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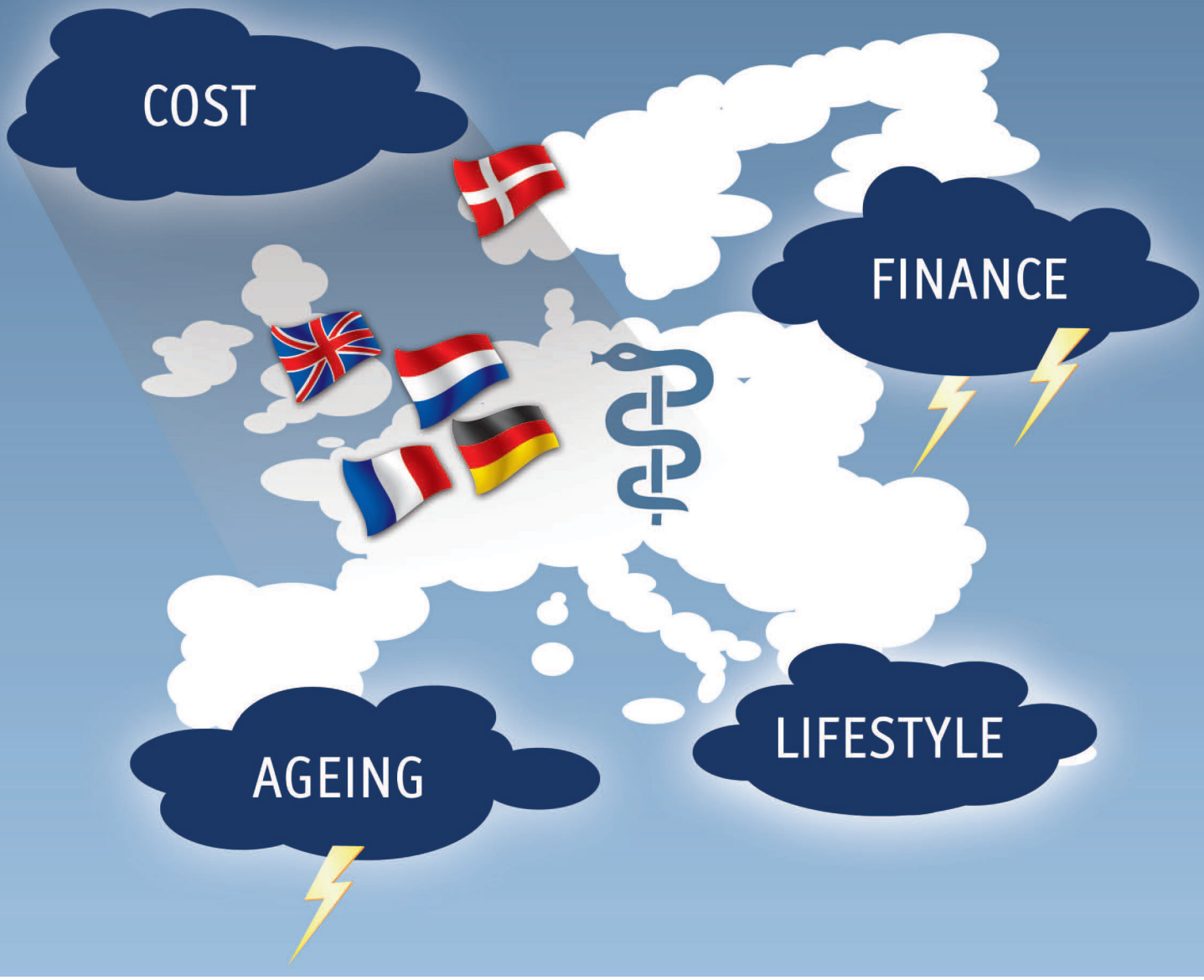
Future-proofing Western Europe's healthcare
A study of five countries

A report from the Economist Intelligence Unit



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Foreword

With average life spans increasing across Western Europe and the incidence of chronic disease growing—at the same time as budgets are becoming tighter—it is not clear how healthcare systems will cope with future demand. In 2010 over one-third of Europe's residents had at least one chronic disease, and treating such diseases accounts for a significant portion of healthcare expenditure. As the population ages, the number of Europeans with a chronic disease can be expected to rise. In a time of tightening budgets, these rising costs will put unsustainable financial pressures on Western Europe's healthcare systems by 2030.

Future-proofing Western Europe's healthcare: A study of five countries is an Economist Intelligence Unit report that examines how selected countries—and by extension, the rest of the continent—intend to reverse these trends and "future proof" their healthcare systems. The report was sponsored by Eucomed, the European medical technology industry association. The Economist Intelligence Unit bears sole responsibility for the content of this report. The findings and views expressed in this report do not necessarily reflect the views of the sponsor. The report was written by Paul Kielstra and edited by Aviva Freudmann and Stephanie Studer.

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About this research

This report draws on wide-ranging desk research as well as numerous in-depth interviews in the five countries under study. The Economist Intelligence Unit would like to thank the following individuals (listed alphabetically by organisation name within each country) who participated in the interview programme:

The Netherlands

- Wim van der Meeren, CEO, CZ Insurance
- Wouter Bos, partner, public sector and healthcare, KPMG
- Ben Crul, former editor, *Medisch Contact*
- Hugo Hurts, director of pharmaceutical affairs and medical technology, Ministry of Health, Welfare and Sport
- Koos van der Velden, professor and head of the department of public health, Radboud University Nijmegen Medical Centre

Germany

- Professor Dr Karl Max Einhäupl, chairman of the executive board, Charité, University Hospital Berlin
- Professor Dr Klaus-Dirk Henke, professor of financial and health economics, Technical University Berlin
- Professor Dr Norbert Klusen, CEO, Techniker Krankenkasse
- Professor Dr Hans-Christoph Diener, chairman, Department of Neurology, University of Duisburg-Essen
- Professor Jürgen Wasem, professor of medical management, University of Duisburg-Essen

United Kingdom

- Candace Imison, deputy director of policy, The King's Fund

- Professor Sir Bruce Keogh, medical director, National Health Service
- Dr James Morrow, general practitioner, National Health Service
- Professor Steve Field, chairman, NHS Future Forum
- Andrew Dillon, chief executive, National Institute for Health and Clinical Excellence (NICE)
- David Nuttall, economic adviser, Department of Health
- Alan Maynard, professor of health economics, University of York

Denmark

- Professor J. Michael Hasenkam, chairman, Danish Medical Society
- Professor Jes Søgaard, director, Danish Institute for Health Services Research
- Torben Mogensen, medical director, Hvidovre Hospital
- Else Smith, director, National Board of Health
- Professor Liselotte Højgaard, chairwoman, Standing Committee for the European Medical Research Councils
- Professor Kjeld Møller Pedersen, professor of health economics, University Southern Denmark

France

- Gérard de Pouvourville, director, Centre for Health Economics and Administration Research (ESSEC)
- Christian Saout, president, Collectif Interassociatif sur la Santé (CISS)
- Gérard Bapt, member of parliament, French Chamber of Deputies
- Dr Claude Leicher, president, MG France
- Nora Berra, secretary of state for health, Ministry of Labour, Employment and Health

Executive summary

European healthcare systems have helped to create some of the longest living populations in history, which enjoy enviable levels of general health. In recent decades, these systems have seen almost continuous reform efforts, but these efforts have not been able to alleviate the concerns of politicians, healthcare professionals and citizens that healthcare systems are not prepared for a variety of challenges looming in the near future. New thinking is needed to prevent the recycling of old arrangements. Based on in-depth interviews with 28 experts and practitioners in five West European countries— the Netherlands, Germany, the United Kingdom, Denmark and France—this study looks at the major issues facing health systems, as well as specific initiatives to improve them, in order to provide ideas for the type of changes that will be needed. Its findings are highlighted below.

Financial constraints threaten the status quo: Various factors are forcing payers to spend more: healthcare inflation has for many years almost invariably run ahead of headline inflation; new goods and services, including drugs and technology, are a boon to many patients but this expanded range of offerings need to be paid for; and increasingly demanding patients are not willing to settle for cut-price provision. At the same time, amid low economic growth and government budget cuts, healthcare systems that rely on state funding are unlikely to see significant cash infusions to meet growing cost pressure. Finding efficiencies will be central to the preservation of high-quality care.

