**Health Policy Futures and Cost Scenarios for England 2003-2023**

Dr Graham Lister

This paper explores the main policy directions for health identified in “Policy Futures for UK Health”,[[1]](#footnote-1) drawing on this extensive source to put forward relatively simple assumptions about future health costs. It is based on the input of The Nuffield Trust to the 2002 Wanless Review[[2]](#footnote-2) of long-term health care costs[[3]](#footnote-3), which formed the basis for government expenditure plans for health. In 2003 Derek Wanless was invited to undertake a further review[[4]](#footnote-4) of the conditions necessary to achieve affordable health services and long-term improvements in health outcomes as envisioned by the so-called “fully engaged scenario”. The Nuffield Trust again contributed to the consultation and its input is reflected in this paper.

**Methodology**

**Scenario Planning for Health**

The method used to generate cost projections for The Nuffield Trust input to the first Wanless Review was to examine the trends identified in the Policy Futures exercise and examine the best available evidence of their potential impact on costs. The main drivers of costs are identified as: the rise in consumer expectations, demographic changes, developments in technology, trends in healthcare workforce pay and methods of work. In each case the impact on health costs depends upon future health policy responses to these social, demographic and economic trends. The main methodological problem was to ensure consistent trend and policy assumptions and to avoid double counting or omission of trend factors. It was also very difficult to allow for backlogs in current expenditure.

Since it is not possible to predict the future course of trends and policy responses with any certainty scenarios were established which would lead to higher, medium and lower levels of expenditure. These are set out in three scenarios for health futures each of which is internally consistent but none may be forecast with certainty. It has the benefit of setting out a clear framework of assumptions about the trends and policy options. All assumptions about cost increases are stated in real terms and are either step changes or annual rates of increase as noted.

The resulting estimates are based on assumptions set out for each scenario, including assumed health policy futures. It would be possible to refine these cost estimates, however, this was not an attempt to predict detailed long-term costs but to provide a quick estimate of the scale of overall NHS cost increases, before the more detailed analyses had been prepared by the Wanless team. The central scenarios in each case arrive at broadly comparable figures though the figures presented here show lower levels of expenditure than forecast by Wanless in the first five years but higher rates of growth, thereafter resulting in 12.5% of GDP by 2023 compared to 11.5%.

**Comparison with Wanless Methodology**

The first Wanless Report adopted an approach to forecasting based on an analysis of current spending, disease/condition and type of service and the age and sex of patients. This was then projected using demographic data. The impact of service quality improvement was taken into account by examining how National Service Frameworks (NSFs) would affect costs and projecting these costs across the areas not currently covered by NSFs. Details of the methodology used by the Wanless team to project costs have not been published, but it is clear that, given the paucity of the data, some fairly broad assumptions have had to be made.

The central weakness of the scenarios presented in this paper lies in the assumption that catching up with European levels of expenditure will result in acceptable quality standards. The Wanless report provides a better resolution to this question by linking cost increases to the introduction of NSFs, though it has to be admitted that there is not yet enough evidence that NSF quality targets are being achieved.

The first Wanless Review presents an analysis of the impact of ageing on health costs, though it would have been helpful to take into account the health needs of immigrant communities. It is less convincing in addressing longer-term health cost pressures, for example, it does not appear to take into account the continuing rise in consumer expectations or the likely long term impact of medical and pharmaceutical developments and globalisation.

The main difference between the assumptions adopted and hence the cost estimates is that while Wanless assumed that the NHS could catch up its shortfall in service quality by the injection of large cash increases over the first five years, the scenarios presented in this paper assume that this will take ten years.

Both papers demonstrate the power of scenario planning to illuminate the policy issues, which underlie such projections. The point is not whether one projection is “more accurate” than another but how helpful they are in guiding policy choices. In this respect the Wanless Review has been very powerful in generating agreement on the funding needs of the NHS and in identifying key policy issues including the need to link health and social care expenditure plans and the crucial importance of full engagement of society with health issues.

**The Cost and Policy Drivers**

The main factors driving health costs are identified in this paper as policy responses to changes and trends in:

* Consumer expectations
  + To match the best European standards of health service provision
  + To meet growing expectations and demand for greater choice
  + To respond to globalisation of lifestyles, food and employment
* Demographic Change
  + Population change
  + Immigration
  + Ageing
* Trends in Technology
  + Pharmaceuticals
  + Medical devices and equipment
  + Information and communications technology
  + Health buildings
* Health pay and working methods
  + Recruitment, retention and pay
  + Working methods and efficiency
* The full engagement of all sectors of society with health

In the following sections the impact of each of these factors on health policy and costs is examined in more detail.

**Consumer expectations**

**Matching the best in Europe**

The UK public are increasingly aware that higher standards of responsiveness to consumers are achieved by other health systems, note for example, the WHO World health Report of 2000[[5]](#footnote-5). The long-term cost of health depends upon the quality of care standards applied, but there is no clear picture of what these standards are or how the UK performs.For some years, however, they have been repeatedly told that the basic reason for poor standards is that other countries spend more on health.

Thus one of the policy imperatives, which led to the first Wanless Review was a commitment, variously expressed by the Prime Minister and others, for the UK to match the levels of funding and standards of service achieved by other European health systems. This may have led to an assumption that “catching up” with Europe could be achieved in five years. This goal has been criticised by Rudolf Klein[[6]](#footnote-6) and others because it can be interpreted in different ways.

* The increase in UK health funding required to match the 1998 un-weighted average of current EU member states was 18.6%.
* The increase required to reach the population weighted average was 26%.
* A more meaningful target is suggested by a regression equation linking the level of health expenditure to Gross Domestic Product per Capita[[7]](#footnote-7) (see fig 1). This suggests that at its 1998 level of GDP the UK would need to increase its expenditure by 20.5% to reach the level predicted by the regression equation.

