



Sector Futures

Health and social services – visions for the future

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Sector Futures is available in electronic format only

Three diverging ‘integrated visions’ for health and social services are presented in this second feature of a three-part series. The first vision is a ‘best guesstimate’ and assumes that current developmental targets, for example, on reducing cardiovascular disease, are generally met. The second vision is a ‘problem-plagued’ view of health and social services, where targets are missed and the current level of service generally stays the same or deteriorates. Finally, a more ‘visionary’ picture of health and social services is presented where services are largely transformed from what we know today. All ‘integrated visions’ have been constructed from existing healthcare scenarios and the ‘drivers’ identified in an earlier feature article. By offering possible alternative views of the world, they illuminate the drivers of change and their impact on health and social services.

Introduction

Given the variety of drivers at play in health and social services (see table 1), it is difficult to predict the shape of these services in 10-15 years time. Against such uncertainty, however, scenario approaches help create possible alternative outcomes for the future. Scenarios have been defined as

possible views of the world, providing a context in which managers can make decisions. By seeing a range of possible worlds, decisions will be better informed and a strategy based on this knowledge and insight will be more likely to succeed. Scenarios may not predict the future, but they do illuminate the drivers of change, which helps managers to take greater control of their situation.

(Ringland, 2002, p. 3)

This article sets out to review a set of scenarios for the health and social services sector, representing ‘integrated visions’ for the future of this sector. It draws on three main sources of information:

1. The drivers and trends identified in our [previous article](#)¹ as summarised in table 1.
2. An understanding of the interdependencies and dynamics of the health and social services system.
3. A set of existing scenarios from the health sector.

Scores of health scenarios already exist, from the United States and from Europe. Unfortunately, the same cannot be said of social services, where it has proved impossible to locate scenario studies that explicitly deal with this area. Thus, this article uses the sector drivers and some basic system dynamics to incorporate social service issues into the ‘integrated visions’.

The final part of the article deals with ‘wildcards’, i.e. those disruptive events that have less than 10% chance of occurring but which would have potentially far-reaching consequences. These are intended to complement the ‘integrated visions’, as such events are often difficult to incorporate into broadly-defined scenarios.

Analysing the healthcare and social services system

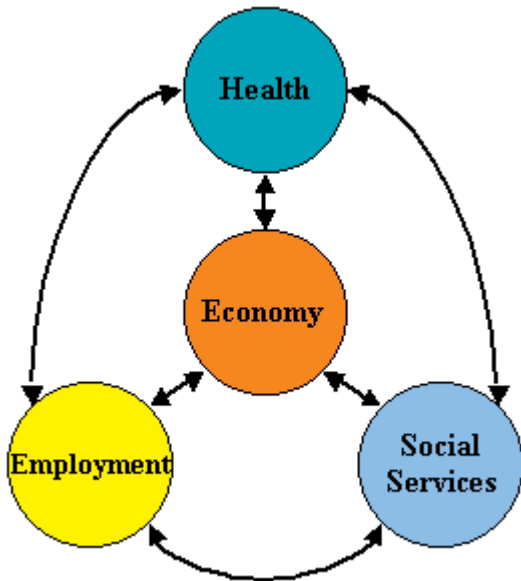
Health and social services are part of a wider welfare system that is essential for social sustainability. For this reason, it is misleading to think of health and social services in isolation – they have strong interdependencies with other sub-systems, such as economy and employment (see figure 1).

¹ <http://www.emcc.eurofound.eu.int/content/source/tn03008a.html>

Table 1: Trends and drivers affecting the health and social services sector

Area	Trends and developments
Demographic and societal change	<ul style="list-style-type: none"> - Ageing ('triple ageing') - Increasing long-term care expenditure - Implications for recruitment to health and social services jobs <ul style="list-style-type: none"> o acute shortages of doctors, nurses and social workers o increase in the age-profile of the professional workforce o increasing recruitment of migrant workers in the healthcare sector o initiatives to activate the latent workforce o delaying the age of retirement - Downward trend of co-residence of older people, upward trend in older people living alone <ul style="list-style-type: none"> o declining female care-giving, rising female employment rates o reduction in informal care, more demand on professional care
Rising expectations and consumerism	<ul style="list-style-type: none"> - Increasing expectations of people to receive the health services they require at an affordable price - Patients better informed about healthcare services, e.g. through Internet - Patients less deferential to healthcare professionals - Increase in the number and influence of organised patient groups
Health informatics and telemedicine	<ul style="list-style-type: none"> - Changing patterns of patient-physician relationships - Existence of 'virtual' cyber physician - Changes in health organisations and the working relationships of health personnel <ul style="list-style-type: none"> o development of seamless electronic patient records o clinicians will access information and decision-support at the point of care - Telemedicine <ul style="list-style-type: none"> o improvements in the speed and cost of health services o increase in quality of patient care o new medical techniques, e.g. 'telesurgery' - Security concerns for health information and data - New actors to manage data and information flow, e.g. health informatics specialists
New medical technologies	<ul style="list-style-type: none"> - Genomics <ul style="list-style-type: none"> o prediction of the effectiveness and side effects of drug therapies o open new markets for diagnostic testing and preventive medicines o follow-up treatments and support services, e.g. lifestyle counselling - Biotechnologies <ul style="list-style-type: none"> o biomaterials and tissue generation, biosensors and bioinformatics - Nanotechnologies and robotics <ul style="list-style-type: none"> o monitoring repair, construction and control of human biological systems at the molecular level, using engineered nanodevices
Increasing costs of health and social services provision	<ul style="list-style-type: none"> - Increase in healthcare expenditures at a rate of around 3 per cent per year on average across the EU - Growth in healthcare demand – challenge of limiting expenditures without reducing the quality of services and their accessibility - Improving the information available on the cost of treatment of different ailments, to ensure that the cost factor is included in determining and rationalising healthcare services - Introducing market mechanisms as a means of increasing efficiency - Reducing expenditure on pharmaceuticals <ul style="list-style-type: none"> o encouraging the use of generic drugs o restricting or prohibiting the use of expensive branded pharmaceuticals - Shift to a primary care focus, underpinned by a belief that health and social services need to be more responsive to local needs and that better coordination can be achieved between needs and resources at this micro-level - Increasing the development of home-based services to support older people in their own homes rather than through institutionalised care

