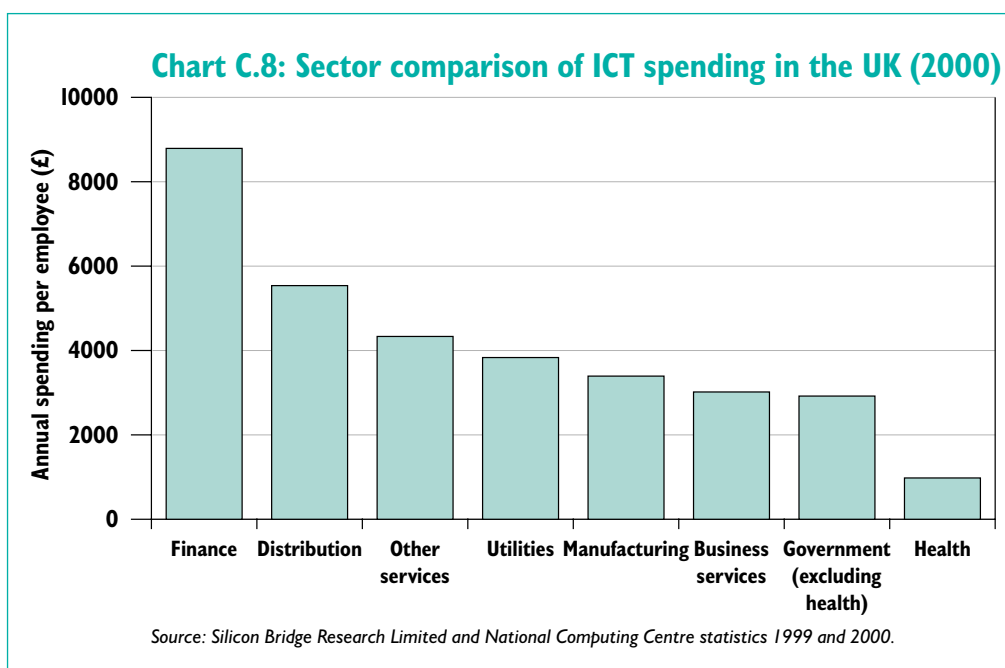
C.61 At first sight, it may seem surprising that technology should increase costs – technology generally is one of the main factors behind improvements in efficiency and productivity across the economy. In the health service, many new technologies will reduce the average cost of a particular procedure or treatment. For example, heart bypass surgery has become more effective and

⁶ Fuchs VR (1996), Economics, values and health care reform, American Economic Review, Volume 86:1-24.

cheaper over the past two decades. However, such effects appears to be small compared with the wider impact of technology. Overall technology has increased health expenditure as it has both enabled many more people to be treated and opened up new areas of treatment.

C.62 The UK has been relatively slow to adopt new technologies, leaving it lagging behind many other countries. It is, of course, possible that some other countries adopt new technologies too quickly. Being quick is not necessarily a good thing if the new technology is found not to be effective. The appropriate response to new technologies is for rapid and consistent diffusion across the health service once robust evidence of their cost-effectiveness is available. NICE will have a pivotal role to play in providing this evidence base. It will be crucial to ensure that positive evidence-based recommendations are resourced and negative recommendations upheld.

C.63 The UK has a particularly poor record on the use of information technologies in the health service. It is behind other countries and other sectors in exploiting the benefits of ICT. Around 1½ per cent of health spending in the UK is on ICT compared to 6 per cent in the US. In other sectors, the share of spending on IT is much higher.



C.64 Over the next two decades, technological developments including new drugs are likely to continue to add to total expenditure. Although the uncertainties are large, the key trends include:

- more rapid diffusion of existing technologies as the NSFs are implemented and the UK catches up with good practice;

- the development of more drugs that reduce the risk of disease. Treating risk rather than waiting for diseases to develop offers considerable potential to improve health but may significantly increase the number of patients using a technology. Statins (drugs which reduce cholesterol) are an example of this. Current evidence suggests that using them to treat people at risk of CHD is cost-effective and would increase the number of people who would benefit from treatment by 6 million;
- new technologies such as digital TV, telephone-medicine and home monitoring increasing the opportunities for people to take greater responsibility for their own health and health care;
- more minaturisation and electronic communications allowing more diagnosis and treatment to move from hospitals to primary care;
- an increasing prevalence of some diseases as drug therapies and other technologies improve and those diseases are treated increasingly as chronic rather than acute conditions; and
- new treatments for diseases where there are currently few treatment options. One of the areas with the biggest potential impact is Alzheimer's disease.

C.65 Radical new technologies such as genomics, proteomics and stem cell therapy offer the prospect of major changes in the way medicine is practiced and have the potential for significant impacts on health outcomes and costs. But there is uncertainty about the likely pace and extent of such developments over the Review period.