Though some 18.6%-26% more resources are enough to match European levels of funding, they will not necessarily achieve the best European standards of healthcare. Scotland already spends 18% more per capita than the average for the UK, with a lower GDP per capita, but few would suggest Scotland matches the best European standards of health service. Resource increases must be matched by appropriate policy measures in order to improve performance and quality as funding is increased.

Further sections of this paper discuss health policy measures in more detail, but it may be useful to begin by examining the current aims of health policy for England. The table below sets out the current aspirations of the NHS as set out in various policy documents and plans. These aims are extremely ambitious and it is clear that there is no single European healthcare system that meets all the standards and targets that have been set.

**The Aspirations of the NHS**

The following is a list of standards derived from current NHS plans and targets:

**Information and support for self-care and referral** where appropriate from local doctors, nurses and health support workers or by NHS Direct and DiTV.

**24 hour care** available from a responsible primary care team or service, with access to emergency medical services when necessary.

**Primary care consultations** with doctors or nurses within 2 days for non-urgent cases.

**Out patient appointments** with a consultant, available within 2 weeks for urgent cases and 6 weeks for non urgent.

**Waiting at emergency service points:** A&E, Casualty service Walk-in Centre, less than an hour in 90% of cases and trolley waits of 4 hours or less.

**Provision of urgent hospital treatment** within 3 months or less, and non-urgent treatment within 6 months.

**Choice of hospital for elective services** with the option of treatment in the private sector or abroad if the NHS cannot offer treatment within six months.

**Access to** **appropriate services** respecting the needs and cultures of patients.

**No undue queues** or delays for diagnostic or treatment equipment or aids.

**Safe discharge** to planned follow up placement or care.

**Treatment under the direct supervision of a consultant** on site.

**Personal nurse management and counselling** respecting the needs of each patient and their carers, providing information, support and follow up.

**Accommodation** in a well furnished room with 6 beds or less.

**Choice of food** of the standard of a family restaurant.

**Independent information and advice** about health and treatment choices, support by independent advocates coupled with responsiveness to complaints.

**Evidence based treatment and care** meeting national and international standards of best practice, of proven and agreed effectiveness, including cost effectiveness.

While it is clear that the NHS does not yet meet these goals a list of aspirations does establish the shortfall to be met in 5 years or more likely 10.

It would be useful to mount a more detailed study of what patients want and what standards are currently achieved here and elsewhere in Europe. This could provide the basis for a definition of what patients should reasonably expect from the NHS. Such an analysis and policy choice could be embedded in National Institute of Clinical Excellence (NICE)[[8]](#footnote-8) explanations for the public, produced when guidelines are issued to the NHS. It would in effect provide a statement of patient rights.

For the reasons explained later in this paper it is assumed that it will not be possible to make good this shortfall in less than ten years. To increase funding by 20.5% over ten years would require a cost increase of 1.8% per annum. The lowest estimate of the increase required 18.6% would require increases of 1.7% and the highest estimate 26% would require annual increases of 2.3%.

**Consumer Expectations and Prosperity**

However, meeting current aspirations is not sufficient as it is well known that consumer/patient expectations and hence health expenditures rise with increasing prosperity[[9]](#footnote-9). The relationship between health expenditure and GDP (per capita at purchasing power parity) for EU countries (excluding Luxembourg[[10]](#footnote-10)) plus the Commonwealth OECD countries, shows a significant correlation between health expenditure and GDP as shown in figure 1.



**Fig 1 Regression of Health expenditure against GDP at Purchasing Power Parity 1998**

The regression equation shown in this figure gives a regression coefficient of 0.85, that is the regression line accounts for about 72% of the variance. The slope of the line is 0.1 suggesting that the growth in health expenditure required to match increased consumer demand due to increased wealth, equates to the annual real rate of growth in GDP per capita. The current Treasury analysis of medium term economic forecasts suggest a growth of GDP in the range of 1.8% to 2.4% per annum, the long term forecast growth rate used in the first Wanless review was 2.25%. With a population growth rate of 0.35% (see later) this would produce a growth in GDP per capita of 1.9% and hence a growth in health expenditure at the same rate. The lowest rate forecast for GDP growth of 1.8% coupled with the lowest rate of population growth 0.3% would produce a growth in demand of 1.5%, while the highest GDP growth rate forecast of 2.4% coupled with the highest population growth rate forecast would indicate a growth in demand of 2.0%.

**Consumer Orientation and Patient Choice**

Increasing consumer expectations brings a consumer orientation, demanding a more responsive service, offering real choices to patients. This is what consumers are accustomed to from every other service, but surveys show that the NHS lags behind consumer expectations in terms of responsiveness.[[11]](#footnote-11)

The NHS offers patients less choice than many other European systems[[12]](#footnote-12), where they can chose General Practitioners, Specialists and Hospitals. Experience suggests that this is one of the most significant factors in health professionals’ attitudes to patients. Without the basic discipline provided by patient choice, based on information about outcomes and other patients’ experiences it is doubtful if there will be sufficient incentive to improve quality and responsiveness. This issue has recently been recognised in UK health policy and the establishment of a Patient Access and Choice Team in the Department of Health.

Patient choice in many other European countries entails a choice between public and private hospital providers. While the for-profit, private health sector in the UK is comparable in scale to most other countries, many other European countries, particularly the Netherlands and Germany, have a very substantial not-for-profit, private sector. Steps to encourage this third tier in the market could improve patient choice and hence the quality of care. Current proposals to allow Hospital Trusts to opt for Foundation Hospital status show UK health policy is moving in this direction.