Figure 1: Interdependency of sub-systems in the welfare system

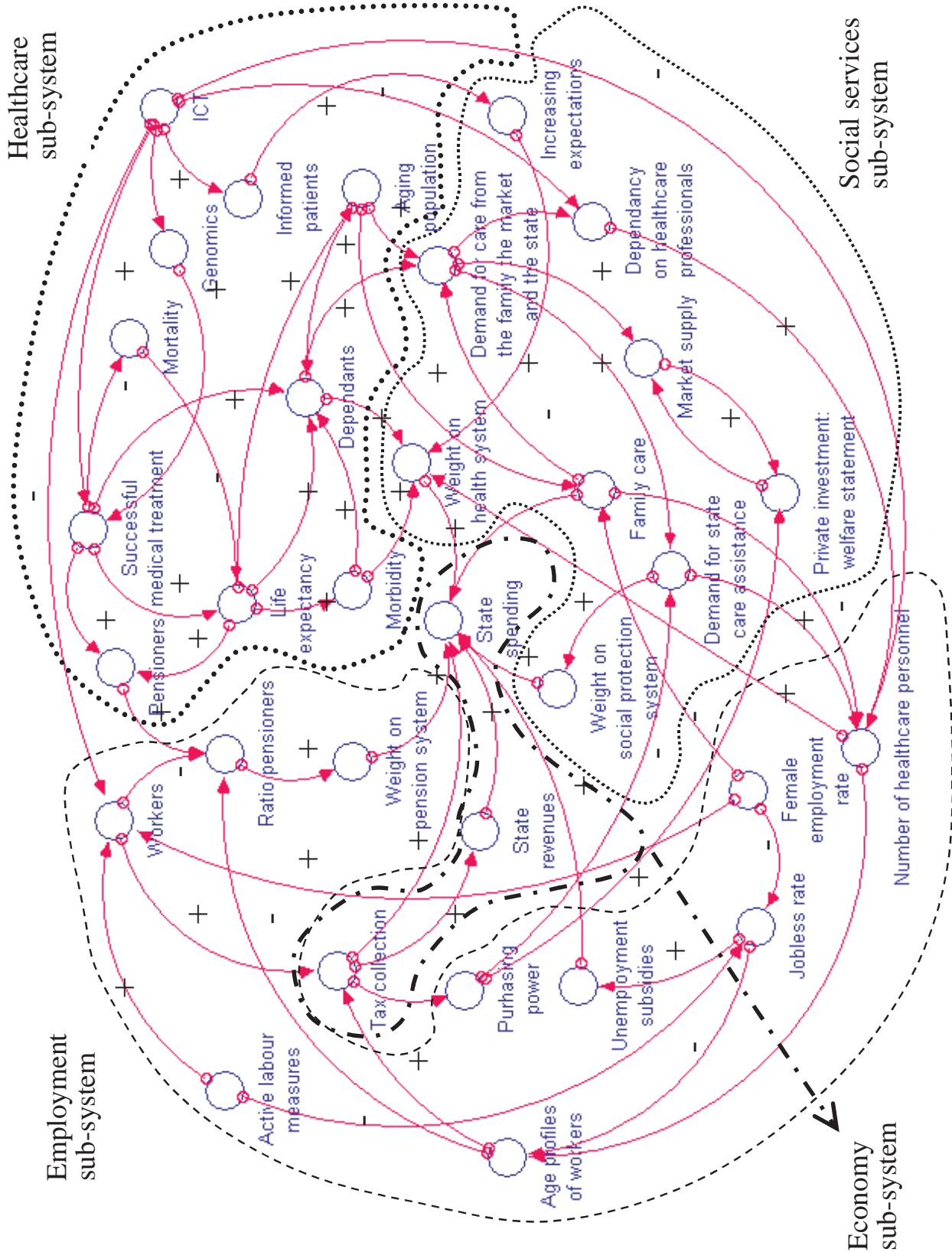


Each sub-system and its components are affected by and/or affect other sub-system(s) and component(s) through multiple channels. The complex relationships between health, social services, employment and economy systems and their components are shown in figure 2. This figure well-illustrates the complexity of the existing welfare system, where an intervention to any part of its components changes the behaviour of the whole system. In the figure, '+' represents a direct relationship between two components of the system. This means an increase or decrease in one component will, respectively, result in an increase or decrease in the other connected component. The use of '-' indicates the reverse relationship. This interdependency assumes that the properties and behaviour of each system component, and the way they affect the whole, depend on the properties and behaviour of at least one other component in the system.

An example illustrates this point. Starting with female employment rates, it is assumed that increasing female employment will decrease family care for the elderly at home, creating a demand for professional care from the state and/or the market. Consequently, an increase in the number of care professionals will be expected that could be costly. Current demographic trends, however, indicate a beginning shortage of workers to fill health and social care positions. For this reason, existing care professionals will be discouraged from retiring, building up an older workforce profile. As professionals are employed longer, dependency ratios in society will decrease, reducing the weight on the pension system. This would cut down state spending on health and social services as a proportion of GDP. If one considers only the direct relationship between female employment rates and professional care provision, the impact on the welfare system as a whole would seem to be counter-intuitive. But by taking a systems perspective, it highlights a web of interdependencies that might otherwise go unnoticed. The result is a fuller picture of the issues and drivers at work.

Similar causal pathways can be followed starting from any point in figure 2 and moving to other(s) via positive or negative causal relationships between them. These pathways tell their own stories, which, in turn, can be used as the basis for scenario construction. Introducing new factors into the system and questioning the assumptions that underpin some of the causal relationships can generate variations. For sure, many of the latter are complex and contestable, and no doubt the reader will disagree with some of the relationships indicated in figure 2. The point of including such a figure in this article is to illustrate the complexity of the welfare system and the interdependencies between its component parts.

Figure 2: Welfare as a system



Source: Adapted from Garcés et al, 2003

Health and social services scenarios

Rather than start from scratch in elaborating health and social services scenarios, this article reviews existing scenarios that explicitly address the healthcare sector. As already mentioned, it proved impossible to locate similar studies for social services. The healthcare scenarios selected have their origins in four countries - Germany, Sweden, the United Kingdom, and the United States - and Europe more generally. Table 2 sets out the scenarios covered. All studies were completed in the last three to four years, with time horizons varying between 10 and 20 years. They were created by different organisations for different purposes, though, as the reader will appreciate, they have much in common. Moreover, they map extremely well on to the drivers identified in the first article of this series on the health and social services sector (see table 1). A description of each of the scenarios now follows.

Table 2: Overview of scenarios covered in this article

Name of study	Institute	Pub. year	Time horizon	Country or region	No. of scenarios
Health and Care in 2022	WHO Europe	2002	2022	Europe	1
The Wanless Review of the UK NHS	HM Treasury	2002	2022	UK	3
The Madingley Scenarios	National Health Service	1998	2020	UK	2
Health and Healthcare 2010	The Institute for the Future	2003	2010	USA	3
Futur	BMBF ¹	2002	2020	Germany	1
Teknisk Framsyn Health Panel Report	VINNOVA ²	2000	2020	Sweden	2

¹ Bundesministerium für Bildung und Forschung

² Swedish Agency for Innovation Systems (Verket för innovationssystem)

WHO scenario for health and care in 2022 (Europe)

The **World Health Organisation**² (WHO) Regional Office for Europe has developed a single 20-year horizon scenario based upon a series of futures exercises conducted in Denmark, Germany, the Netherlands, Norway, Portugal, Sweden, Switzerland and the UK. In all, more than 250 health managers and professionals from across Europe participated in these events and helped to develop the scenario. It also draws upon the research-based work of the UK's **Nuffield Trust**³, which recently conducted the study, **Policy futures for UK health**⁴.

According to the scenario's authors, it is intended as a baseline for discussion of possible alternative futures and is therefore rather conservative in its projections. It covers several areas, including the future patient, medical technology, pharmaceuticals, information and communication technologies (ICT), primary and community care, and the future hospital.

In the world of 2022, health is the world's largest industry counting for 12% of global gross domestic product (GDP), followed by tourism. Globally, there is a harsh divide between the health of the rich, who expect to live healthy lives until their 80s, and the poorest, who have a life expectancy of little more than half this. Failure to take early action on the misuse of antibiotics resulted in pandemics of infectious diseases in the teeming mega-cities of poor countries, for

² <http://www.euro.who.int/>

³ <http://www.nuffieldtrust.org.uk/>

⁴ http://www.jims.cam.ac.uk/research/health/polifutures/polifutures_f.html

which 'affordable' counter measures had become ineffective. Health aid, including water, education and shelter, has replaced arms sales as the major instrument of trade and aid policy. International agreements take health as a basic human right, while the health impacts of intellectual property rights are subject to specific examination.

In Europe, people are generally living longer and healthier lives, and life expectancy has risen by 4 years since 2000. As a result, more people live with chronic diseases, such as Alzheimer's disease and diabetes. The health problems of an affluent society are related to poor diets, substance abuse including alcohol and tobacco, stress, and sedentary lifestyles, affecting around one-third of the population. This is despite the focus of health promotion programmes on diet and exercise.