C.66 The impact of technology on cost over the next two decades is subject to considerable uncertainty. But it is clear that over previous decades the UK has been slow to adopt and diffuse new technologies. As a result we are now behind best practice. The Review's preliminary estimate is that technology has previously contributed around 2 percentage points a year to the cost of the health service. The historical contribution is likely to represent a 'floor' in terms of the increase required over the next 20 years. Over the next decade, the main cost pressure is likely to come from more rapid diffusion of existing technologies which have been found to be cost-effective as the UK catches up with best practice. The subsequent decade may see more fundamental changes as new fields of medical science start to have a wider impact across the service.

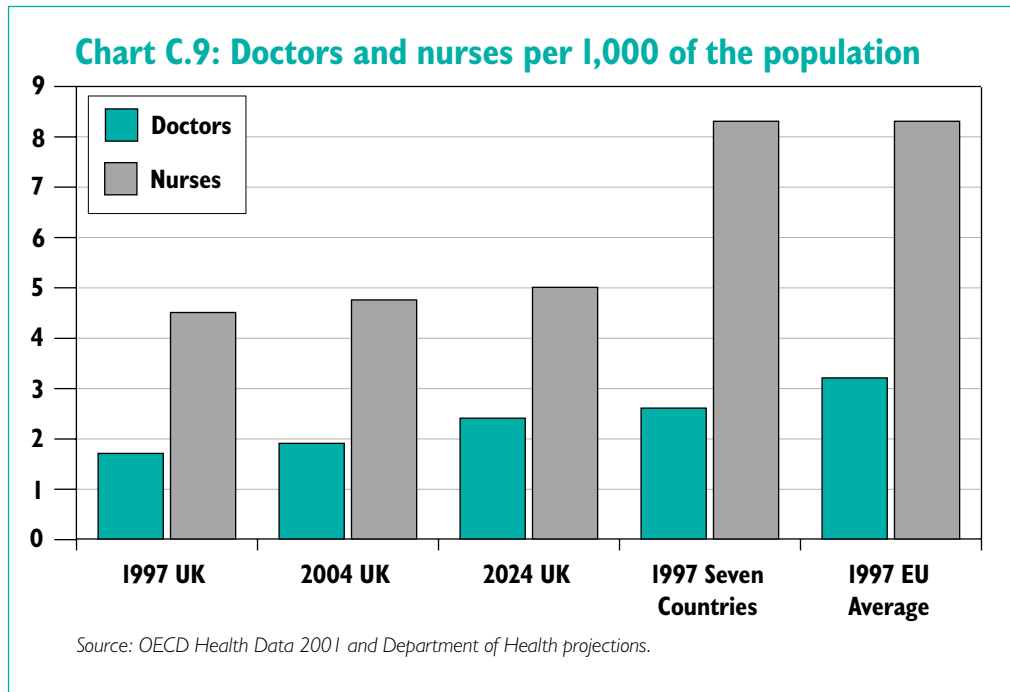
Questions for consultation

- Q10.1 Is it right to conclude that, in aggregate, technology and medical advance will increase expenditure?
- Q10.2 Have the main drivers of future spending on technology been identified? Which do you expect to be the most important in terms of impact on the health service over the next 20 years?
- Q10.3 Is the top-down approach the best way to estimate the historical impact of technology growth and does the Review's preliminary estimate that technology has historically contributed around 2 percentage points to health spending growth provide a plausible floor to what will be required in future?
- Q10.4 What rate of growth of technology spending do you think will be required over the next 20 years?
- Q10.5 How much of an impact do you expect genetics and stem cell technology to have over the next 20 years and what will be the implications for health spending?

The future workforce

- C.67 The NHS employs over 1¹/₄ million people and the social care sector a further 1 million. Health care is a people business. The number and mix of staff in the health service is a major determinant of the quality of care, its efficiency and total cost.
- C.68 Two thirds of health spending is on pay. The cost of the health service's workforce has been an important driver of spending over the past 20 years. Staff costs have increased by 2 percentage points more than inflation and above the rate of increase for earnings in the economy as a whole.
- C.69 The UK does not have enough health professionals – doctors, nurses and other qualified staff. The UK currently employs fewer doctors and nurses per head of population than most European countries. The Government recognised this in the NHS Plan and has embarked on a programme to increase the number of doctors by 20 per cent and the number of nurses by 10 per cent by 2004. It has also increased the number of training places to ensure further growth in the number of professional staff. Over the next 20 years, the planned expansion in training places will increase:
- the number of doctors by a further 50 per cent;

- the number of nurses and midwives by a further 7 per cent; and
- the number of other qualified staff by a further 80 per cent.



C.70 While the number of qualified staff can be an important constraint on the health system, the number of people is not in itself a guide to the quality and efficiency of a country's health service. That depends on the skills of the staff, the way they are used and the other resources, particularly technology, which supports them. Differences in the organisation and efficiency of different countries' health care systems means that there is scope for large variations in the productivity of doctors and nurses in different countries. As a result, there is no evidence that the UK should seek to match the EU average number of doctors or nurses per head of population. The 'right' number for the UK will also depend on the scope for skill mix and productivity changes.