Longevity *per se* does not raise health-cost issues: Despite warnings of healthcare budgets being swamped by a "silver tsunami", ageing populations account for only a small increase in health spending each year: one extensive study puts the cost at 0.5% annually. A failure to adjust retirement ages might lead to a revenue pinch, but this affects all aspects of government. The most significant healthcare impact of ageing will be the increasing number of people with multiple chronic conditions: 40% of Europeans over 50 have more than one such disease and a pioneering British study of the over-85s found that on average people of this age have five chronic diseases.

Lifestyle choices will lead to higher rates of chronic disease as well: According to the most recent data, more than one in five residents of the countries in this study are smokers, the populations are among the world's biggest consumers of alcohol, and a substantial proportion is overweight or obese

(61% in the UK). These behaviours, if left unchanged, will lead to high rates of chronic disease such as diabetes and cancer.

To meet the challenges of the future, healthcare systems must be efficient, effective, integrated and informed: Rising levels of chronic disease and multi-morbidity reveal existing weaknesses that healthcare systems will no longer have the money to paper over. First, as one interviewee put it, "it is blindingly obvious how the [healthcare] service is incredibly confusing [and] disjointed." The treatment of people with numerous, ongoing conditions will require a shift from systems built on acute care to systems in which different providers can offer co-ordinated, ongoing care. Second, medical professionals too often lack full information on the range of treatments that a patient is receiving, or even accurate data on what will work in a given situation. Patient records and outcomes measurement will need to inform health systems if they are to provide improved care and operate more efficiently.

Change comes in steps: Because of the difficulties of system-wide reform in healthcare, this study considers five developments that are individually interesting and, together, point towards the future:

- *Healthcare reform in the Netherlands:* The Dutch government has shifted the financing of healthcare towards a system that is based entirely on private insurance and regulated to insure universal coverage. The new system has brought some benefits for patients but has not yet led to a substantial change in how delivery is organised. Debate about the latter, however, is beginning as all stakeholders adjust to the new system.

- *Integrated care in Germany:* The German government's efforts to subsidise more integrated care has led to 6,000 integrated care contracts in the country. Four million patients have been treated under such arrangements. They have proven their worth by improving patient outcomes substantially even while cutting costs, but remain a small part of overall provision in Germany.

- *Outcomes measurement in the United Kingdom:* The publication of outcomes data by the Society of Cardiothoracic Surgery has helped surgeons to reduce dramatically the rate of heart surgery mortality in the UK, even though more high-risk operations have taken place. Now, for four types of operations, the National Health Service has begun the countrywide gathering of Patient Recorded Outcomes Measures (PROMs)—assessments by the patient of how a procedure affects the specific problem being treated, and of the patient's more general state of health. This is helping doctors to understand better the impact of their interventions, and is redefining health away from clinical measures towards feelings of well-being.

- *Electronic patient records in Denmark:* Denmark is one of the few countries that has been able to make electronic patient records work, through a judicious use of incentives, regulation, and a focus on the interoperability of various systems rather than the creation of a single one. The results have included lower cost, reduced paperwork and, especially through outcomes data and analysis, improved quality of care.

- *New regional health agencies in France:* France has just created new regional healthcare arrangements that will, if successful, create a highly co-ordinated health system. At the regional

level, the new regional health agencies will be responsible for almost everything related to health: environmental issues, prevention, monitoring of public health and warnings in case of emergency, monitoring of education, all aspects of medical care provision, and long-term care for the elderly and disabled. To ensure integration, the agencies need to create strategic plans that encompass all the areas under their purview. These local plans are now all in place. Time will show with what results.

Five healthcare initiatives that show what is possible

Size and complexity make the reform of healthcare systems famously difficult. As the case studies in this paper show, however, positive changes that prepare for the future are possible.

1. *Using the market to improve delivery:* The Dutch healthcare reforms that began in 2006 have had a positive, if limited, impact. Moreover, they are now slowly creating debate on more thoroughgoing changes to delivery.

2. *Integrating healthcare provision:* Germany's efforts to promote the use of integrated care have led to its greatly expanded use, and with it better patient outcomes at a lower cost.

3. *Measuring and analysing outcomes:* The publication of outcomes data on heart surgery in the UK has already helped to cut mortality rates by one-half. Now an initiative to gather Patient Recorded Outcomes Measures (PROMs) could change how doctors think about the success of procedures.

4. *Creating electronic patient records:* In contrast to failures elsewhere, Denmark has a functioning electronic patient records system covering almost the entire population, which is helping medical professionals to provide better, faster care.

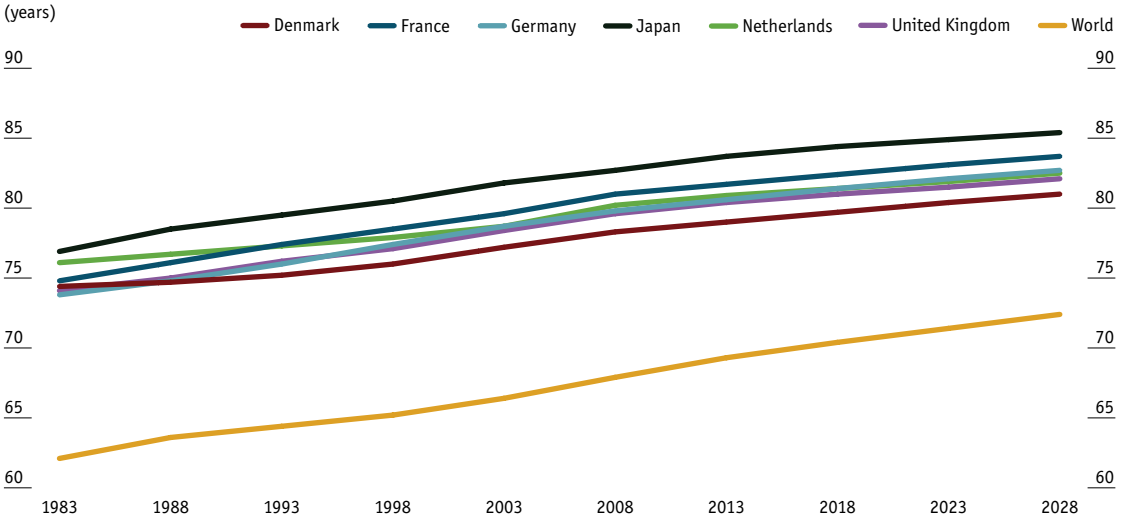
5. *Integrating healthcare with other health-related areas:* France's new regional health agencies are an attempt to create healthcare that is integrated with everything from prevention and environmental health to social care.

Introduction: A paradox

European health systems have achieved great success but are now generating even greater concern. Although healthcare provision in each of the countries featured in this study—the Netherlands, Germany, the United Kingdom, Denmark and France—has its imperfections, in global and historical terms the populations enjoy long and healthy lives. Four of them have life expectancies of around 80 years—among the top 20 in the world—and, although Denmark trails, at 78.6 years, it is not far behind. In all of these countries, expected life spans are also increasing. In terms of mortality and morbidity, these countries benefit, like most developed states, from the taming of infectious disease: only between 4.9% of deaths (in Germany) and 7.8% (in the UK) are a result of such illnesses, with a similar number a result of injuries. The vast majority of mortality arises from non-communicable, frequently chronic, diseases.

Most citizens of the five countries are also confident that they will receive the medical care they need: a Commonwealth Fund survey in late 2010 found that large majorities believed that, if seriously ill, they would get the most effective treatment in the United Kingdom (92%), the Netherlands (88%),

Life expectancy at birth
(years)



Source: UN.