Areas of urban and rural poverty persist in the face of national policies to counter them. The numbers of single parent families and elderly living alone has grown, as a result of increased longevity. Depression is the leading cause of illness. Local air quality has improved, and damage to the ozone layer has been slowed but not reversed. These results in more skin cancers, and due to global warming, Europe is more vulnerable to diseases usually found in the tropics, such as malaria. Multiple resistant hospital infections are a major problem due to the earlier misuse of antibiotics.

Patients are no longer 'passive recipients' of care, but demand better information about their condition, the treatment options and the performance of clinical teams. They are also well organised: Patient-Consumer Associations have increased in all European countries, and the European Patient-Consumer Council now wields considerable political influence, reflecting the strength of both consumer and 'grey' power groups. The Council is also involved in monitoring the performance of health services from the patient's perspective.

The take up of medical advances in Europe is dependent on two factors:

- the pace at which medical practitioners can learn and apply new skills; and
- the rate at which health systems can afford these developments.

Knowledge-based systems that provide access to the latest best practice solutions support not only medical practice, but also self-care and nursing care. Nanotechnology offers radical developments in some medical areas, which have previously been untreatable. However, in 2020 this technology is still developing, very expensive and limited to specialist centres.

The global pharmaceutical industry of 2022 is dominated by 10 multinational enterprises funding, researching and marketing global health solutions. They work with smaller organisations in virtual networks, developing and improving health solutions. The pace of discovery of new chemical entities, which slowed from about 70 per year in 1980 to 40 per year by 2000, accelerated to 200 per year by 2022. This is as a result of several factors, including

- developments in combinatorial chemistry, allowing much faster drug screening;
- an increase in the potential target applications of drugs as a result of the Human Genome Project.

There is much more emphasis upon screening and prevention in 2022. By 2010 screening for some 30 conditions was possible, but this practice was confined to specialist centres. The full potential was only realised once low cost genetic screening was introduced and primary care doctors developed skills in interpreting and providing guidance on the basis of genetic indicators, matching treatment to patient genetic profiles. Other drug developments consist of the so-called lifestyle drugs, such as growth hormones with anti-ageing properties, mood enhancing drugs and other treatments, for which there is high demand. However, European social healthcare funding only pays for such treatments in exceptional cases.

In 2022, health expenditure in Europe has increased to 12.5 per cent of GDP (compared to 8.1 per cent in 2002), which is still lower than the US level in 2002 of 13.0%. The main reason for the restraint of health costs has been the stress placed on social welfare systems by increases in the costs of pensions and long term social care. In practice, this means that funding was limited to health solutions of proven effectiveness, co-payments were increased, and some aspects such as adult dentistry and ophthalmology were only provided to low-income groups. In addition some aspects of transplantation and very high cost procedures and drugs were excluded from basic health cover. Some countries introduced age limits on certain procedures, others limited services to smokers. Consequently, private medical and long-term social care insurance increased from an average of around 7% of costs in 2002, to over 15% of European health costs in 2022.

Health services have borrowed elements of reform from one another but have maintained their basic forms, with tax funded systems in Italy, Greece, Portugal, Scandinavia, Spain and the UK, and social insurance funded systems in Austria, the Benelux countries, France, Germany and Switzerland. The countries of central and south central Europe developed hybrid solutions based on a combination of employment based insurance, tax funding and private insurance.

The primary care network has changed in many European countries because they now deploy a far wider range of skills. Doctors still provide diagnostic and family medicine services. Some, however, specialise in planning and managing the primary care team and the services they commission from secondary care. More specialists in primary care make use of portable equipment for specialist treatments. Primary care networks operate telephone, Internet and videophone helpline services, emergency first call services, casualty rooms, community hospitals and psychiatric services. Though the appearance of hospitals has not changed much in 20 years, their role and operation is quite different from today's. Hospitals operate within an integrated service, providing knowledge, diagnosis and advice by video and remote sensing to primary care practitioners. They also run outreach clinics in primary care centres.

Health and care services are better integrated in most European countries by 2022. Moreover, health and social care professionals do not have a monopoly on empathy or knowledge, since community resources channelled by Patient-Consumer Associations are central to the quality of care provided in 2022. The boundaries of health concern have expanded to include food and diet, at the same time fitness centres have spread across Europe.

The Wanless scenarios (UK)

In 2001-2002, Derek Wanless headed a review of the long-term resource requirements for the UK's **National Health Service**⁵ (NHS) on behalf of the British Treasury. The resulting report, **Securing our future health: Taking a long-term view**⁶, concludes that the UK will need to devote more resources to healthcare in order to meet people's expectations and to deliver the highest quality of care over the next 20 years. This must be matched by reform to ensure that resources are used effectively. However, this reform agenda is marked by uncertainty on a number of counts, namely the changing health needs and demands of the population, technological developments and medical advance, and the use of the workforce and productivity. To accommodate the uncertainty involved, the review developed three scenarios, with each combining the trends in a way designed to present a coherent whole and a plausible picture of the future.

The first scenario, *Solid progress*, sees 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. The second scenario, *Slow uptake*, sees 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. Finally, the third scenario, *Fully*

⁵ <http://www.nhs.uk/>

⁶ http://www.hm-treasury.gov.uk/Consultations_and_Legislation/wanless/consult_wanless_final.cfm

engaged, sees high levels of public engagement in relation to their health: 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. The use of resources is more efficient.

Each scenario is now described in more detail, followed by a table summarising the main aspects (table 3).

Scenario 1 - 'Solid progress'

In this scenario, people live for considerably longer than they do today, with roughly half the additional years gained being healthy. A significant driver of better health in this scenario is an improvement in curative care provided by the National Health Service. 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.

Higher expectations among the elderly combine to place increasing demands on the service. Younger people are more health aware and visit their GP on average once a year more than now. Targets for public health are met in areas such as smoking, teenage pregnancies, and obesity. Reductions in obesity are achieved as a result of local actions to increase levels of physical activity and provide advice about healthy diets. These health rewards are shared across the population, with health promotion measures targeted at deprived population groups helping to reduce socio-economic inequalities in health. This *solid progress* scenario is thus one of steady improvement, with current public health targets met and maintained.

Scenario 2 - 'Slow uptake'

In this scenario, although people live for longer than today, 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.

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 good quality care, it does not offer a 'whole systems' approach.

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, and older people do not demand or receive additional care for a given level of need.

Scenario 3 - 'Fully engaged'

In this scenario, people live longer and in better health than they do both today and in the *solid progress* scenario. Healthy life expectancy rises 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.

The difference between the *solid progress* and *fully engaged* scenarios is a dramatic improvement in public engagement, driven by widespread access to information through media such as the Internet and digital television. As people actively take ownership of their own health, public health improves with a sharp decline in key risk factors such as smoking and obesity. Moreover, reductions in risk factors are largest where these are currently highest, among people in the most deprived areas. This contributes to further reductions in socio-economic inequalities in health. People have better diets and exercise much more.

Health needs and the type of care available become more sophisticated as engagement rises. Uptake of appropriate technology is rapid and effective. Meanwhile, people make one more visit to their GP each year compared to today. Elderly people are also more likely to receive hospital care, on account of the willingness of doctors to refer them on the basis of clinical need alone and not their age.

This scenario is the most optimistic of the three: a picture of rapid improvement in the health of the UK, underpinned by a *fully engaged* public and a high quality service.