The choice, that patients of the NHS experiencing long waits can expect, is to be offered short waiting times for private treatment by the same consultant operating in both the NHS and private sectors. This situation is unusual in Europe. It might marginally increase costs in the short term to require a complete separation of NHS consultants’ public and private sector work but this would reduce any possible incentive to maintain waiting lists and would therefore reduce long-term costs.

Low-level co-payments may be considered as a way of encouraging cost effective choice of services. It would be possible to follow the lead of Sweden, which requires users to pay a charge of €10 for primary care consultations (subject to a limit of € 80 per year for all health charges). This would encourage users to choose telephone triage and advisory services for self-care. Low-level co-payment charges for hospital beds and meals might also encourage patients to seek early discharge. Low-level charges could also increase patient involvement and choice in planning hospital stays and could reinforce patient responsibilities, for example, to turn up to a booked appointment. There seems to be no good reason why the ingredient costs for meals for people in hospital should be less than those of people in prisons and no reason why patients would not choose to pay a small charge of say £3 per day to cover the ingredient cost of food (this would double the current spend on food ingredients).

It will be important to specify the nature and level of treatment and choice to which NHS patients are entitled and those services that will not be funded by the NHS. This might encourage private medical insurance to cover additional services excluded from the NHS, such as cosmetic treatments, spa treatments, lifestyle drugs and alternative medicines valued by patients but of no proven efficacy. The issue of what services should be provided as “core” NHS services and which should be not has been approached in several different ways, at present NICE is required to advise on this.

Many patients are surprised to find that the NHS does not consistently offer choice or support for care of the dying. The Nuffield Trust has called for hospice care, to be consistently funded by the NHS, recognising the principle of dignity in death. About half of all deaths occur in NHS hospitals, which has much to learn from best practice in the hospice movement and in other countries[[13]](#footnote-13). This would increase cost by about £200m[[14]](#footnote-14). Recent steps have been taken to increase the funding of care of the dying by some £30 million.

Health needs are often shown as an iceberg, with only one tenth visible above the waterline. Consumer expectations of health and their perceived responsibility for self-care form this waterline. Future health policy choices will determine how to develop realistic public and patient expectations of health and appreciation of the responsibility of individuals, families and communities for their health and self-care.

**Globalisation**

The globalisation of health has been explored at length in another Nuffield Trust Programme[[15]](#footnote-15). In summary the impacts on UK health include: first a continued underlying growth in income differentials between those whose production jobs may be exported to lower cost regions and those profiting from world markets in intellectual property. The impact of this will depend upon government policy response; it may be possible to protect the poorest 10% of the population from absolute poverty but relative deprivation is still likely to increase health needs.

Second, it is apparent that consumption patterns are increasingly shaped by global market trends created by multi-national corporations. This, coupled with increasing prosperity, underlies the pandemic of obesity and increasing problems of alcohol abuse and violence. International policy responses will be crucial. If the Framework Convention on Tobacco Control succeeds, it may point the way to the creation of a global governance framework to ameliorate the spread of alcohol and uncontrolled marketing of high salt, high sugar, processed foods and drinks to children.

Third, it is likely that there will be further global pandemics from new and re-emerging diseases as the speed and volume of travel increases. Such outbreaks are likely to be increasingly costly as the current generation of antibiotics are exhausted through misuse. The outbreak of Severe Acute Respiratory Syndrome (SARS) has been described as the first pandemic of the 21st century. It is already estimated that the economic and financial costs arising from the outbreak will amount $30 billion world wide[[16]](#footnote-16). Again national and international policy responses will be crucial. The Nuffield Trust is proposing a programme of action to address global health issues[[17]](#footnote-17).

**Demographic Change**

**Population Growth**

Over the next 20years the UK population is likely to grow by between 0.3-0.4% per annum[[18]](#footnote-18). The most important factors determining the impact of demographic changes on health costs are the total overall increase in population and the increase in the numbers of people in high health need categories, for this purpose two high need groups are most significant: immigrants and elderly people.

The non-elderly, non-migrant population is likely to fall by about 0.1% per year in England, due to emigration and a falling birth rate. This may give rise to a small reduction in demand for health care at a rate of about 0.05% per annum (since health utilisation by the under 50s is about half the total).

**Migrants**

The number of migrants to England is likely to account for between 0.15% and 0.2 per year of the population. Studies of the health needs of immigrant populations show they have higher needs but often receive less health services. Immigrants health needs stem from the triple disadvantage they suffer. First, early life experience, particularly maternal and infant malnutrition and exposure to health risks are the most significant factors in long term personal health needs, second the stress of migration is a major cause of ill health and third migrants, particularly women are more likely to be isolated and have more difficulty in accessing health services. There is also a “backlog” of unmet needs in relation to the health needs of ethnic minority and other socially excluded groups. Experts generally agree that the NHS has not done enough to respond to the particular needs of these groups, steps to meet such needs could add to total health costs, but it is difficult to quantify this figure. Policy measures are being set in hand to reduce inequity in access to health through a wide range of policy initiatives including “Tackling Health Inequalities: a Programme for Action” and the “Health Gain Collaboration”. Assuming the needs of minority groups will be better met in future, a net increase in demand of about 0.2%-0.25% per annum could arise from this action.

**Ageing**

Studies of the cost impact of ageing across the EU, carried out in the Netherlands suggest that UK health cost will increase by between 0.35%[[19]](#footnote-19) per annum and 0.75%, depending on whether age related infirmity is compressed (“bop till you drop”) or current levels of infirmity continue.