France (85%) and Germany (82%). Denmark was not covered by the study, but in national surveys in 2009 and 2010 89% of patients were somewhat or very satisfied with their general practitioner (GP) and over 90% of those using hospital services called the experience good or very good. Professor Dr Hans-Christoph Diener, chairman of the Department of Neurology at the University of Duisburg-Essen, calls Germany's overall health system "still extremely good", a sentiment that a number of those interviewed for this study express about their own countries. Indeed, those who advocate change tend to describe it as a way to preserve the effectiveness of the existing system rather than simply replacing it.

The countries in this study reached this happy state with different healthcare structures, albeit all with heavy state involvement as a regulator and, often, as a funder. The National Health Service (NHS) in the UK is the archetype of the Beveridgean system, with tax funding and centralised provision. Germany is the source of the Bismarckian approach, where heavily regulated, often non-profit social insurance providers—usually funded through state-mandated employer and employee contributions—pay a range of private and public providers for services. France and the Netherlands have traditionally followed the latter approach, and Denmark the former, but each still has its own unique elements. The Netherlands, for example, is in the middle of a shift towards a greater role for private insurers.

All five healthcare systems, however, have one commonality that transcends the specifics of structure. Each of their governments has engaged in repeated, substantial reforms for more than a decade. "We have had the most healthcare reforms in the world," says Professor Dr Norbert Klusen, CEO of Techniker Krankenkasse, a German insurer, tongue-in-cheek. But the competition is stiff. In the UK, almost every year since the early 1990s the NHS has seen a major reform either proposed by the government or implemented, and the European Observatory on Health Systems and Policies' report on the Netherlands in 2010 was careful to indicate that a list of more than two dozen of the principal health reforms in the last two decades was "non-exhaustive". Nor do the frequent reforms all head in the same direction or exhibit permanence. Again looking at the UK, when the previous Labour government came to power in 2007, it abolished the internal market for healthcare, but its later reforms on the commissioning of care moved back to a market-based approach.

Politicians and administrators are not driven—solely—by a desire to tinker. Although patients are relatively confident about receiving treatment, many are concerned about the systems on which they rely. The Commonwealth Fund study cited above found that a majority in Germany (62%) and France (58%) believe that their overall healthcare systems need either fundamental change or to be completely rebuilt. The rates in the Netherlands (48%) and UK (37%) are lower, but still substantial.

Nor are all current reform efforts necessarily winning great praise. A 2009 Economist Intelligence Unit survey of medical professionals in the UK and Germany found that 33% of the former and 60% of the latter thought that healthcare in their countries had grown less efficient in recent years, compared with 20% and 10% respectively who thought it had improved. Alan Maynard, professor of health economics at the University of York, refers to the changes in many of these countries as "jumping on the spot", rather than pursuing evidence-based change. Similarly, Christian Saout, president of the Collectif Interassociatif sur la Santé (CISS), an alliance of French patient groups, says: "France has already tried everything: we have tried to reduce demand, we have tried to reduce supply, we have tried to lower reimbursement, we have tried to transfer a portion of healthcare expense into debt …

None of that really works. Nothing important has been done on a structural level."

The reason for this disconnect between the apparent success of healthcare and the need for thoroughgoing change is a widespread belief that, while able to meet the needs of the past, the future holds a group of inter-related challenges that are, in the words of Dr James Morrow, a British general practitioner, "running headlong into structures which are no longer fit for purpose". These problems are not unique to specific countries. As Gérard de Pouvourville, professor of health economics at ESSEC (Ecole Supérieure des Sciences Economiques et Sociales, a French business school), puts it: "Although all countries start with different histories, they are all meeting the same problems."

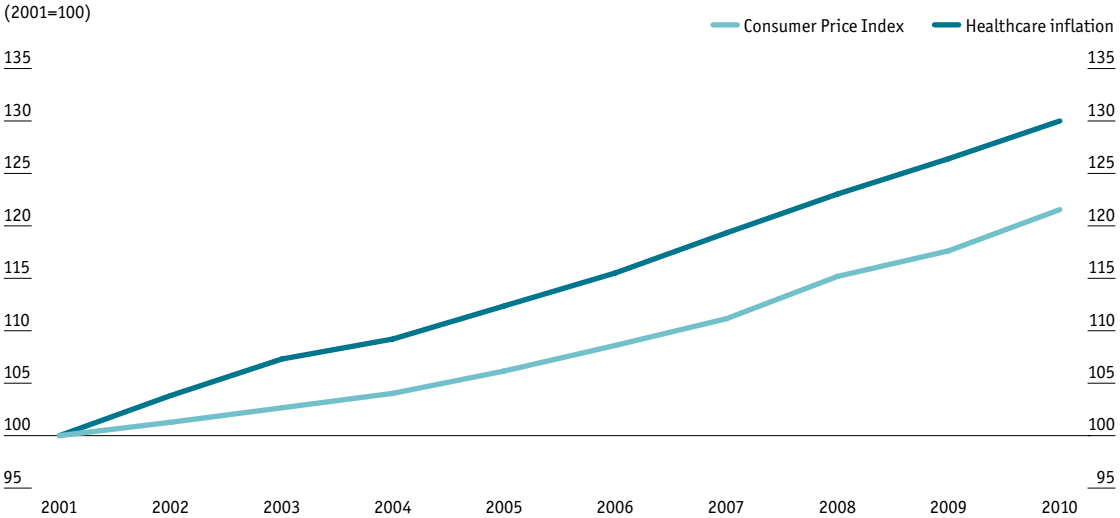
Challenges facing healthcare systems

Costs and financing

Some of the biggest difficulties facing health systems are financial. Despite sometimes strenuous efforts, notes Professor Klusen, "there is no country in the world that has healthcare costs under control". In fact, success in cost control tends to be measured in keeping growth in healthcare spending level with that of GDP rather than in line with inflation. Targeting the sources of this growth presents a problem: as Jürgen Wasem, professor of medical management at the University of Duisburg-Essen notes, despite a range of likely suspects, "there is no clear, empirical evidence from a statistical point of view of what the real drivers are".

Even simple inflation is not so simple. Setting aside any changes taking place within the health system, the cost of care has still long tended, in almost every developed country, to rise faster than the general cost of living. In the UK, for example, between 2001 and 2010, the consumer price index (CPI) rose by 21% cumulatively, while the medical portion of the index grew by 30%. In this case, the biggest increase by far was in hospital services, which rose by 72% over the period.

Healthcare inflation
(2001=100)



Source: Office of National Statistics.

Inflation indices, however, track a fixed basket of goods. Another driver of total healthcare spending is the expansion of products and services available. In this context, pharmaceuticals and technology, with their rising development costs, are often cited as causes of greater spending. But the picture is far from clear. Insofar as these represent new or better treatments, greater spending really involves an increase in the level of healthcare purchased rather than wasted cost. "Health expenditures are an investment in health. In all other branches of the economy, growing markets are good indicators," says Klaus-Dirk Henke, professor of public finance and health economics at Technical University Berlin. Moreover, as Gérard Bapt, a member of the French parliament and a cardiologist, points out, technology can both increase spending and generate savings. He cites how tools that permit diabetics to monitor blood glucose more easily may have an upfront cost but reduce expenses related to complications further down the road. The balance of costs and savings, he notes, can only be evaluated by long epidemiological studies.

Another important driver of greater spending is public attitudes. Else Smith, director of Denmark's National Board of Health, says that patients, "as modern humans, have much greater expectations of health and the healthcare system than they used to". They will come to meetings with doctors prepared with their own information and expectations about treatment. Professor Sir Bruce Keogh, medical director of the NHS agrees. "Patients will be expected to be treated more as customers, to be in charge of navigating their own healthcare services."

Engaged patients are positive for healthcare and their attitudes can drive improvements in health systems. A problem arises, however, when the disconnect between payer and patient allows demand to escalate and drives waste through over-medication and excessive use of tests—a frequently cited problem. In his experience of dealing with patients, Torben Mogensen, medical director of Hvidovre Hospital in Denmark, says "people are not aware of the oncoming [financial] problems [for the system] because everything is free". Similarly, Wouter Bos, a partner at KPMG responsible for healthcare and a former Dutch minister of finance, says of his and many other developed countries, "there is a general belief that there is an entitlement to health and life and that society has to pay for that. Not everybody seems to realise that beyond society there are payers." He recalls wryly that, as a politician, often the same constituents who complained about waiting lists and quality also wanted lower healthcare premiums. "The most difficult challenge we have," concludes Mr Bos, "is the need to start a discussion about the entitlement to a healthy life and to removing or postponing pain and illness at any price." Ultimately, he is pessimistic that such patient demand can be curbed any other way than with capping spending in some way.