Table 3: *Main aspects of Wanless scenarios*

	<i>Solid progress</i>	<i>Slow uptake</i>	<i>Fully engaged</i>
Changes in demand for care:			
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 an average by 2022	No change	One additional GP visit per year an 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 rose 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 2003-2004	Spending doubles in real terms by 2007-2008	Spending doubles in real terms by 2003-2004
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

Source: D. Wanless, 2002, p. 41

The Madingley scenarios (UK)

In 1998, the **NHS Confederation**⁷, the **Institute of Health Service Management**⁸, and the **International Hospital Federation**⁹ developed future scenarios for the UK's **National Health Service**¹⁰ to mark the 50th anniversary of the founding of the Service. Known as the *Madingley scenarios* (named after a village near Cambridge where the scenarios were developed), four key drivers of change were identified and two scenarios articulated. The drivers of change were as follows:

- the development of new technologies and ever-larger amounts of information;
- new power structures in politics, in business and in community life;
- the growing importance of new relationships to the living environment;
- social/cultural change.

Using these drivers, the team developing the scenarios imagined two futures in which the NHS would exist. Each world is equally desirable or repellent. The first scenario, called *Find my way*, is a world with radically different ways of working and behaving. The other, called *Trust their guidance*, is a world in which familiar organisations are revamped.

Each scenario is described in more detail below, followed by a table summarising the main drivers and consequences (table 4).

Scenario 1 - 'Find my way'

Find my way is a world of individuals: groups emphasise the ethics of individual choice and arrive at conclusions which privilege choice and diversity over uniform regulations. Both organisations and individuals enter into many - often short-lived - partnerships and networks. People have immediate access to global information, but the problem they have is in knowing which information to trust. This is because it is a world in which we no longer have professionals, experts and institutions telling us what to do.

Although the decline of the traditional family prompts concerns about supporting children to be responsible adults, there is a variety of family forms and public policy is focused on supporting children irrespective of the choices of the parents. Meanwhile, the elderly themselves took the lead in redefining old age from being 'a problem' to being 'a resource'. Flexible retirement ages after sixty and opportunities for part-time working for older people combine with the virtual disappearance of early retirement to redress the imbalance of workers and non-workers in the population.

For those with the personal and economic resources to exploit the opportunities available, it is an exciting and rewarding world. But for others, it is a world that provides few supports in times of need. For these people, the world of work offers very little security, and they are increasingly cut off from the rest of society by a lack of knowledge and money as the gaps between the rich and poor grow ever wider.

⁷ <http://www.nhsconfed.org/>

⁸ <http://www.ihm.org.uk/home.cfm>

⁹ <http://www.hospitalmanagement.net/>

¹⁰ <http://www.nhs.uk/>

Scenario 2 - 'Trust their guidance'

Trust their guidance is a world where people get access to information through trusted sources, such as the NHS, and where well-regulated institutions provide stability. Individualism is weakened and national political parties are strong. This has come about because the major institutions of society were able to manage a process of change and have radically re-vamped their own organisations.

National government plays a major role in underpinning childcare. At the other end of the age-range, the government is also involved in ensuring minimum standards for older people. However, older people who are frail are generally concealed within institutions and fitter people take a more active role in childcare and in part-time work. The institutions available for the poor elderly are oppressive and paternalistic. More generally, inequalities do not generally increase significantly, but the poor find that their lives are more thoroughly policed than previously and that institutional support is conditional upon behaving in an approved way. People feel secure but stunted.

Table 4: *Madingley scenarios: main drivers and consequences*

Indicator	<i>Find my way</i>	<i>Trust their guidance</i>
The development of new technologies and ever larger amounts of information	<ul style="list-style-type: none"> - Individual access to ever more global information. - Increasingly hard to know how reliable information is. - Information technologies combine with other new technologies to sweep away existing institutions. 	<ul style="list-style-type: none"> - Individual access to ever more global information. - Individuals go to trusted sources which are responsible for checking information. - New technologies assist re-vamped major institutions in achieving their objectives.
New power structures in politics, in business and in community life	<ul style="list-style-type: none"> - Transient networks and shifting partnerships - Weakening of national government 	<ul style="list-style-type: none"> - Radically modernised, but stable, organisations - National government remains the focus of politics
The growing importance of new relationships to the living environment	<ul style="list-style-type: none"> - Environmental policy is decided at global and European levels and implemented locally. - The Green movement draws upon a wide variety of many short-term groups. 	<ul style="list-style-type: none"> - Environmental policy is decided nationally and implemented through stable national organisations. - The Green movement is focused on scientific evidence and gradual improvement.
Social/cultural change	<ul style="list-style-type: none"> - A renewed focus on individual ethics in a world of changing and fragile relationships. - Old people are seen as a resource. - Science is only one world view amongst many. 	<ul style="list-style-type: none"> - New family types develop with childcare underpinned by government institutions. - Old people are seen as a burden. - Science is privileged over other world views.

Source: BMJ, 1998

Health and healthcare 2010 (US)

To celebrate the 25th anniversary of its founding, the **Robert Wood Johnson Foundation**¹¹ asked the **Institute for the Future (ITF)**¹² to forecast the future of health and healthcare in the United States for the period between 2000 and the year 2010. The study was first conducted in 1997 and has been updated in 2003. It describes the path from 2000 until 2005 in terms of the future legislative and regulatory contexts; changes in the demographics and attitudes of patients, populations and consumers; the concerns of payers about healthcare costs; the organisation of health plans and insurers; the structure of hospitals, provider organisations and the public health system; the role of medical information technologies; and the forthcoming shifts in care processes and medical management.

¹¹ <http://www.rwjf.org/index.jsp>

¹² <http://www.iftf.org/>

Beyond 2005, IFTF's forecast splits into three scenarios: the first, *Stormy weather*, is pessimistic about the ability of American society to provide coverage and access to care; the second, *The long and winding road*, is a situation where incrementalism reigns supreme; and the third scenario, *The sunny side of the street*, is optimistic about the impact of changes on the health of the population. Each scenario is described in more detail below. The forecasts and scenarios are intended to be of value to community service organisations, hospitals, providers, payers, and researchers in the long-term planning processes that support their own visions of the future.

Scenario 1 - 'Stormy weather'

Stormy weather is a negative scenario. It draws a pessimistic picture with rising healthcare costs, increasing dissatisfaction among healthcare providers and patients, inequality of access to care, greedy profit takers, and repeated healthcare scandals. This scenario sees health reform staying on the public policy agenda by the end of 2010.

Managed care programs fail to deliver on their promises to contain costs or to improve quality. Consequently, consumers and providers react with a strong, unified backlash to managed care. They succeed in getting legislation passed that further erodes the effectiveness of managed care by intervening in a variety of clinical and structural decisions, such as regulation of lengths of stay for various procedures, staffing ratios, and any-willing-provider laws. Moreover, provider 'oligopolies' threaten to leave the provider networks of plans that do not pay well and the plans blink first.

Healthcare costs increase with public healthcare spending reaching almost 20 per cent of GDP. Despite this increase, one fifth of Americans remain uninsured and a majority of them worry about losing their healthcare benefits. As they change their job, they may remain without health insurance. While large employers continue offering insurance as an employment benefit, small firms drop insurance benefits and this contributes to the number of uninsured. Those who retain insurance are also less happy because of increasing out of pocket costs, so called 'co-payments'. Programmes providing access to healthcare for the poor and uninsured are cut back due to economic recession. Consequently, a number of major hospitals close their doors, stranding many people with nowhere else to go. The public health system is essentially in tatters, with local public health departments retreating from service provision and only minimally fulfilling their mandated functions. At the same time, there is no compensatory response from the private sector.

Development of new medical technologies continues. Consumers are heavily affected by pharmaceutical companies' direct-to-consumer advertising and continue demanding access to the latest and most expensive drugs and medical technologies. Expectations of information technologies (IT), such as lower costs and increasing quality, remain unfulfilled due to cost and lack of demonstrable effectiveness.