A broad estimate, which has generally been applied in the UK and has been quoted by successive health ministers, though with little research evidence, is that cost increases of 1.0% per annum are required to allow for the impact of age related factors on health costs. This figure is assumed as the basis for the “high” scenario a lower figure of 0.75% has been used for the central and 0.35% for the low scenario. More research is required in this field.

**Trends in Technology**

**Pharmaceuticals**

The pace of discovery of new pharmaceutical products, which slowed from about 70 new chemical entities per year in 1980 to 17 per year by 2002, is expected to accelerate over the next 20 years, by 2022 it is forecast that 200 new chemical entities will be developed each year. This will be driven by three main factors: developments in combinatorial chemistry and equipment make it possible to screen products one million times faster than in 1995 and the Human Genome Project has increased the potential target applications for drugs, from about 500 to 2,500.[[20]](#footnote-20) The third factor is a policy choice, as NICE is beginning to represent a “fourth stage” in drug development by requiring demonstration of the cost effectiveness of drugs funded by the NHS.

Within the near future the uptake of new drugs for heart conditions and diabetes could give rise to a major increase in NHS costs of some £2 billion, but some of these costs will be offset later by reduced costs in hospital care. Fastest growth is expected in prescription medicines, which currently account for about 16% of total health costs this sector is expected to grow at between 7-9% per annum in real terms over the next ten years. At an average of 8% growth this would lead to an overall increase in total NHS expenditure of 1.3 % per year. A recent article[[21]](#footnote-21) shows drug development cost rising by 7.4% p.a. to the year 2000.

In the longer term, say within 15 years, genetic screening[[22]](#footnote-22) is likely to become significant, it seems possible that tests could be developed for about 30 main conditions and susceptibilities. This depends on the development of affordable diagnostic equipment and the training and readiness of GPs to work with screening services and provide the counselling and follow up required. The cost implications could be considerable, depending upon how it affects medical practice, one possibility is that drugs and dosages could be “tailored” to individual patient needs.

New treatments for diseases such as Parkinson’s and Alzheimer’s may result in reductions in long-term care costs, other drugs, for example for Diabetes and Cardiovascular disease may reduce the cost of inpatient care. It is claimed that drugs reduce total health cost by about 30% of their costs, though there is little evidence on which to base this. Net of savings of drug cost rises would amount to a total cost increase of 0.9 % per year. A low scenario based on a drug cost growth rate of 7% would result in a net increases at a rate of 0.8% while a high scenario based on drug cost increases of 9% would result in a net rate of cost increase of 1.0% per annum.

Over-the-counter medicines and other medical products, which make up about 5% of total health costs are expected to increase in real terms due to trends towards self-medication. Growth in sales of diagnostic testing kits for a wide range of conditions and continued expansion of the market in alternative medicines and therapies is expected at about 7% per year. It is expected that expansion of over the counter medicines will reduce costs in the NHS, thus no net increase in costs is expected. Policies to support the expansion of the over the counter sector include further measures to integrate community pharmacist in primary care provision[[23]](#footnote-23).

**Medical Devices and Equipment**

Medical devices currently account for less than 3% of total health expenditure, rapid growth is expected over the next 20 years. Potential developments now in hand include: portable patient diagnostic devices and tests, patient monitoring devices and services including bio-implants, patient knowledge based systems “Home health advisors,” telemedicine services using video links and sensors, patient education and support for empowerment based behaviour change, physical and mental wellness programmes. The net cost impact of such developments is assumed to be neutral.

In hospitals a major expansion is expected in the short term in equipment such as Lithotriptors, MRI and CT Scanners and Linear Accelerators to make up some of the current shortfall. Beyond this new generations of diagnostic and treatment equipment are expected and in particular a lot more portable and bedside equipment. The development of a range of specialist robotic equipment to support less invasive surgery (portal surgery) is currently underway. Remotely operated devices, controlled through virtual reality systems, will replace the hand held scalpel for many complex surgery procedures, for example, to perform heart bypass operations by portal surgery without stopping the heart. The requirement for specialised equipment and skills will lead to further centralisation of complex procedures. More day case surgery procedures will be provided locally. It is assumed that the overall impact of these developments will be broadly cost neutral as they will reduce current costs and time in hospital, they will, however make health services more capital intensive.

Across Europe social health systems will intensify efforts to limit funding of new drugs and technologies to those of proven effectiveness. The direct impact on health costs of excluding certain high cost services or unproven services may be limited (only affecting 1-2% of costs), but this would enable governments and health care payers to influence the development of health and pharmaceuticals technology. Future health policies could include incentives to encourage the development of health technologies that lower costs, following the example of the tax incentive scheme introduced to encourage research into diseases affecting poor countries.

**Information and Communications Technology**

Expenditure on communications and information technology should increase over the next seven years from its current level of about 1.2% of health spend to a level closer to the US level of 4-6% of costs. However, it is important to note these costs include insurance, patient billing and managed care systems. While some US hospitals and systems have extensive patient management systems many do not.

The 1992 NHS “Information and Information Management Strategy” for England, was intended to encourage the use of integrated healthcare management information systems based on patient administration, order entry, networked systems, contracting and information systems to support commissioning. Expenditure in support of this strategy was partial and incomplete, expenditure on information technology reached about £700m per year, in 1996, about 1.2% of health costs. By 1998 a further £1 billion additional expenditure was identified as necessary to complete the NHS Information Infrastructure (NHSII) programme based on electronic patient records and medical support systems for patients and clinical professionals. This will amount to an increase of about £250 m per year.  Since that date additional expenditures of about £250 million have been identified this will bring annual health information and communications technology expenditure to about 2.2% of total health costs.