The discussions Mr Bos mentions are necessary not only in the Netherlands. Andrew Dillion, chief executive of the UK's National Institute for Health and Clinical Excellence (NICE), believes that one of the major accomplishments in his organisation's dozen years has been "signalling to the public the reality of our system based on a fixed resource. There are some things we can't make available."

Increasing costs, however, are only one side of the financial problem. Finding money to pay even for the existing system has also become a pressing challenge. As the chart shows, in the last decade the countries in this study largely kept overall healthcare spending in line with GDP growth during the good economic years between 2003 and 2008. Denmark and the UK saw some increase in spending,

Total expenditure on health (% of GDP)

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Denmark	9.1	9.3	9.5	9.7	9.8	9.9	10.0	10.3	11.5
France	10.2	10.5	10.9	11.0	11.1	11.0	11.0	11.1	11.8
Germany	10.4	10.6	10.8	10.6	10.7	10.6	10.5	10.7	11.6
Netherlands	8.3	8.9	9.8	10.0	9.8	9.7	9.7	9.9	12.0
United Kingdom	7.2	7.6	7.8	8.0	8.2	8.5	8.4	8.8	9.8

Source: OECD.

but for the latter this arose from an active government policy to increase NHS funding.

In lean years, on the other hand, scaling back is difficult. The increase in the proportion of the economy dedicated to healthcare after the 2001 recession became permanent and the steep downturn of 2008-09 has brought the most substantial increase in a decade. Professor de Pouvourville warns: "If growth rates remain at the very low present levels, the ability to maintain a high level of coverage is seriously compromised. We can no longer afford to continue to finance deficits in both health insurance and public accounts by borrowing."

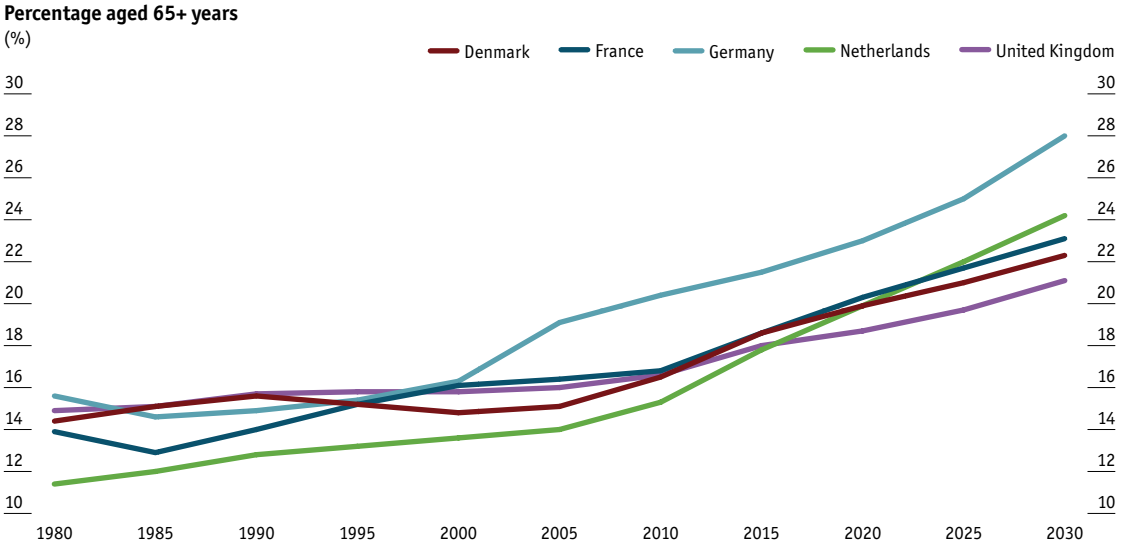
Economic growth projections, however, bring little prospect for relief. The Economist Intelligence Unit forecasts that, although avoiding a double-dip recession, for some time GDP will not increase at the rate seen in the middle of the last decade. Moreover, in all of these countries except the Netherlands, direct public expenditure represents a high proportion of healthcare spending. Some cash-strapped governments are looking to retrench. Although health spending fared better than most in the UK's major budget overhaul last year, it is increasing only at the rate of headline inflation—not that of healthcare inflation. Germany, meanwhile, has taken more aggressive steps to cut spending and increase health insurance premiums, and even in the Netherlands the government is allowing insurers to raise premiums and is reducing its own direct spending in the area.

Ultimately, the need to economise quickly means that, rather than arguing over a single cost culprit, healthcare systems need to look for efficiency. "Whatever the role of the different factors on the level and evolution of health spending, one of the major issues ... is the identification of economic mechanisms which contribute the most to effective care provision," explains Nora Berra, the French minister of health. Efficiency, however, cannot mean a lower standard of care. "We still do not have evidence on whether this will be easy to implement, but one of the things we have to work on is to reverse the usual causality between cost and quality," adds Professor Søgaard, director of the Danish Institute for Health Services Research.

Demography and disease load

Demographic change is often listed as an additional, dangerous financial challenge. The ageing of European populations, combined with data showing that the elderly consume substantially more healthcare on average than younger individuals, raises the spectre of a "silver tsunami" about to swamp healthcare budgets.

As Professor Maynard notes, however, "you have to nuance the demography". Japan provides useful reassurance. With the longest life expectancy in the world—and one that European countries are not



Source: UN.

expected to reach for over two decades—it spends only 8.5% of its GDP on healthcare, less than the OECD average. Nor would the broad outlines of its largely tax-financed healthcare system be out of place in Europe.

But what of the health-consuming elderly? It turns out that looking at age alone is a red herring. Rather than closely correlating with age, for a typical individual healthcare spending rises rapidly in the year or two before death—at whatever age—and this near-death outlay represents the biggest part of the individual's lifetime health costs. The elderly only appear to cost much more per head because so few people die young: in England, for example, only 17% fail to reach 65. A frequently cited 2007 study of healthcare spending across OECD countries between 1970 and 2002 found that, outside of the United States, on average ageing drove a rise in health spending of 0.5% per year, and other factors accounted for 3.2%.[1] In other words, the tsunami is really more of a calmly rising tide.

[1] Chapin White, "Health Care Spending Growth: How Different Is the United States From the Rest of the OECD?", Health Affairs, 26, no. 1 (2007): 154–161.

Another financial implication of ageing, however, is a bigger concern than cost. As Professor Wasem notes, "having a decreasing number of younger people has economic consequences in pay-as-you-go systems", namely a smaller proportion of the population in employment and providing the tax revenue on which healthcare funding depends. Efforts to raise the age at which pensions kick in, however, are not currently keeping up. Between 2012 and 2029, Germany's retirement age will rise from 65 to 67. Looking back over the same 17-year time span, however, between 1992 and 2009 German life expectancy rose by 4.3 years, a trend that is likely to continue. France's recent demographic history suggests that the intense political debate in France last year over raising the retirement age from 60 to 62 years will need to be repeated roughly once every eight years.

Dealing with the tax implications of ageing is a society-wide issue. Looking specifically at healthcare provision, rather than cost or funding, the major impact of expected demographic developments will be the changing disease load it brings. Age on its own is a leading risk factor for a wide range of chronic and degenerative conditions, including cardiovascular disease, arthritis, diabetes, osteoporosis and dementia. Ageing will inevitably increase the prevalence of these

conditions. It will also increase the prevalence of diseases that are now beginning to be better recognised as important health concerns. Clinical depression is common among the elderly, and in most countries suicide rates rise with age.

Although this growth in individual chronic diseases will require some adjustment, healthcare systems already face this issue. As noted earlier, such conditions currently make up the majority of the disease load in the countries in this study. The bigger issue will be a growing number of people that have more than one such disease. The Survey of Health Ageing and Retirement in Europe (SHARE) found that, in the European Union, 40% of people aged over 50 already have two or more chronic diseases. There is little information on very old populations, but an ongoing longitudinal study in Newcastle of the over-85s—the fastest-growing demographic group in Europe—found that, of over 1,000 participants, nobody was completely free of chronic disease and, on average, participants had five.