Scenario 2 - 'The long and winding road'

In this scenario, there are incremental developments in the revision of the healthcare system. Although costs get pushed down in one place, they pop up in another, but the system is able to respond rapidly and keep costs in balance. Consequently, comprehensive health reform does not enter the public policy debate, as incremental changes each year reassure elected officials that they are doing something about healthcare.

Employers continue considering their health benefit structures and healthcare costs, and increasingly move from providing defined benefit plans to defined contribution programmes. In this case beneficiaries are expected to meet part of the costs in co-payments. This leads to a drop in the utilisation of healthcare services.

Moreover, the pressure on healthcare providers increases. Suffering from high costs, healthcare providers have difficulty in adopting new innovations extensively. Instead, they engage in sustained, and largely unsuccessful, resistance to being hassled by insurers. Between 2005 and 2010, disorganised change in healthcare continues as it did in the previous decade.

Healthcare costs increase, but only slightly faster than GDP growth. The share of healthcare spending as a proportion of GDP is around 16 per cent by 2010. Federal and commercial cost containment work well enough to make insurance coverage affordable for most employers. The healthcare system remains tiered, with about 20 per cent of Americans in the bottom tier of public coverage and without insurance, 60 per cent in managed care plans that substantially restrict their choice of providers and limit providers' autonomy, and 20 per cent in high-end, indemnity-type programs.

Scenario 3- 'The sunny side of the street'

This scenario presents a bright picture of 2010. All the works and investment done until 2005 create a sustainable and efficient healthcare system. It is now clear what works and what does not in medicine, and how providers and patients work effectively together. Health plans and providers put in place information and management systems which can take the healthcare system through the next two decades.

Competition among providers drives costs down. Young physicians, of which there is an oversupply, enter the market with lower income expectations and more of an employee mentality than their predecessors. Moreover, the consolidation experienced in the late 1990s continues through the early 2000s, and serves to drive out some excess capacity, especially of hospital beds. Healthcare information systems and clinical information systems improve care processes and outcomes, and help to reduce costs. Improved information systems allow health plans and providers to develop the capacity to make trade-offs among therapies according to their cost effectiveness.

Innovative payment approaches are developed throughout the healthcare system. For example, prospective payment for outpatient services is put in place first by Medicare, then by commercial health plans. In this scenario, cost growth is just one per cent over GDP, so that by 2010, it reaches 15 per cent of GDP. These moderate cost increases make health insurance more affordable. People experience more security of benefits with an uninsured rate of just 10 per cent.

Futur lead vision (Germany)

In 2001, the German Federal Ministry of Education and Research (*Bundesministerium für Bildung und Forschung*, **BMBF**¹³) initiated the research dialogue **Futur**¹⁴ with the aim of identifying research priorities for the future by means of a broad dialogue. Futur is the latest incarnation of the national science and technology foresight effort in Germany, following on from a series of Delphi studies conducted during the 1990s. It is marked by its extensive dialogue processes with a wide variety of experts and citizens, and results in the elaboration of 'lead visions' for the BMBF and others to follow.

One such lead vision has been elaborated in the area of healthcare: **Healthy and vital throughout life by prevention**¹⁵. This lead vision describes the topic area and its significance for the German economy and society, sets out a single scenario of life in 2020, and suggests a number of research priorities for BMBF to follow.

The scenario describes the discovery by a newly arrived Chinese au pair (Han) of a German household in 2020. The scenario is constructed around a dialogue between the au pair and various members of the household. This is a world where both Germans and Chinese use mobile 'end devices', which contain all sorts of personal information, including

¹³ <http://www.bmbf.de/>

¹⁴ <http://www.futur.de/en/index.htm>

¹⁵ http://www.futur.de/en/dateien/Lead_Vision_Healthy_by_Prevention.pdf

passport and an 'access key' to personal health data held on the Internet. The bathroom is a place of particular interest for healthcare and wellbeing, with a 'toilet lab' and bathroom cabinet packed with health monitors and diagnostic biochips.

Though this may all sound rather techno-driven, the scenario highlights the social acceptability of some of these technologies. For instance, this particular household does not have a toilet lab, since the *pater familias* believes it leads to unnecessary hypochondria. In any case, all members of the family have regular health check-ups; a mobile diagnostic unit, for example, that regularly visits the school checks the children. Meanwhile, non-technological aids to wellbeing, such as saunas, Turkish baths and 'wellness studios', are also very popular.

Technology also breeds its own problems, with 'radio smog' a nuisance in the household, due to the many devices using radio waves for communication. This has necessitated the installing of electromagnetic shielding in the bedrooms (contained within the wallpaper), due to fears that electromagnetic radiation might cause health problems.

The *pater familias* works from home, and has fitted an 'overwork warner' to protect himself from self-exploitation and to achieve a desirable work-life balance. The overwork warner is a miniature camera in the wall that measures the blinking frequency of the eyes and alerts the worker when they are tired from over-working. Again, human frailties are emphasised: our homemaker is said to tape something over the camera lens when a deadline looms. The *mater familias* works flexible hours which allow her to pick up their youngest child from school. A proper family dinner is also instituted within the household - without this, it is suggested that work-life balance would be lacking.

The family eat a lot of fresh fruit and vegetables, relying in part on electronic ordering and delivery services. Foodstuffs all have 'intelligent labels', which inform consumers of their health and ecological values. Obesity, particularly amongst children, is not the problem it was at the turn of the century, though much of this can be put down to the more active exercise regime promulgated across society.

An elderly relative is mentioned, who has recently been in hospital but who is now recuperating in an 'intergenerational rehabilitation institution'. The cause of his health problems is the lifestyle he led at the turn of the century, particularly the anti-ageing remedies he took, which have damaged his heart and liver. The earlier 'exaggerated anti-ageing fashion' has now passed, with wellbeing achievable at all ages.

Health insurance looms large throughout this scenario, given that it is the way that German healthcare is funded. For example, there is extensive mention of insurance 'discount points' as incentives for things like fitness training and regular health check-ups. In fact, the insurance industry seems to be much more sophisticated than today, conducting research into the health electronic data banks (under strict data protection rules) in collaboration with epidemiologists, among others, in order to search for evidence on the efficacy or possibility of development of new preventive measures. There is also a 'health and more' card that has nothing to do with the health insurance, but is a communal offer from the municipality, the social partners, and the 'wellness companies'.

All in all, this scenario paints a picture of a technological society which, to a large extent, has achieved the vision of long-life health through preventive behaviour and preventive action that have become embedded in society.

Teknisk framsyn health scenarios (Sweden)

Within the context of the Swedish national technology foresight exercise, **Teknisk Framsyn**¹⁶, a healthcare panel was established to examine the future of the sector within a 20-year time horizon. In its final report, the panel presented two scenarios on the future financing, ownership and governance of healthcare provision. In the first scenario, healthcare is still financed through taxation, but with increased deregulation compared to today. In the second scenario, there is complete deregulation of ownership and financing, but with the State responsible for supervision. Global insurance companies enable both actors and patients to move outside national borders.

The baseline situation for both scenarios is as follows:

1. Financing and production is split in terms of allocation of responsibility to different key actors. Today, the county assemblies are responsible for everything, from financing to employment, etc. This total overall responsibility results in conflicts and difficulties in assessing needs and costs within the healthcare sector.
2. During the 1990s, productivity has increased, yet there remains a gap between what is medically possible and the healthcare system's ability to deliver. An increase in demand on the healthcare sector is expected to accelerate over the coming 20 years. A system that can calculate each patient's total care costs will therefore be a necessity to prioritise in the future.
3. There will be a need to utilise modern IT in the direct interaction between carer and patient.