In addition to this the development of NHS Direct as a telephone advice service and as an online service coupled with Digital Interactive Television[[24]](#footnote-24) applications will cost about £150 million per year. It will provide access to health information, initially of a generic nature but becoming increasingly person-specific and the ability to contact health professionals and self help groups for health.

Patient based personal health records including genetic records, lifestyle and health risk information could both give rise to increased demand for health services as patients become more aware of their health needs, and could support a greater degree of health maintenance and self care. This could make a significant difference to health status over the next 20 years leading to more selectivity and choice by patients as they learn more about the health risks and choices they face in managing their personal and family health.

The NHSII will introduce “three tier” web based systems, these offers the possibility to link data from any system to any other via an intermediary system, which would solve interoperability problems. Beyond this but within ten years wireless systems using voice recognition and contextual analysis are likely to emerge. This could support a system that responds to what the doctor is saying, keeps medical records and offers best practice guidance that can checked by the doctor in real time, rather than requiring subsequent manual input and search.

Current technology offers health professionals and patients access to knowledge and the means to co-ordinate and integrate care but it is cumbersome and time consuming. Doctors and nurses spend almost as much time dealing with information (about 25%) as they do with patients (about 35-40%). Within ten years, wireless information and communication systems should be available to assist medical professionals and improve the quality of medical decisions with much reduced time input because there will be no need for a second stage of data entry or keyboard search for information. A major policy goal for ICT should be to increase patient contact time, both as a means of improving efficiency and because this will enable doctors and nurses to support patient decisions concerning self-care and other choices, this will improve responsiveness to patients and the quality of medical decisions.

Investment appraisal of information systems to support basic management processes show[[25]](#footnote-25) that it is difficult to justify these investments on the basis of cost savings. However, once the basic systems are in place further investment should offer financial savings. Thus information technology investments are expected to increase overall costs by about 0.25% per annum, over the whole period, this is assumed to result in an increase in overall efficiency as a result of communications and information technology at a rate of 0.75% per annum after year five, by which time the basic infra structure should be completed.

**Health Buildings**

Hospitals, diagnostic and treatment centres and GP surgeries are all important elements of health technology. The NHS Estates Agency estimate that the replacement cost of the current building stock of the NHS (excluding GP premises) amounts to some £75 billion. There is a massive backlog in the maintenance and renewal of this stock.

The NHS has 55% less acute hospital beds per capita than the average European system. While the NHS is far more efficient than other systems in its use of staffed hospital beds, achieving a turnover of patients per bed some 45% higher than the average for the EU, the demand for higher standards will require less intensive use of beds. It was found in 1997[[26]](#footnote-26) that running hospitals at an occupancy rate of over 85%, inevitably leads to unacceptable trolley waits for emergencies but specifications for both Treasury and Public Finance Initiative (PFI) funded hospitals have often been based on expected occupancy rate of 85%-90%[[27]](#footnote-27). Thus, despite trends towards shorter hospital lengths of stay, the NHS needs more beds.

The technology of the health buildings is of course intimately related to the redesign of health care processes, for example, provision of diagnostic and treatment centres should make it possible to achieve higher levels of efficiency in planned treatments. While day surgery centres and other specialist services may be moved away from major hospital sites, developments in aspects of technology described in previous sections suggest a concentration of high tech resources in specialist centres. It has been suggested that the model of a hospital of the future[[28]](#footnote-28) may have more resemblance to a village than a factory. This is also a necessary response to the spread of new forms of anti biotic resistant hospital infections that also dictate a modular design.

Assuming an economic life of 25 years, the rate of investment required to replace the current building stock would be some £3 billion per year. Current capital investment includes direct funding of some £200 million and some 64 PFI schemes costing £8.5 billion in progress. Of these schemes some £2.5 billion are currently under construction. A rapid hospital redevelopment programme takes from 5 to 7 years to complete (a PFI requires at least two years planning and contracting and three years for construction), clearly smaller scale upgrades will be quicker. Thus it does not seem reasonable to assume the backlog in health buildings can be made up in less than ten years.

For the purpose of this scenario exercise it has been assumed that “catching up with Europe” would encompass the increased cost of such capital investment and its revenue consequences, since most European systems do not have such problems with their capital stock. PFI or Public Private Partnership schemes offer the potential to increase the capital available to the NHS and provide a mechanism to ensure that such investment produces productivity gains. If public funds are available and if schemes can be better managed the same could be achieved by this route. In practice it seems likely that a mix of PFI and public investment will continue.

**Trends in health pay and working methods**

**Recruitment, Retention and Pay**

A comparison of professional health worker numbers shows that EU health systems (omitting outliers[[29]](#footnote-29)) have on average 87% more doctors and 42% more nurses per thousand population than the UK. These and all other OECD[[30]](#footnote-30) data based comparisons must be viewed with caution, because definitions of employment numbers may differ. For example, the UK count of nurses only includes full-time equivalent numbers of qualified i.e. state registered level-one and state enrolled level-two nurses and midwives employed by the NHS and does not include nurses employed in the private and independent sectors. A comparison based on the total number of nurses in employment shows that England has about 7.5 nurses per thousand population, which is above the average for Europe, though this figure may need to be adjusted for part time working and other factors. (The figure for doctors appears to tally with other ways of counting doctor numbers).

One of the most surprising features of the NHS, for doctors from other European countries, is the extent to which hospital services depend upon medical staff in training, and overseas trained doctors and nurses. There are about 1.5 medical staff in training for each hospital consultant. Other countries would see this as a quality concern, they typically provide more theoretical training for doctors before allowing them practical experience and would ensure consultants were available to supervise their junior colleagues. In this country on some days of the week it has not been unusual to find junior clinical staff operating alone without their consultants or supervising nurses. Following the report by Sir Kenneth Calman, progress has been made in increasing the numbers of consultant posts, but there are still shortages at senior levels in some specialties, including: surgery, anaesthetics, medical oncology and intensive care in both medical and nursing professions.