"The big problem about ageing", according to Kjeld Møller Pedersen, professor of health economics and policy at the University of Southern Denmark, "is that it is very difficult to do anything about it. So we have to adjust the healthcare system and find new ways of doing things." The growth of so-called multi-morbidity, which will accompany ageing, makes clearer than ever the need to address several ongoing challenges:

The organisation of integrated healthcare. Originally designed for acute, episodic care rather than ongoing treatment of chronic conditions, health systems are not good at providing the ongoing, co-ordinated care required by the latter. Speaking of the Netherlands, Professor Koos van der Velden, head of the department of public health at the Radboud University Nijmegen Medical Centre, says "healthcare is provided by a number of islands. We have strong institutions, good hospitals, and primary care is getting better organised, but they do not work in a coherent system." Professor Steve Field, head of the NHS Future Forum and an experienced general practitioner, goes further about the UK. "Throughout my career, people have talked about the need to join up services based on the needs of our patients. It is blindingly obvious that the service is at times incredibly confusing and disjointed, with errors happening at hand-offs between different parts of the service."

Co-ordination with social care provision: Integration needs to take place not only within the health service. Adequate long-term or social care will also be increasingly necessary. Countries typically have distinct systems for health and social care, with the latter rarely well-funded. This split ignores the reality that use of social care almost always results from some medical need. Of the 1,000 over-85s in the Newcastle study cited above, for example, although only 11% live in care homes, over one-half of these have dementia. According to the OECD, between 10% and 20% of West Europeans over 65 require some form of long-term care. Integrating this provision with health systems will become more important as the number over that age increases.

The gathering and analysis of comprehensive outcomes data: Another problem that ageing is making impossible to ignore is the surprising—for a science-based discipline—lack of evidence in medicine on what actually works. Ben Crul, until recently editor of *Medisch*

Contact, the Dutch doctor's magazine, says that there is "hardly any evidence on how to treat" chronic diseases held simultaneously. "Evidence is gathered on perfect patients: white men and women between 40 and 55." The problem actually goes far deeper: the measurement of any outcomes remains very much in its infancy. "The rhetoric is 'outcomes, outcomes, outcomes', but we have not taken it seriously. We continue to be focused on process," stresses Professor Maynard.

Integrated care and detailed outcomes data, then, were always lacking: their absence can no longer be ignored as they will be central to meeting the needs of an ageing population.

A greater focus on prevention: Longevity, whatever its complications, is a medical triumph. Another likely shaper of the future disease load is less welcome. Candace Imison, deputy director of policy at The King's Fund, a British healthcare think tank, cites as a major challenge "behaviours within the population that are driving health needs: obesity, alcohol abuse, smoking, lack of exercise". The number of overweight and obese people in the study countries is already high, and has become the majority in the UK. Meanwhile, World Health Organisation (WHO) data put France, the UK and Denmark among the 20 biggest consumers of alcohol in the world, with Germany not far behind in 23rd place; and over one in five people in each country smoke.

	Overweight or obese people (%)	Adult smokers (%)	Alcohol consumption per head (litres)
Denmark	45	20	13.4
France	37	26	13.7
Germany	50	22	12.8
Netherlands	46	28	10.1
United Kingdom	61	22	13.4

Sources: OECD; World Health Organisation (WHO).

Each behaviour brings its own attendant risks of chronic diseases and higher health costs. These also complicate the possible difficulties in dealing with an ageing population. "It will be much cheaper to have a healthy than an unhealthy ageing population. The healthy ageing live a bit longer, cost something in pensions, but do not spend so much time in hospital and then they just pass away. That is the ideal way to go and the cheapest," explains Professor Liselotte Højgaard, chairwoman of the Standing Committee for the European Medical Research Councils and head of the department of clinical physiology at Copenhagen University Hospital.

The key to achieving a healthy ageing population, she adds, is a focus on prevention, a view that receives strong, universal agreement. Dr Bapt believes "the financial challenges of healthcare are completely insurmountable if we continue to focus on cures". Similarly, Professor Field says, "We have to move away from the old paradigm of treatment to refocus on prevention." Prevention programmes, however, bring their own obstacles. Professor van der Velden says of the Netherlands: "We are not good at prevention. The Netherlands

is a permissive society: we tolerate quite a lot." Mr Saoult, meanwhile, says that France "is characterised by its curative culture, but our country does not have a culture of prevention in public health". Even if it did, the levers of prevention are often far removed from healthcare. Social scientists speak of obesogenic physical environments that impede exercise, for example, but these are the province of urban planners rather than health officials. In order to make prevention more effective, healthcare systems will need to be able to co-ordinate with those outside their area of expertise.

Difficulty with change

To meet the coming economic, demographic and epidemiologic challenges of the future, European healthcare systems need to change in order to become more efficient, more effective, better informed and more integrated, while maintaining the achievements of the current system.

In the best of situations, innovation within healthcare systems is very difficult. In this context, two particular issues are relevant. The first is the tension between efficiency and social solidarity. Economic markets frequently create efficiency and effectiveness, but rarely bring about equality. Healthcare provision, however, contains a strong ethical element that requires a degree of the latter—at least to the extent that people do not suffer ill health merely because they are poor. Several of those interviewed for this study express concern about developing or continuing social inequality in health outcome, such as Dr Leicher, president of France's Syndicat de Médecins Généralistes (MG), an organisation for GPs, who called it "the principal non-financial healthcare challenge in Europe".

The intensity of feeling that such ethical, and ideological, issues evoke can provide more heat than light. Professor Field speaks of how the "religion-like" status of the NHS among healthcare professionals and the attachment of individuals to local services can make it "very difficult for people to see other ways of doing things or to debate with people why they need to do things differently". Dr Morrow recalls occasions where suggested creation of centres of excellence ran up against opposition within the NHS precisely because they, by definition, contradicted the principle of equality of service.

A balanced system, however, while needing to protect those worse off, must still allow the sometimes painful choices necessary to promote efficient resource use. As Edith Schippers, the Dutch minister of health, puts it: "There are many challenges, but it is always a choice." On funding, payers are looking for the low costs that a market-based system can bring but societies wish to maintain universal access. "You have to avoid being too public or too private," she adds.

Another difficulty is that healthcare systems are huge, byzantine arrangements with a large number of vested interests. The NHS is among the top 10 biggest employers in the world, counting 1.4 million employees, 500 operating entities and over 50 million users. Complexity is an even greater problem than size in moving this behemoth: it is often compared not to a whale but to a shoal of fish that looks like a whale. All countries in the study share these problems to a lesser or greater degree. As a result of these complex structures, notes Professor Karl Einhäupl, CEO of Charité University Hospital in Berlin, one of Europe's largest university hospitals, the impact of individual changes is hard to assess and does not lead to relevant innovation across the system. "Unfortunately, many reforms are stuck in these structures," he adds.

Frustration often leads to finger pointing, be it at feckless politicians unwilling to lead; self-concerned medical professionals unwilling to accept threats to their status; bureaucratic administrators unable to see the need for change; or demanding patients unwilling to see the bigger picture. Whatever the truth of these particular caricatures in given situations, it is clear that shifting health services in the necessary direction is not something that can be done by fiat.

Rather than give impractical counsels of perfection for unrealistic reform programmes, this study will look at five changes that are already under way. Each shows what can be done in a real situation and raises issues that every healthcare system should consider in shaping its own future.

Some roads ahead: Innovative approaches in five West European countries

The Netherlands: Market-based reform

Since healthcare reforms came into effect in the Netherlands in 2006, the country has, in the words of Hugo Hurts, director of pharmaceutical affairs and medical technology, and a former director of health insurance, at the Ministry of Health, Welfare and Sport, been involved in what "you could see as an experiment in how far you can get with a system in which there is almost no direct government involvement" and government exercises its responsibility indirectly. It is certainly the most thoroughgoing use of market mechanisms to promote efficiency in European healthcare.