Scenario 1 - Deregulated publicly financed health and care sector

Market research has found that there is considerable will amongst Swedes (regardless of age) to give high priority to health and care within the public budget, though how far this stretches is debatable. In a more deregulated healthcare structure, political influence on care provision decreases, and the focus of democratic debate is on how best to order care at a given level of quality and quantity. Public and private institutions cooperate on healthcare. Insurance companies, pharmaceuticals, and biotech companies can own and manage organisations concerned with diagnostics, treatment and care. At the same time, the state is responsible for financing basic research. By maintaining the public finance model, the state maintains a key/overall responsibility.

Key questions include: ability to define the volume and quality for specific care needs and handling the 'need for care' and 'demand for care' issue for prioritisation of limited resources. With a greater individual financial burden through increased fees/insurance, a major concern is the increased gap between the 'haves' and 'have-nots' in society. Today, healthcare systems across Europe are faced with similar challenges.

Scenario 2 - Healthcare with flexible financing and ownership

By 2020, local authorities, private companies, international companies or a combination of these run the healthcare sector. Indeed, healthcare providers look quite different from today. They can be pharmaceuticals starting up treatment centres, biotech companies offering diagnostics, and so on. Local authorities 'buy' care from care providers in a competitive market, where the ownership can vary between local authorities, private companies, and cooperatives. The state provides the budgetary framework and sets the minimum standard for what the public healthcare sector must offer citizens. It still has overall responsibility for basic research and financing of public healthcare, as well as for quality and control of care providers.

¹⁶ <http://www.tekniskframsyn.nu/>

A minority of specialised hospitals remain and can accept patients from across the world within their areas of expertise. In turn, small groups of patients are treated abroad where the best care can be obtained cheaper than in Sweden. Swedish competence within, for example, eye surgery and dementia, is world-leading and is exported. Thus, hospitals operate independent of geographic location, and patients choose between local and regional institutions.

Towards integrated visions

Looking at the various scenarios described in this article (see table 5 for a summary), there is high level of agreement on the issues important for the future of health (and social) services. The issues highlighted also closely align with those identified in the first article of this three-part series. However, no set of scenarios covers all of the issues raised. And where coverage is comprehensive, as in the WHO exercise, only one scenario is elucidated. Thus, this article aims at generating a range of comprehensive 'visions' that integrate the ideas and issues highlighted already.

There is little precedence in integrating scenarios from different studies and territories, although some systematic attempts have been made previously, for example, in the EC-funded VISIONS project. The approach used here is more intuitive: first, important issues highlighted in the various scenarios have been identified. These have then been clustered into theme areas ('indicators') around which we have written three visions: a 'best guesstimate', a 'problem-plagued' view, and a 'visionary' view. Such 'archetypes' are often used when writing scenarios - for example, the Wanless scenarios are of this form. Our time horizon is 2015-2020.

Several theme areas have a high level of certainty and are therefore considered to constitute a 'baseline' situation common to all visions. These include:

- an ageing society and ageing workforce;
- increasing life expectancy;
- changing family forms and an increase in single-person households;
- new disease threats linked to, for example, an ageing society (more chronic and degenerative diseases), environmental change (skin cancers, tropical diseases, etc), growing antibiotic resistance, and modern living (addictions, obesity, depression, etc);
- growing health awareness and consumerism;
- growing ubiquity and power of ICT;
- an increased understanding and medical exploitation of genomics and other biomolecular fields;
- health and social care continue to be highly politicised.

Table 5: Summary of existing scenarios

Scenario set	Scenario name	Key issues
WHO (Europe) Health & Care in 2022	<i>Hopes and fears for the future of health</i>	Health is the world's largest industry, but harsh divides exist between rich and poor. Life expectancy has increased, but the health problems of an affluent society persist, with health promotion programmes largely ineffective. Patient groups are organised on a European scale and are powerful players. New medical advances have an impact, especially on the pharmaceutical industry, and ICT have been widely adopted. Healthcare spending is under control, with people increasingly responsible for co-payments. Primary care offers highly specialised services, and there is greater integration between health and social care.
UK Wanless	<i>Solid progress</i>	Reasonably positive, with health targets largely met, people becoming more engaged in relation to their healthcare, and the health service responsive and efficient, making good use of technology.
	<i>Slow uptake</i>	Most negative of the three scenarios, with no change in level of public engagement, population health status remains constant or deteriorates, and the health service remains unresponsive with low rates of technology uptake and low productivity.
	<i>Fully engaged</i>	Most positive scenario, with dramatic improvements in health status and high confidence in the health service, which is efficient and makes extensive use of technology, especially in relation to disease prevention.
UK Madingley	<i>Find my way</i>	A world of individuals with little trust in institutions. There is a focus on developing rounded individuals out of children irrespective of their background. The elderly take the lead in redressing the dependency crisis. Social and health divides widen.
	<i>Trust their guidance</i>	Existing institutions have adapted to become trusted sources of information. Government plays a leading (often paternalistic) role in care for children and the elderly, whilst support for the poor is conditionally provided.
US Health and Healthcare 2010	<i>Stormy weather</i>	Draws a pessimistic picture with rising costs, increasing dissatisfaction among healthcare providers and patients, inequality of access to care, greedy profit takers, and repeated scandals.
	<i>The long and winding road</i>	Incremental developments in the revision of healthcare system. Successive attempts at revising parts of the healthcare system work sufficiently well that tinkering continues.
	<i>The sunny side of the street</i>	Presents a bright picture of 2010. Earlier efforts and investment create a sustainable and efficient healthcare system.
German FUTUR	<i>Han and health</i>	Presents a concept of wellbeing, which is broader than simply healthcare, covering things like work-life balance and family life. This is a technological society, with assorted gadgetry used for monitoring wellbeing. But technology cannot solve all problems, and there's much emphasis on changed behaviour: people exercise more and eat healthier. The health insurance industry rewards such health-promoting behaviour with payment discounts.
Swedish Teknisk Framsyn	<i>Deregulated publicly financed healthcare</i>	Healthcare is financed through taxation, but there is more deregulation of delivery than today. Multiple ownership of healthcare provision, but the State struggles to match demand and supply.
	<i>Healthcare with flexible financing and ownership</i>	Non-state actors, e.g. pharmaceutical companies, cover healthcare provision and it is internationalised. The state provides the budgetary framework and sets and monitors standards of care.

Integrated vision indicators

In addition to the baseline situation factors, there are several indicators around which there are variable degrees of uncertainty. Nine such indicators have been identified in all:

1. **Health status of the population:** life expectancy; morbidity rates, especially amongst the elderly; health divides and health tiering
2. **Lifestyles and values: individualism versus collectivism;** standing of expert knowledge; consumption; inter-generational harmony and/or ageism; life-style drugs
3. **Health and social care funding regimes:** dependency ratios; public versus private/market provision; cost containment measures; co-payments and self-rationing; incentives (e.g. reduced insurance payments) to encourage self-care
4. **Prevention and self-care:** health promotion and prevention initiatives; engagement with health and self-care; expansion of the concept of 'health' to a broader 'wellness' in body and mind; impacts on health divides
5. **Growing and changing demand on services: health-seeking behaviour;** consumerism, e.g. direct-to-customer advertising by the pharmaceutical industry; organisation and activities of patient groups; responsiveness of health and social care systems to new demands, e.g. ageing populations, and opportunities, e.g. new technologies; productivity and use of resources
6. **Widespread use of ICT: clinical support; remote diagnostics and therapies;** performance monitoring and evidence-based interventions; health and social care budgeting; widespread access to information; self and planned care programmes; security and privacy; costs and savings
7. **Genomics and biotechnology:** genetic testing and pharmacogenetics; tissue engineering; biosensors; security and privacy; costs and savings
8. **Primary and community care:** integration of health and social care - whole systems approach; institutional reform and/or replacement; variety of health and social care providers; role of hospitals; specialists in primary and community care; homecare versus institutional care; internationalisation of healthcare provision
9. **Employment organisation and workforce skills: supply of health and social care personnel;** professionalisation of traditional care-giving roles; labour conditions and relations; workforce skills mix; training and skills for new technologies; emergence of new roles and positions

Using these indicators, three visions are elaborated in table 6. Brief summaries of each vision are also given below.