The most crucial shortage is likely to be at primary care level. Here there are already shortages and significant numbers of doctors reaching retirement age. The formation of Primary Care Trusts and new GP contracts are important reforms but may also lead to further loss of staff. There are difficulties in recruiting overseas doctors directly into primary care, since few countries have exact equivalents to UK GPs.

Some 26% of doctors and over 30% of nurses received their initial training outside the UK, many in poor countries, which suffer from the loss of such expensively trained staff. Over 12,500 nurses were recruited from poor countries into the UK, in 2001. When the Netherlands tried to recruit 134 nurses from similar countries there was a national outcry[[31]](#footnote-31). However it is important to note that about 7,500 of the nurses were recruited from the Philippines, a country which has long produced nurses for the international market and has mechanisms for recovering training costs.

It takes 7 years to train a doctor and 4 years to train a nurse, and to achieve the level of skills and know-how required for higher level jobs may require a further 6-10 years. Thus despite the increase in the number of training places for doctors by 20% by 2005 as proposed by the Medical Workforce Advisory Committee and a similar expansion for nursing, this will not immediately meet the most urgent shortages.

The timescale required to produce senior doctors and nurses, even if recruited from abroad, suggests that it is unwise to suggest such problems can be solved in five years. A ten-year period seems more realistic. Treating the problem as if it were a short-term issue can lead to wrong solutions. Doctors and nurses have been recruited from poor countries who can ill afford to lose staff trained at great cost. A longer-term policy would be to look to countries with large numbers of trained doctors and nurses, such as the Czech Republic and Hungary[[32]](#footnote-32) (which joined the EU in May 2004) and develop partnership agreements to extend their medical training and provide English language skills. Such staff would be more likely to work on rotation to the UK without harming health system from which they are drawn.

At the same time experienced staff from the UK are lost to the NHS because pay and conditions do not meet local requirements. There is a particular problem in London and the South East where inflexibility in pay and conditions has resulted in the loss of very many experienced staff who cannot afford the cost of housing in these areas. These hospitals are staffed with a very high level of new overseas recruits and agency staff, which gives rise to quality and safety concerns. This problem has been addressed in the recent Treasury statements on public sector pay guidelines.

To address staff retention and skill issues, health sector salaries will need to increase by about 2.5 % per annum in real terms over the next five years, this will add about 1.75% per annum to total cost. In the following years pay increases of 2.0% in real terms with high and low estimates of 1.75% -2.2% are assumed raising costs by between 1.2%-1.6%.

**Working Methods and Efficiency**

OECD Health Data 2001 show that the UK employs more than the average total number of people in healthcare per thousand population, about 30 compared with a European average of about 23. It appears the UK has a much greater number of people employed who are not defined as physicians, dentists or nurses. Overall it appears that manpower efficiency in terms of activity per employee is lower in the UK than in comparator countries, however, activity per doctor is much higher. There is an urgent need to examine why the NHS employs so many more non-professional staff than other health systems.

The NHS has a more complex professional structure than most other European systems, it now needs time to re-examine ways of working from the patient’s perspective, to break down professional barriers and simplify patient care pathways. Local Modernisation Review Teams are at work throughout the NHS, there are many different ways in which modernisation reviews can streamline processes, breakdown professional barriers and improve efficiency. For example, there may be a reduction in the number of different people caring for a patient during a hospital stay (currently 27 according to some studies), patients may be able to receive all the diagnostic tests required in a single visit rather than requiring repeated visits, and the extent to which tests are duplicated may be reduced. It could also reduce the variation between GP in their treatment and referral decisions, studies show variations in referring rates of between 1% and 20%, (most studies show variation of up to 250%)[[33]](#footnote-33).

Health process re-engineering as initiated by the Modernisation Review could lead to long term cost reductions at above the historic rate. For many years 2% has been set as a target for efficiency improvement. Experience suggests that in many cases the efficiency gains reported have as much to do with data manipulation as real cost reduction. It is doubtful if real efficiency gains have been above 1.5% per annum. This conclusion is supported by a paper by Sean Boyle and John Appleby “Short Measure[[34]](#footnote-34)”, which suggests that the NHS has become less efficient in recent years.

Efficiency gains as a result of changes in working methods in practice over the next ten years could reduce staff requirements by 2% per annum for the next ten years and 1.5%-2% thereafter. This would reduce overall costs by 1.4% and 1.05%-1.4%. Lower levels of efficiency gain have been included in the low cost increase scenario, since greater investment should lead to higher pressure for efficiency improvements. Increases in productivity are also assumed to arise from technology changes, these go hand in hand with changing working methods, there would also be reductions in demand as a result of increased investment in health promotions and support for self care promotion. Taking these factors together efficiency improvements of between 2.0% and 2.6% per annum could be achieved.

**Full Engagement with Health**

The first Wanless review noted that only about 1/6th of health improvement can be attributed to health services.This was based on a Nuffield Trust paper by John Bunker, which has recently been revisited [[35]](#footnote-35). The Wanless report noted a £30 billion difference in cost between a scenario for health services with active engagement with patients and the public and one without such involvement, indeed Derek Wanless himself commented on several occasions that he doubted if health care could be made effective and affordable without this engagement. This led to the commissioning of a further review to explore how the “fully engaged scenario” could be achieved.