Every Dutch citizen must buy healthcare and pharmaceutical insurance from one of several private providers. The extent of coverage under these policies is government-mandated and identical, including a deductible portion (currently €165). Insurers must also charge the same premium to all, including those with pre-existing conditions. The only exception is that group discounts are permitted. A special payroll tax also funds the government's health regulator, which provides insurers with payments to help defray expenses related to high-cost policy holders. In theory, healthcare involves three overlapping markets: between individuals and insurers for the purchase of insurance; between individuals and providers for the supply of healthcare services; and between insurers and providers for the pricing of those services.

The changes did bring some immediate improvements. "The first thing you could see was that the position of the patient improved," notes Wim van der Meeren, CEO of CZ Insurance. An academic study found that the customer experience of insurance improved moderately between 2006 and 2009.[2] Health provision also improved to a degree. The EuroHealth Consumer Index of 2009, issued by Health Consumer Powerhouse, an independent Swedish think tank, put the Netherlands in first place out of 33 countries, up from second in 2007. Moreover, the improvement in its score since that year (8.7%) was above average. To date, however, the change has been limited. According to Professor van der Velden, for example, it has led to the creation of many more business-oriented units, even within hospitals. "But their focus has been very narrow. They do a lot of eye or knee operations, which have helped to reduce waiting lists, but the focus is not on the necessary integrated care, let alone prevention."

The hope, however, had been that insurers would demand higher quality from providers, which would lead to process reform among the latter in order to improve both efficiency and outcomes. Until

[2] Michelle Hendriks, Peter Spreeuwenberg, Jany Rademakers, and Diana MJ Delnoij, "Dutch healthcare reform: did it result in performance improvement of health plans? A comparison of consumer experiences over time", *BMC Health Services Research*, 2009, 9:167.

now, however, insurance companies are generally seen as not having grasped this nettle. "So far, insurance companies in competition have been very afraid to say 'no' to a patient or a doctor. It has been difficult to say you are not allowed to go to that hospital, whether it is good or not," comments Mr Crul. From within the industry, Mr van der Meeren's assessment is not that different. He says that when he became CEO of CZ Insurance two years ago, "I wondered what the contribution of my company to Dutch healthcare had been. The coming of the market did not change the landscape of hospitals." To push things along, the government is planning, from 2012, to publish indicators covering roughly 70% of hospital procedures.

If insurers have been slow to initiate change, the reasons are understandable. Such shifts will require coming to terms with the demands of the market that might provoke a reaction. "The only way to get costs down in healthcare is that somebody has to be able to stand up and say 'you won't get that treatment'," says Mr Bos. Mr van der Meeren's experience is instructive. He notes that the Netherlands has 100 hospitals, but that the country is so small that even if this were reduced to 20 all residents would still be within a half hour's drive of one. His company has recently announced that it would restrict its reimbursement for weight-loss surgery to operations performed at certain hospitals—in particular refusing to pay for treatments carried out at centres that did too few such operations to develop sufficient expertise. Some time later, CZ announced the same restrictions for breast cancer and bladder operations. The hope is to encourage the creation of centres of excellence which develop expertise and cost efficiency.

Mr van der Meeren recalls that these restrictions "caused enormous debate and aggression", with many insisting that such action was not the role of an insurance company. He contended, however, that getting the best care for his clients was his responsibility—and accusations of profit-seeking fell flat as CZ is not-for-profit. He hopes, however, that increased acceptance of these actions more recently will lead to the kind of shifts in hospital provision that are necessary to improve efficiency.

This may seem like scant progress, but in considering the impact of the reforms, says Mr Bos, who was finance minister when they were enacted, it is important to remember that "it is still very early days. The system only changed five years ago, which is a very short period of time for health systems." Indeed, one of the lessons of the Dutch reform is that the introduction of market mechanisms is only one important part of bringing about broader cultural changes necessary for a shift towards a more efficient system. The 19-year gap between the first serious proposal of changes resembling the 2006 package and their passage into law—during which various stakeholders came to terms with the idea—shows how glacial such progress can be. Mr Hurts comments: "We're now in the midst of the adaptation process to these new sets of regulations, and this adaptation is about behaviour. [Insurers, health professionals, consumers, patients] all have to adapt to the new regulatory system and it would be nonsense to expect these adaptations will be finished in a few years. This will again take some time."

The market can bring about more efficient, cost-effective care pathways with higher quality, but the road is inevitably long. At least as important as a change in mechanisms and economic incentives will be a change in attitudes. That these are beginning suggests that the Dutch reforms may be able to lead in the right direction.

Germany: Integrated care

According to OECD figures, the average German consults a doctor more often than any other nationality in Western Europe: 8.2 times a year. This partly reflects culture. Professor Klusen explains: "We have been told for decades 'have a doctor, check it out', so people are very demanding in Germany in asking for medical visits." Another factor, however, is that, unlike in the UK, Denmark and the Netherlands, general practitioners typically do not act as gatekeepers to the system. This allows easier access to specialists, but it makes integration between different healthcare providers difficult, a problem exacerbated by the very poor communication in Germany between them. The lack of gatekeeper also tends to lead to what Professor Diener refers to as "doctor hopping", especially for those with complex conditions unable to obtain the co-ordinated input from a range of specialists that they may need.

One answer to this problem in Germany has been the growth of integrated care contracts. Among the best examples is the West German Headache Centre, set up by Professor Diener. It was originally established with KKH Insurance but now most insurers cover its services. Migraines are a particularly complicated condition because they arise from a multitude of causes and therefore may need any one of a range of very different therapies. Even when the patient chooses to consult a primary care physician rather than select a specialist at random, general practitioners are often unsure about which treatment to offer. In practice, they tend to fall back on pharmacological treatments. For patients looking to select specialists on their own, the choices are even more daunting.

To overcome these difficulties, the West German Headache Centre takes an integrated, patient-centred approach rather than a treatment-centred one. On the day of arrival, patients see a neurologist, a psychologist and a physiotherapist, who make a joint diagnosis. Depending on the severity of the condition and its particular aspects, patients are either referred to one of the clinic's network of specialist neurologists; or admitted to a more extensive programme within the centre of small group education on migraines and relaxation techniques, group counselling, exercise and physical therapy; or admitted to hospital. The results have been impressive: a survey conducted soon after the project began found that before attending the clinic 58% of patients missed six days of work or more per month because of headaches, but after the programme the rate declined to 11%. Patient numbers have climbed steadily. Professor Diener reports that in the first year the clinic treated 500 people, but now sees 5,500 annually.

Almost as impressive as the improved outcomes has been the greater economic efficiency. Professor Diener explains that, as part of the arrangement with KKH, the insurer agreed not to restrict the treatment of any patient based on cost, thereby foregoing the normal practice in Germany. Even without such a cap, however, care in the last year at the centre was 30% less expensive per patient than the national average for migraine sufferers. The savings come from the elimination of the many unnecessary tests that less experienced doctors often perform. More importantly, without integrated care, says Professor Diener, "migraine patients typically see about five different doctors. With integrated care that stops, as do visits to emergency rooms. Effective therapy can be expensive in terms of drug costs, but that is nothing compared to emergency room visits."

An integrated model is much more widely applicable. The German government began encouraging such arrangements as early as 2000, but in 2004 tried to jump start their development by holding

back 1% of all payments to hospitals and physicians and using them to subsidise new integrated care contracts. In the end, this led to an investment of nearly €800m. Between 2005 and mid-2007, the number of integrated care arrangements in Germany grew from about 500 to over 4,000 and by the end of 2008 had reached around 6,000, with about 4 million patients being treated in some way. Although complex arrangements exist, like those of the Headache Centre, most plans focus on relatively simple procedures like hip and knee surgery, an important area for improvement as Germany already has one of the oldest populations in Europe.