Integrated vision 1 - A best 'guesstimate'

In this vision, many of the targets set today are met by 2015-2020. Life expectancy moderately increases, with some of this increase spent in good health. Individualism and consumption are stronger than today but society still holds together. Dependency ratios deteriorate as expected, but are manageable, and health costs increase only slightly more than GDP growth. Health divides widen slightly, with an increase in co-payments and the availability of some therapies only privately. Divides are exacerbated in part by an uneven adoption of self-care and preventative measures. The welfare system slowly adapts to new and emerging health and care demands, whilst patient groups are rather powerful at lobbying for resources. ICT have a large impact on health and social care delivery and management. Genomics and other advances in biotechnology are also widely applied. There is improved integration of health and social services, with less time spent in hospital. The health and social care workforce has a good mix of skills and is comfortable with using new technologies.

Integrated vision 2 - Problem plagued

In this vision, today's reforms are essentially ineffective and health and social services are in a state of perpetual crisis. Increases in life expectancy are low and are spent in bad health, with the elderly viewed as a burden on society. Dependency ratios increase, meaning that significantly more is spent on health and social care as a proportion of GDP than is the case today. Despite this increase in funding, the welfare system is inefficient and wasteful, partly as a result of its fragmentation. It also fails to meet new health and care demands and is unable to make the most of opportunities offered by ICT and genomics. This leads to conflict between health and social service funders, providers and users. Rampant individualism and consumption extend to health and social care, with unregulated use of lifestyle drugs and therapies for those who can afford them. Health promotion and prevention initiatives are largely ignored, with people expecting health funders to provide 'technological fixes' to their healthcare problems. Health and social care professionals are in chronic short supply, whilst difficulties exist in developing the necessary skills of an ageing workforce.

Integrated vision 3 - Visionary

In this vision, life expectancy increases by 10 years, well beyond current projections. This increase can be attributed to people taking more responsibility for their own well-being, as well as the development of new radical technologies, such as tissue engineering and anti-ageing therapies. Poorer sections of society particularly benefit from health awareness campaigns, reducing slightly health divides. Dependency ratios remain stable as more women and the elderly take up employment, whilst 'wellness' costs grow significantly but only slightly outstrip GDP growth. ICT and genomics transform the welfare system, offering new products and services. Whilst individual consumption is high, greater local activism on a range of issues breeds a stronger sense of community. This benefits primary and community care, with various agencies and groups better networked and responsive to local needs. Many more people than present use social services, given their central role in community care. The health and social care workforce has a good mix of skills and is comfortable with using new technologies.

Table 6: Main features of the 'integrated visions'

Indicator	Best 'guesstimate'	Problem plagued	Visionary
Health status of the population	Life expectancy increases by 4 years, with half this increase spent in good health. Health divides widen slightly as the more expensive treatments are available only to those who can afford them.	Life expectancy increases by 2 years, with this increase spent mostly in ill health. Health divides increase markedly as health systems are unable to cope with the pressures of an ageing society.	Life expectancy increases by 10 years, with more than half this time spent in good health. Health divides are slightly reduced, as prevention programmes and new therapies benefit all, especially the poor.
Lifestyles and values	Individualism and personal consumption are more pronounced than today. Lifestyle drugs are extensively used. Expert knowledge is treated with some scepticism. The elderly are seen as a resource, reflecting in part the influence of 'grey power'.	Rampant individualism and consumption extend to health and social care, creating distortions in the welfare system. Life-style drugs are used by those who can afford them. Expert knowledge is treated with disdain. The elderly are viewed as a burden on society and are regularly vilified in the youth-oriented media.	Whilst consumption is high, greater local activism breeds a stronger sense of community. Lifestyle drugs are used, but most people prefer to follow the 'Natural Plan to Wellness'. Expert knowledge is treated with a healthy dose of scepticism, but people widely marvel at the benefits they enjoy from new technological developments. The elderly are seen as an important resource.
Health and social care funding regimes	Dependency ratios deteriorate as expected, but are manageable. Healthcare costs grow slightly faster than GDP. Substantial marketisation of provision occurs within budgetary frameworks set by the State and other funders. Level of co-payments increases leading to some self-rationing and contributing to health divides.	Dependency ratios deteriorate markedly leading to large cutbacks in health and social care provision. Still, healthcare costs rise considerably faster than GDP growth. This leads to considerable tension between funders, e.g. the State, and providers. Private insurance and co-payments increase significantly, contributing to health and social divides.	Dependency ratios remain stable as more women and the elderly take up employment. 'Wellness' costs grow significantly but only slightly outstrip GDP growth. Funders introduce a series of intelligent incentives to encourage self-care. Level of co-payments increases leading to some self-rationing – these contribute to health divides, but are offset by self-care initiatives.
Prevention and self-care	Health promotion and prevention have some impact, with many people taking greater responsibility for their own well-being. But the poorer sections of society largely ignore the message, exacerbating health divides.	Health promotion and prevention initiatives are largely ignored, with people expecting health funders to provide 'technological fixes' to their healthcare problems. Only those who can afford to pay benefit from such fixes.	Self-care and prevention are cornerstones of the health and social care system. All sections of society take greater responsibility for their own well-being, aided by community-run initiatives. These lessen health divides.
Growing and changing demand on services	The welfare system slowly adapts to new and emerging health and care demands, using its resources more efficiently. Health and social care consumerism manifest themselves as active patient groups and better informed individuals who demand and receive, at least in part, new sorts of treatments.	The welfare system fails to respond to emerging health and care demands, resulting in perpetual crisis and resource wastage. Non-standard therapies are rationed, partly on an age basis. Increasingly militant patient groups are politically active – their varied success works against the formulation of a coordinated health and social care strategy.	The welfare system expands and integrates new 'wellness' functions, covering things like exercise and diet. Enabled by cheap computing and telecommunications, more demands can be met and services are better integrated. Patient groups form productive partnerships with service funders and providers.

Table 6: Main features of the 'integrated visions' (cont.)

Indicator	Best 'guesstimate'	Problem plagued	Visionary
Widespread use of ICT	ICT are extensively used in clinical settings, providing decision-support and enabling remote diagnostics. Health and social care performance-monitoring leads to more evidence-based interventions, creating savings. Data security and privacy are guaranteed. Widespread access to medical knowledge aids groups to constructively participate in their health and social care.	ICT are used across the welfare system but do not lead to the seamless delivery of services as hoped, due to institutional barriers. Performance monitoring is hindered by the system's fragmentation. Data protection rules are in place but difficult to monitor. Widespread access to medical knowledge aids patient groups to confront service funders and providers in conflicts for more resources.	ICT are extensively used in clinical settings, providing decision-support and enabling remote diagnostics. Health and social care performance-monitoring leads to more evidence-based interventions, creating savings. The focus on self-care and prevention popularise planned care programs, which also benefit from widespread access to information. Data security and privacy are guaranteed.
Genomics and biotechnology	Genetic testing and pharmacogenetics are widespread. Biosensors are used widely in clinical settings and for self and remote health monitoring. Tissue engineering is still in its infancy.	Results of genetic testing lead to discrimination. Benefits of pharmacogenetics are confined to those who can afford them, as are self-administered biosensors and tissue engineering.	Genetic testing and pharmacogenetics are widespread. Biosensors are used widely in clinical settings and for self and remote wellness monitoring. Tissue engineering adds to extended life expectancy.
Primary and community care	Improved integration of health and social care, with less time spent in hospital. Institutions are networked, in part through ICT, with traditional hospital care delivered in primary care centres by specialists. Social services are revamped with more people than present using them.	The welfare system is fragmented and conflict-ridden. Institutions are 'patched-up' but remain inefficient and unsuitable for the new situation. The promises of primary and community care are largely unfulfilled, and many procedures and care are still carried out in hospitals. Those who can afford it opt out and go private.	Full integration of health and social care, with less time spent in hospital. Existing institutions are revamped and new players enter the scene. ICT and other new technologies revolutionise health and social care. Many more people than present use social services, given their central role in community care.
Employment organisation and workforce skills	The supply of and demand for health and social care professionals are roughly aligned, aided by migration and the use of new technologies. Care becomes further professionalised. The workforce has a good mix of skills and is comfortable with using new technologies.	Health and social care professionals are in chronic short supply as more attractive employment opportunities attract young talent. Difficulties exist in developing the necessary skills of an ageing workforce, so that the full potential of new developments are not taken up. The system's fragmentation also sees uneven supply of certain skills.	The supply of and demand for health and social care professionals are aligned, aided by migration and the use of new technologies. Care becomes further professionalised but also automated through the use of smart robots and remote networked sensors. The workforce has a good mix of skills and is comfortable with using new technologies.