In responding to this further review The Nuffield Trust sought to define what constitutes “full engagement”, it concluded, that this requires the engagement of:

* Public and patients with their health as:
  + Individuals, families and groups responsible for their own good health.
  + Participants in health and care decisions as co-producers of health.
  + Responsible and knowledgeable users of the NHS.
  + Active citizen owners/consumers of NHS and other services.
* The state in protecting the health of the people through:
  + Measures to support a balanced approach to health risks and gain.
  + Measures to support equity in health for the whole population.
  + Economic, environmental and social policies for health.
  + International policies to address long-term global health issues.
* All sectors of the economy in supporting health, as examples, actions by:
  + Employers to protect and improve the health of staff.
  + Producers to ensure products and advertising support health.
  + Teachers to ensure principles of healthy living are understood.
* The NHS and all health workers in measures to promote health, as examples:
  + Cost effective investment in specific public health measures (including: health protection, promotion, screening, advice, information, behaviour change, family and community development)
  + Support for individual and community based self-care.
  + Health promotion as an aspect of all health care staff responsibilities

Engagement requires democratic involvement with local health services. Until recently England was virtually the only major country in Europe with no democratic engagement in health below national level, leaving a democratic deficit in health. There are currently many different policy approaches to this issue: the creation of the Commission for Public and Patient Involvement in Health, local Patient Forums, patient representation on NHS boards and the election of boards for Foundation Hospitals. It remains to be seen whether these initiatives will solve the problem and how they relate to the modernising of governance[[36]](#footnote-36) at local levels in England. Such policies may mean some loss of economies of scale in the short term but should release management initiative and improve public engagement in the longer term.

The Nuffield Trust has therefore proposed a series of measures to increase the engagement of all sectors of society with health, including the redefinition of legal responsibilities for public health, through a new Health of the People Act, reforms to improve the leadership and direction of public health policy, steps to increase the responsibility for health borne by employers and producers and measures to strengthen the management of public health research and investment and social marketing for health. In addition the Nuffield Trust is supporting the first phase of the Commission for Patient and Public Involvement in Health’s programme to develop “Our Health” designed to support public and patient organisations in building a constituency for health and local “champions for health”.

While it is expected that expenditure to support public health will increase from just over 1% of UK health costs to 3-5%, the leadership and management of public health and the actions which are taken are more important than the quantum of expenditure. The first Wanless report suggested cost savings of £1.50 could be achieved for each £1 spent on health promotion and self care, however, a closer look at the evidence suggests that cost savings are very variable.

For the purpose of the scenario expenditure on health promotion, disease prevention and self care including mental health promotion, is assumed to increase by 3% over ten years, offset by reduction in demand by 0.3% p.a. in the second ten years period.

The most recent Wanless review[[37]](#footnote-37)4 calls for an examination of the balance between government, employer and individual responsibility for health but did not did not produce detailed recommendations on this or on the level of expenditure required for public health measures. This was left to a subsequent Department of Health Review “Choosing Health. The recommendations of this Wanless Report call for a strengthening of the leadership management and information support for public health and its evidence base. It did not make detailed recommendations on the organisational reforms required, leaving this issue to a subsequent review of arms length bodies.

**Summary of Cost and Policy Scenarios**

The following list, describes the central scenario and low and high scenario figures:

1. Meeting European standards 20% increase over ten years, equivalent to 1.8 % per year- low 1.7% - high 2.3%.
2. Consumer expectations 1.95 % increase per year in line with GDP/capita growth –low 1.5%- high 2.0%.
3. Increase of £200 million to provide for hospice care equivalent to 0.1% increase per year over 5 years.
4. Health needs arising from immigration offset by reducing population 0.18%- low 0.15% - high 0.2% increase per year.
5. Health needs of the increasing population of elderly people 0.75% per year - low 0.35% – high 1.0%
6. Medical and pharmaceutical technology average growth impact 0.9 % per annum (low 0.8% -high 1.0%) based on a 8% (low 7%-high 9%) per annum cost increase in the pharmaceuticals sector and assuming 30% of increased costs are offset by reductions in other health costs
7. Information and communications technology 0.25% increase per year in costs offset by impact on overall efficiency of 0.5% after five years i.e. a net saving of 0.25% for years 6 -20.
8. Changes in pay of 2.5% over the next five years are assumed to increase costs by 1.75% per annum, thereafter a rate of increase of 2.0% will result in overall cost increases of 1.4% per annum –low 1.2% -high 1.6%
9. Efficiency gains arising from changing working methods of 1.4% over the next ten years and 1.23% in the following period –low 1.05%-high 1.4%.
10. Health promotion, disease prevention and self care, increase in expenditure of 3% over ten years at 0.3% per annum increase, offset by reduction in demand by 0.3% per annum in the second ten year period.

The impact of these cost drivers would require real cost increases of 6.58% p.a. for the next five years, 5.63% p.a. for years 6-11 and 3.4% p.a. for years 11-20. This will mean by the year 2022/3. England will be spending approximately 12.5% of GDP on Healthcare compared with 7.7% of GDP in 2002. This is at the level forecast for the un-weighted average for the countries of the EU as constituted in 2002[[38]](#footnote-38) but would be below the forecast for the population weighted average. The forecast arising from the “low” scenario, coupled with the low forecast for the rate of economic growth would result in health costs rising to 11% of GDP while the high scenario would result in health costs rising to 14.0% of GDP.

It is also important to “expect the unexpected” global pandemics, breakthroughs in technology or major changes in demand may be unlikely in any one year but over a twenty year period they seem more likely than not. The impact of sudden change should be evaluated alongside these scenarios, which tend to assume a continuation of known trends or influences. This should also guard against a complacent expectation that the rate of increase in health costs will slow down in the long term.