Techniker Krankenkasse, one of Germany's "sickness funds" that provide health coverage, has been very successful in implementing such contracts. In 2010 it had over 300 contracts in areas ranging from back pain to mental illness. These are not necessarily complex—in 90% of cases they link up just two healthcare providers—but the results have been very positive. On the financial side, Professor Klusen notes that 85% have had a positive cost-benefit ratio. This usually occurs by providing the patient with more effective care. In Germany, health funds need to pay sick leave costs after six weeks. Techniker Krankenkasse found that patients treated with integrated care return to work on average 72 days earlier than those treated with conventional care.

Professor Klusen believes, however, that the bigger advantage of such contracts is the opportunity they give to innovate in order to improve treatment quality and customer service. For example, they allow the company to experiment with pay for performance models or to track outcomes for treatment in areas such as back pain. The difficulty in improving quality levels in the broader healthcare system has even led the company to use such contracts specifically as a vehicle to experiment with possible new approaches.

Professor Klusen adds that integrated care is still far from mainstream. Of the company's 8 million insured, only 320,000 have taken advantage of such arrangements. Professor Wasem agrees. Although "on a qualitative level it is significant because it is really something new, on a quantitative level it still represents less than 1% of all fees going to hospitals and doctors."

The case for further growth, however, is strong. Professor Diener explains that, in his experience, "payers, including insurers, want happy patients and cost-effective care. If you can convince a company that it can achieve both through integrated care, adopting it is a no-brainer."

United Kingdom: Using outcomes data

Professor Maynard likes to cite the Lunacy Act of 1845 as a pioneering British example of requiring outcomes measures. Under it, asylums annually had to report if patients were dead, non-relieved, relieved or recovered. Since 1845, he says, the problem has been how little has happened in the ensuing century and a half.

The current paucity of useful outcomes data is widely recognised. Dr Morrow notes that on a day-to-day level in his doctor's surgery, "we are lacking sufficiently sensitive data on outcomes to change how we function or make purchasing decisions. Many of the measures are too crude, so we tend to use surrogate markers instead." He and many other interviewees would like such data, both in order to improve results and to gain efficiency. As Ms Imison of The King's Fund puts it: "We need to be very clear about what the impact of the resources we invest in is."

The UK is not alone in its lack of outcomes data, but has seen a trend towards their greater collection and use. One important step was the creation of NICE in 1999 to provide data-based guidance on the cost-effective use of health technologies (including new medicines, one of its most visible roles) as well as cost-effective clinical and public health practice. Its chief executive, Andrew Dillon, believes that the organisation has "certainly raised the profile and extended the impact of the use of evidence to inform policy and practice across the health system". Pharmaceutical data are relatively easy to obtain because of the interest of companies and health systems in understanding how drugs are used, but when measuring the impact of NICE's guidance on clinical practice, the organisation runs into many of the same data problems that others experience. "The NHS doesn't have the capacity in any systematic way to make an assessment of their impact," says Mr Dillon.

Islands of information, however, have been appearing in the sea of uncertainty. In the 1990s, the insurer BUPA was the first in the UK to track outcomes for its hospital activities. Within the NHS, an oft-cited example of good practice is among cardiac surgeons. Surgeons in this field have long collected data on their operations, but in 2001 the Society for Cardiothoracic Surgery decided to publish the results. One obvious issue was that not all heart operations are the same, and even identical procedures can carry different risks depending on the patient. Surgeons now therefore collect about 150 pieces of information before each heart operation, which allows, among other things, a more nuanced understanding of the risks involved.

The impact of publishing this data has been striking. Within five years, mortality rates fell by one-half. Moreover, the rates have become more similar around the country, with poorly performing areas coming up to the national average. Contrary to fears that putting out such data might lead surgeons to avoid difficult cases, operations on higher-risk groups, such as the elderly and those with chronic diseases, have substantially increased. Professor Sir Bruce Keogh, president of the society at the time it began publishing outcomes, draws several lessons. One is that the data allow better assessment in the field of innovations introduced after what are inevitably restricted pilot studies. However, he says, "the major benefit is a philosophy and mind-set change. If you ask people to collect data on their outcomes, they look very carefully at their own performance among themselves." It quickly becomes apparent who might be slow in adopting better procedures and the data both prods them to take actions and helps peers to exert pressure on them to improve.

Now, however, the NHS, where Sir Bruce is the medical director, is engaged in something even more ambitious: the adoption of Patient Reported Outcome Measures (PROMs). Rather than focusing on the technical success of a medical intervention, these seek to evaluate its impact on the patient's self-reported health. Patients are asked to fill in a three-part questionnaire before an operation and again three or six months afterwards. One section is directly related to the procedure, but another asks about the patient's general state of well-being and specific aspects of overall health, such as mobility, pain and mental attitude.

PROMs have been used on a small scale in various settings in the past but "we are the first healthcare system to try to do this on an industrial scale," says Sir Bruce. The effort has initially covered four specific treatments (hip replacements, knee replacements, varicose vein operations, and groin hernia operations), which, although selected for their high volumes in the UK, are of particular relevance to

an ageing population. Since 2009 all NHS-funded providers of these procedures have been required to collect PROMs data. The response has been huge. The first year saw the submission of over 150,000 pre-operative questionnaires and roughly the same number of post-operative ones.

PROMs very neatly complement traditional measures. They can be much easier to collect than a complex range of health data, but do allow for complicated adjustments to be made based on relative risk factors of a patient. They can also account for expectations or optimism, since this is usually consistent for both questionnaires. Moreover, PROMs provide some way to compare the relative benefits of two distinct procedures, such as a hip and a knee replacement, and therefore assess which provides more value for money. Most important, however, they change the definition of what health is from a state measured by clinicians to what is being experienced by patients. "What we are keen to do," says Sir Bruce, "is shift the mindset of the NHS towards a more customer-based service which is more responsive to the patient's needs. One way is to measure and publish PROMs."

Although asking patients how they feel may seem unlikely to lead to concrete data, the possible implications for clinical practice are immense. Sir Bruce cautions that it is still early, but he expects PROMs to raise "interesting questions". He notes, for example, that it is possible for some procedures that those operated on early tend to report little overall improvement, while those operated on later tend to report a high one. Thereafter comes a stage when it is apparently too late, when there is again little reported improvement. The data could help to define the most beneficial time to carry out the procedure. Similarly, over 80% of those receiving varicose vein operations recorded improvements relative to the given condition, but only 40% saw an improvement in their overall feeling of general health, raising issues about the circumstances in which such a procedure is most valuable.

Rather than providing the definitive answer to clinical best practice, raising such questions is the purpose of PROMs. "We want to see this information being debated in different parts of the organisation and people trying to understand, where there are variations in outcomes, what is driving them," says David Nuttall, an economic adviser in the Department of Health who has helped to oversee their rollout. Sir Bruce adds that he would like the data to provoke discussion on what their utility might be. This attitude reflects an understanding of the need to examine such data carefully as well as an appreciation of the best way to move the NHS, or any health service. "Anybody who understands the nature of healthcare systems knows that it is extremely difficult to achieve a rapid and consistent response to recommendations for change in practice to improve the quality and effectiveness of care," says Mr Dillon of NICE's clinical guidance.

Such conversations have already improved heart surgery in England—it is now among the best in Europe. After gaining further experience with PROMs, the intention is to expand their use, preferably with a simplified questionnaire that makes data even easier, and less expensive, to collect. Professor Maynard observes that, after over a century and a half, "we are groping our way toward the Lunacy Act".

Denmark: Electronic patient records

Electronic patient records hold out the promise of numerous benefits. At a very basic level, they can reduce paperwork, freeing doctors and nurses to spend more time with patients. They also allow

different healthcare professionals to get a rapid view of the patient's entire medical history, and see how existing treatments might interact with ones they are considering. This has obvious implications for health systems where different specialists seek to care for increasing numbers of patients with multiple chronic diseases in a coherent way. Finally, these records can enable other technological developments—such as outcomes data gathering—to improve care further. In short, they are essential for an efficient, integrated healthcare system.

Efforts to create such records at the national level, however, more often lead to failure than to success. In the UK, after spending £2.7bn over nine years, the government looks set to abandon its attempt to create a system of national health records; in France, the government abandoned its first endeavour to develop Dossiers Médicaux Personnels. Although trying again, France is very much at the pilot stage, with only 16,000 records created; in 2010 Germany shelved an electronic card-based system—adopted because of security concerns over other storage options—which was three years behind schedule and had cost €1.7bn already; and in 2010 the Dutch also effectively gave up on their then plan for national health records, although regional ones do exist.