Wild cards

A common criticism of foresight studies is the difficulty they face in incorporating surprise events. For this reason, some studies seek to identify a list of possible events that could conceivably occur, but that are unlikely to do so. Such events are called ‘wild cards’, and can be described as

... events that have less than a 10 per cent chance of occurring, but will have a tremendous impact on society and business if they do occur. The point of wildcards is not to predict an outcome but to expand our peripheral vision regarding the total range of possibilities that exist; to offer a larger context within which to consider mainstream forecasts; and to prepare for surprises in the event that wildcards do come to pass.

(R.Amara *et al*, p.xxii)

Wild cards can either be in the form of breakthroughs, which could alter healthcare and social services considerably in a positive manner, or setbacks if things go wrong. In health and social services, several wild cards can be identified as potential breakthroughs (table 7) and setbacks (table 8). We have confined ourselves here to wild cards identified in three studies carried out in North America. No doubt there are many other possibilities, some of them specific to Europe. The combination of these wild cards and the ‘integrated visions’ articulated above may determine the future of the sector.

Table 7: Breakthroughs

Area	Breakthroughs
Information and communication technologies	<ul style="list-style-type: none"> - Dream therapy comes into wide use by doctors and other healthcare providers. The use of virtual reality and lucid dreaming techniques creates out-of-body experiences that transcend our physical limitations. We ‘feel’ healthier even if our bodies are ravaged by disease or disability. [IAF]¹ - Telepathic communication replaces electronic communication. We are all connected mentally. Mind-to-mind replaces computer-to-computer as the quickest and most preferred method of transmitting information. [IAF] - Completely self-managed care, aided by artificial intelligence measures. [CHSRF]²
Medical technologies	<ul style="list-style-type: none"> - Micro-robots or nano-devices circulate in the body and act as general repair devices for diseases that the immune system cannot handle. These devices also help to slow the ageing process. [IAF] - Image-guided surgery from remote locations – telesurgery – becomes a common practice mode for procedures such as laparoscopies. Global centres of excellence develop for those procedures, driving many local specialists out of business. [H&H]³ - Biosensors and other new medical technologies reduce costs dramatically, rather than increasing them, and lead to do-it-yourself home care, improving access in the process. [H&H] - There is a technology of consciousness, with alternative medicine ranging from acupuncture to aromatherapy fully integrated into the new health-care system. [IAF]
Healthcare and social services provision	<ul style="list-style-type: none"> - Holistic health centres, with alternative therapies [CHSRF] - Healthy lifestyle incentives (e.g. tax benefits) [CHSRF]
Demographic and social change	<ul style="list-style-type: none"> - Democratisation (technology as equalizer of knowledge; community empowerment; equal partnerships among disciplines) [CHSRF] - Effect of growing voluntary sector [CHSRF] - The alcohol industry follows the tobacco industry – up in smoke. Public opinion turns against the alcohol industries with growing organisation of non-drinkers’ right groups. [H&H]
Other	<ul style="list-style-type: none"> - The technology revolution increases the rate of economic growth. Healthcare costs shrink as a share of GDP because GDP grows so quickly. [H&H] - The press and media discover a role for themselves in processing and repackaging healthcare information in order to increase their readership / viewership. [H&H]

¹ IAF: **Institute for Alternative Futures**¹⁷

² CHSRF: **Canadian Health Services Research Foundation**¹⁸

³ H&H: **Health and Healthcare 2010**¹⁹

¹⁷ <http://www.altfutures.com/>

¹⁸ <http://www.chsrf.ca/>

¹⁹ http://www.iftf.org/docs/SR-794_HHC_2010_forecast.pdf

Table 8: *Setbacks*

Area	Setbacks
Information and communication technologies	<ul style="list-style-type: none"> - Early large-scale implementation of information systems to support and case manage the chronically ill show no cost-benefit advantages compared to traditional lower-end technology care. Given the cost of system installation, the development of home monitoring and case management remains in its current embryonic state. [H&H]¹ - Information technologies are flagrantly abused. Medical records are manipulated, causing erroneous treatment. Information on DNA fingerprints, health and psychological conditions, and economic patterns becomes available to computer hackers, criminals, and others who can threaten our health and well-being. [IAF]²
Medical technologies	<ul style="list-style-type: none"> - Medical technologies, particularly rational drug design, ignite a tidal wave of drug abuse as a new generation of ‘designer’ drugs that bind to specific mood receptors in the brain enter the illegal drug market. [H&H]
Healthcare and social services provision	<ul style="list-style-type: none"> - Converging forces, such as the decentralisation of responsibility to local communities and the privatisation of public health services, lead to the widespread collapse of healthcare safety nets, triggering major infusions of public funds intended for our health purposes and most likely will be too little, too late. [H&H] - Difficulty of dealing with effective but extremely expensive technologies / interventions in public system. [CHSRF]³ - Physicians leave en masse, either retiring at an accelerated rate or finding opportunities outside of medical practice. [H&H]
Demographic and social change	<ul style="list-style-type: none"> - Increased inequities between developing and developed world. [CHSRF] - A wave of new high-tech weapons, such as laser weapons and polymer guns, hits the streets. Government and emergency systems are not prepared, so initially high injury rates result. [H&H]
Other	<ul style="list-style-type: none"> - Pandemics, re-emergence of old diseases, new diseases emerge, such as a successor to Ebola or a form of AIDS that can be transmitted via sneezing or coughing. [CHSRF, IAF] - Drug-resistant strains of staphylococcus and tuberculosis become commonplace, not just in developing countries but also in more affluent parts of the world’s population. This spurs a renaissance in antibiotics research, but not before millions of lives are lost. [H&H] - A major portion of the planet experiences an ecological collapse; for instance, global warming might cause harsh weather patterns and severe crop losses, thus triggering widespread malnutrition. [IAF]

¹ H&H: [Health and Healthcare 2010](#)²⁰

² IAF: [Institute for Alternative Futures](#)²¹

³ CHSRF: [Canadian Health Services Research Foundation](#)²²

Postscript

This article has sought to highlight possible futures for health and social services, drawing upon existing scenario studies and a list of issues and drivers identified previously. In the next article, policy implications and dilemmas will be examined, drawing upon the views of a ‘grapevine’ of experts and stakeholders.

²⁰ http://www.iftf.org/docs/SR-794_HHC_2010_forecast.pdf

²¹ <http://www.altfutures.com/>

²² <http://www.chsrf.ca/>

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²³ All links accessed on 15 December 2003.