1. “Policy Futures for UK Health”, edited by Dr Charlotte Dargie with Professor Sandra Dawson and Pam Garside, and accompanying Technical Series particularly No 1 the Global Context, Dr Kelley Lee, No 3 Demography, Charlotte Dargie, No 4 Science and Technology Glenn Robert, No 5 Economy and Finance,Panos Kanavos, No 8 Workforce Charlotte Dargie, No 10 Public Expectations, Marian Barnes published by The Nuffield Trust 2000 [↑](#footnote-ref-1)
2. “Securing our Future Health :Taking a Long-term View: The Wanless Review” HM Treasury 2002 [↑](#footnote-ref-2)
3. The full set of papers can be found at [www.nuffieldtrust.org.uk](http://www.nuffieldtrust.org.uk/) [↑](#footnote-ref-3)
4. “Securing Good Health For the Whole Population” HM Treasury 2004 [↑](#footnote-ref-4)
5. “World Health Report 2000 Health Systems Improving Performance” WHO 2000 [↑](#footnote-ref-5)
6. “Estimating the Financial Requirements of Healthcare” Rudolf Klein BMJ 2001 323 –1318-1319 [↑](#footnote-ref-6)
7. Drawn from the OECD Health Data 2001 Published by OECD [↑](#footnote-ref-7)
8. The author is a member of the NICE Partners Council but all views expressed are personal. [↑](#footnote-ref-8)
9. “Health and Wealth International Comparisons of Health Expenditure” by Robert Maxwell [↑](#footnote-ref-9)
10. Luxembourg is excluded because of its small size and high proportion of cross border patient flows [↑](#footnote-ref-10)
11. See for example “Consumer Concerns 1998” National Consumer Council 1998 [↑](#footnote-ref-11)
12. “Patient Choice Lessons from Other Countries” G.Lister paper to the National Conference on Patient Involvement 2002 College of Health [↑](#footnote-ref-12)
13. The Buckinghamshire Declaration Nuffield Trust 2001 [↑](#footnote-ref-13)
14. Communication from The National Council for Hospice and Specialist Palliative Care Services [↑](#footnote-ref-14)
15. See the UK Partnership for Global Health web site at www.ukglobalhealth.org [↑](#footnote-ref-15)
16. “SARS Wake-Up Call for a Strong GlobalHealth Policy” Ilona Kickbusch Yale Global 25/04/2003 [↑](#footnote-ref-16)
17. “UK Strategy for Global Health” forthcoming 11June 2003 The Nuffield Trust [↑](#footnote-ref-17)
18. Office of National Statistics Projection as of 15 November 2001 [↑](#footnote-ref-18)
19. Future health expenditure in the European Union Estimates of demographic effects by J. C. Helder, P. W, Achterberg July 1997 National Institute for Public Health and the Environment in Bilthoven, the Netherlands Report number 432504 003 [↑](#footnote-ref-19)
20. New Medicines, The Practice of Medicine and Public Policy Sir Richard Sykes NT 2001 [↑](#footnote-ref-20)
21. “The Price of Innovation: new estimates of drug development costs” J A DiMasi, R W Hansen, H G [↑](#footnote-ref-21)
22. Genetics and Health. Policy Issues for genetic science and their implications for health and health services Ron Zimmern and Christopher Cook Nuffield Trust 2001 [↑](#footnote-ref-22)
23. Grabowski Journal of Health Economics Vol 22/2 2003

    “Realising the Promise: Community Pharmacy in the new NHS” David Taylor and Sarah Carter London School of Pharmacy 2002 [↑](#footnote-ref-23)
24. Lord Young of Dartington at launch of Open Health DiTV at the Nuffield Trust 2001 [↑](#footnote-ref-24)
25. The author helped to write the Goals Paper for the 1992“Information and Information Management Strategy”, for England and subsequently directed investment appraisals for elements of the strategy. [↑](#footnote-ref-25)
26. “Bed Capacity and The Trade off Between Electives and Non-Electives” Annex to Report to the Chief Executive on Winter Pressures Economic and Operational Research Division of NHSE 1997 [↑](#footnote-ref-26)
27. The author directed a series of assignments for the planning and contracting of PFI health facilities. [↑](#footnote-ref-27)
28. **Building A 2020 Vision:**Future health care environmentsS. Francis, R. Glanville NT 2001 [↑](#footnote-ref-28)
29. Italy is omitted for doctors because they have a large number working in non clinical capacities Eire is omitted for nursing as an outlier. [↑](#footnote-ref-29)
30. OECD Health Database 2001 [↑](#footnote-ref-30)
31. Frits Tjadens “Health Care Shortages: Where globalisation, nurses and migration meet” Eurohealth Journal Summer 2002 Vol 8 no 3 [↑](#footnote-ref-31)
32. See reports of MATRA Partnership Programmes from NSPH Netherlands, G. Lister 2001 [↑](#footnote-ref-32)
33. See the Worcester Vocational Training Scheme guide to Evidence Based Medicine available at <http://www.text.worcestervts.co.uk/clinical/decisions/referrals.htm> for literature in this field. [↑](#footnote-ref-33)
34. “Short Measure” Sean Boyle and John Appleby Health Services Journal 13 December 2001 [↑](#footnote-ref-34)
35. **“Medicine Matters After All.** Measuring the benefits of medical care, a healthy lifestyle, and a just social environment”**John Bunker Nuffield Trust 2001** [↑](#footnote-ref-35)
36. “Modernising Governance: New Labour, Policy and Society” Janet Newman, Sage 2001 [↑](#footnote-ref-36)
37. [↑](#footnote-ref-37)
38. “The Future of Health - Health of the Future” Fourth European Consultation on Future Trends edited by Keith Barnard Nuffield Trust 2003 [↑](#footnote-ref-38)