C.71 In addition to increasing the number of staff, the roles of health care professionals are expected to change significantly over the next 20 years. The evidence and emerging trends suggest that in two decades' time:

- individuals will be responsible for more of their care – either managing minor illnesses without the need of support from health care professionals or, working with health care professionals, taking a more active role in their own treatment;
- most primary care will be provided by nurses and other health care professionals in a range of community-based settings;

- health care assistants will undertake a large part of the routine work of nurses;
- GPs will focus on patients with more complex needs and provide a wider range of diagnostic and treatment services. This will allow more services to move from secondary to primary care;
- GPs will become more specialist. They will work in teams including, for example, community physicians, paediatricians, geriatricians and psychiatrists;
- more older people will be supported at home or in intermediate care facilities. Their treatment will be managed by the community-based specialists; and
- major acute hospitals will focus on providing 24-hour intensive and high dependency care. They will be centres of excellence for tertiary and high technology services. They will be staffed by doctors who are increasingly specialised and will be the centre of care networks linked to community-based services.

Questions for consultation

Q11.1 What are the key changes in the roles of health care professionals that are likely to occur over the next two decades, in particular:

- what is the scope for a significant expansion in nurse-led services;
- how will the use of health care assistants change;
- how will the roles of specialist and generalist doctors change; and
- how will partnerships with other professionals, especially social care, change?

Q11.2 Will the current training places give the UK the number and mix of health care professionals it needs?

Q11.3 How can a mismatch between the demand and supply of skilled labour in the health service be avoided? What implications will this have for the cost of the workforce?

Health care productivity

- C.72 The resources required to deliver a high quality health service in 20 years will depend on the total increased demands which the health service has to meet and the unit costs of doing so. The cost of health care will depend on the improvements in productivity and efficiency which can be achieved over the next two decades.
- C.73 Historically, productivity in the NHS has increased by around 2 per cent a year. Accurately measuring productivity is very difficult, especially in the health service where robust measures of both volume and quality are difficult to obtain. However, the growth in health service productivity appears to have been broadly in line with the trend for the economy as a whole. This Review seeks to identify areas where there are significant opportunities for improvements in productivity in the long term.
- C.74 There are four areas identified so far which appear to offer the most potential:
- more self-care by patients allowing, for example, more minor diseases to be treated without the need for a visit to the doctor, or supporting patients with chronic diseases to monitor their own health and report this to their health professional. Technological developments will be a key determinant of the pace of change;
 - better use of information and communication technology (ICT) – the current ICT infrastructure in the health service is very poor. More systematic use of ICT should lead to significant improvements in the effectiveness and efficiency of health care;
 - better use of the skilled workforce:
 - there seems to be evidence to support radical changes in the skill mix of the health service workforce, extending the role of nurses and other health care professionals and breaking down professional boundaries;
 - a significant increase in contact time – on average at present health care professionals spend much less than half of their time while at work with patients⁷; and
 - redirecting existing NHS resources towards treatments which are cost-effective. NICE's work developing a body of clinical guidelines for treatment and the NSFs will be critical. But the NHS then needs to ensure that the guidelines are consistently implemented across the service.

⁷ Lathrop P (1993), Restructuring Healthcare. Jossey-Bass Inc San Francisco and Durrow Consultancy.

Realising these productivity gains will require significant commitment and, in many cases, up front investment.

Questions for consultation

Q11.4 What is the scope for significant gains in the productivity of the health care workforce beyond the 2 per cent a year growth which might be expected for the UK workforce as a whole? Will productivity gains be more likely to improve quality and outcomes or to reduce costs and improve efficiency?

Q11.5 What other factors will drive productivity gains and what are the potential barriers to achieving them? Is it skill mix, contact time or other workforce and organisational factors?

Q11.6 What would be the impact of patients becoming much more involved in their own care?

Q10.6 What should be the main priorities for the health service in increasing investment in information and communication technology (ICT)?

Variations within the UK

C.75 The four countries of the UK have different health needs reflecting differences in their populations, environmental and economic factors. Mortality and morbidity rates are higher in Northern Ireland, Scotland and Wales than in England. However, alongside these greater health needs the three countries have more health care resources. Funding per head, the number of hospital beds and professional health care staff are all above the levels in England.

C.76 While there are different starting positions in each country, many of the trends affecting health care are UK wide and may be strongly influenced by international factors. Overall, the major health trends outlined in this report seem likely to impact similarly across the UK.

Questions for consultation

- Q12.1 Are there any health trends that will affect different parts of the UK in different ways which need to be taken into account in the final report?
- Q12.2 How much of the variations between the countries of the UK is attributable to different levels of social deprivation?
- Q12.3 What specific aspects of morbidity and mortality are likely to vary from the UK average in each country?
- Q12.4 What impact, if any, will the differing forms of NHS organisation and management in the four countries of the UK have on resource needs?
- Q12.5 Will diverging population trends require a different approach to health care in England, Scotland, Wales or Northern Ireland?
- Q12.6 How will devolved responsibilities for health and social care affect technology diffusion and workforce development?
- Q12.7 What variations in health need between the English Regions need to be taken into account in the Review?