Denmark is a notable exception. The country is known as a global leader in health records. This relies on two things, according to Professor J. Michael Hasenkam, chairman of the Danish Medical Society, an umbrella organisation for all 170 medical-scientific societies in the country. One is its very strong records, held in a range of databases of different scopes, and the other is "the fact that every single individual can be traced by a centralised electronic ID and a national recording system which registers every contact with the healthcare system, down to every prescription". It is the latter, rather than an overarching, top-down piece of software, that lets the Danish system work.

Danish primary care physicians act as healthcare gatekeepers and co-ordinators for their patients. All of them use one of a number of interoperable electronic medical record (EMR) systems and 98% have ones with advanced functions. The latter not only allow doctors to make their own notes, but also act as a central repository for information relayed from outside the physician's office. Such data come through a secure, electronic clinical messaging system that links primary care physicians, specialists, pharmacies, laboratories and hospitals, and carries the vast majority of clinical communication in Denmark. Information from these messages, received in standardised formats, is automatically entered into the EMR.

Other databases co-exist with the primary care databases. In particular, there are regional databases for patient hospital records and a national one for medication. This information is available to both primary care physicians through their EMR software and to hospital-based ones, although the latter do not have access to the data in the primary care EMRs. Patients can see select data from both EMRs and hospital records through the national health portal (sundhed.dk), and more recently through Denmark's citizen's portal (borger.dk). On these sites they can also contact, or even change, doctors.

For primary care physicians, use of EMRs has greatly increased efficiency, saving them on average 50 minutes per day through reduced paperwork and faster communication. In work terms, this allows them to see 10% more patients. The system also allows better care in several ways, such as generating automated preventative health reminders and warning prescribers about potential harmful

interactions with existing prescriptions. More rapid receipt of important data (the average time for receipt of hospital discharge summaries has dropped from four weeks to less than two days) is another important advantage.

Beyond such obvious applications, the power of the data in these systems is also being harnessed to improve clinical outcomes for certain chronic diseases. In 2008 roughly 10% of GPs had data capture modules integrated into their EMR systems, and the number has since grown. With these, certain events—such as specific prescriptions or the ordering of certain tests—trigger the gathering and transmission of treatment and outcomes details on the patient to the central Danish General Practice Database. Currently, the diseases covered include diabetes, atrial fibrilation and chronic obstructive pulmonary disease.

This data's major use is for quality assurance. Every medical practice can see, both at the individual level and aggregated across the practice, how its own patients fare compared with regional and national norms. This allows easy identification of those with suboptimal treatment, indicates areas needing improvement in those patients' care, and can alert a practice to its own weak points. For diabetes, for example, doctors can compare the outcomes of glycosylated haemoglobin, cholesterol, and blood pressure, control of which closely correlate with lower rates of long-term complications. The database is also starting to be used for research purposes to examine best practice.

Speaking of the overall impact of EMRs, Professor Højgaard of Copenhagen University Hospital says that they have "transformed the patient work of GPs to a very high quality. They make things easier for both patient and doctor, but are also a major step forward in terms of quality assurance."

One obvious question is why Denmark has succeeded where so many other countries have failed. One of the reasons is size: Denmark's population is only 5.5 million, making it easier to implement the technology. Another factor is the rapid clinical acceptance of EMRs, something that did not occur in a number of other countries. Although EMRs were made mandatory in 2004, they were developed in close consultation with physicians to ensure their utility, rather than imposed from above. The government also provided financial incentives—cost is another frequent barrier to acceptance—as well as paying for technical support, including sending data-consulting teams to medical practices.

Perhaps the most important reason that Denmark has nationwide EMRs is that it does not actually have a single national medical data system. There are multiple providers of software from which to choose and, as noted above, several medical databases of importance. The key has been creating systems that work together. From early on in the process, Medcom, a government-financed co-operative venture, has acted as a data integrator ensuring interoperability. As software providers continue to develop new features, it creates standards for them. Thus the market has provided solutions to many of the technical problems that have arisen but has not fragmented the ability of medical professionals to communicate.

This strength of the Danish system is also, however, its weakness. Accessing patient data across a number of systems is still sometimes a challenge. "We must make sure that when the patient goes from the GP to the hospital, to the municipality, to the private specialist, to wherever, the information flow is with the patient," explains Dr Smith of the National Board of Health. The current national strategy for digitisation of healthcare services 2008-12 is attempting to do just that by strengthening national

standards and leading to the convergence of local systems, so that all the information on every database can be accessed in one place by medical professionals wherever a patient appears for care. That is the ultimate goal of all electronic patient records, but the Danish seem likely to get there first.

France: New regional health agencies

Until recently, the poorly co-ordinated state of French healthcare provision was reflected in, and exacerbated by, a variety of regional bodies with conflicting, health-related powers and responsibilities at the local level. One problem that these organisations had not been able to resolve was the excessive, and expensive, use of hospitals as universal care providers—France has the highest rate of hospital discharges in the OECD—when other types of care would be more appropriate. Dr Claude Leicher cites government research showing that 15 million people used hospital emergency services when many could have gone to a GP, where the cost per patient would have been one-quarter of that in hospital. "Often our hospitals, beginning with their emergency services, are crowded with patients who need a long-term care establishment," reports Dr Bapt.

A 2009 reform, the *loi hôpital, patients, santé et territoires* (HPST), is an attempt to address a host of health issues. One of its major actions was to create regional health authorities (Agences Régionales de Santé, or ARS). Although a poll carried out soon after they were launched, in April 2010, found that 76% of the French public had never heard of them, they represent, in the words of Ms Berra, "a fundamental reform". If successful, they will turn a disjointed, if in many ways successful, system into a highly integrated, coherent system.

The 26 ARSs subsumed the various existing regional health bodies into single entities and are charged with putting in place co-ordinated programmes to implement national health policy. One of their many tasks is to begin better integration of care within the formal healthcare system, by rationalisation of the provision of primary, ambulatory and hospital care and co-ordinating pathways between them. This is no small step. The HPST changed the public health code to mention the term "primary care" for the first time ever and to give it a role in helping to co-ordinate patient pathways.

Better organisation of formal care, however, is only the beginning. Equally important will be integration between traditional healthcare and other areas. The ARSs now have responsibility over an enormous range of fields with a direct or indirect impact on health. The main categories are prevention and public health, monitoring and safety, provision of care, medico-social—or long-term—care and control of healthcare costs. A detailed look shows how expansively defined this list is in practice. Specific ARS responsibilities outside of medical care provision include:

- *The environment:* Duties here range from oversight of water and air quality to the prevention of noise pollution.

- *Public health:* In some cases, such as employment safety, the ARSs act in co-operation with other relevant agencies, but they have direct responsibility for enforcement of hygiene regulations, ongoing monitoring of local health conditions, raising alarms about emergencies, and co-operating with the authorities in addressing them.

- *Local health risk management and health insurance co-ordination:* The ARSs absorbed the regional

bodies that were previously responsible for this task.

- *Evaluating and promoting the quality of professional training*.
- *Prevention programmes:* These include both primary prevention and education programmes for those with chronic and other medical conditions.
- *Medical-social, or long-term care:* The ARSs have an oversight role of certain care homes, in particular those that offer a range of medical services.

Such widely diverse areas might end up being treated within organisational silos, but the ARSs are required to deal with them holistically. Each must create a comprehensive strategic regional health plan which includes specific sections on prevention, the organisation of medical care and the organisation of healthcare. In practice, this joint planning should promote a co-ordinated approach not just to healthcare but also to policy in related areas. The expectation, says the health minister, is that by gaining in coherence the system will gain in effectiveness.

Long-term care, for example, has seen significant political debate in France and attempts at reform over the last decade, especially since the death of nearly 15,000 elderly in the hot summer of 2003 sparked national soul-searching. Oversight of medico-social care was given to the ARSs precisely to prevent the sorts of scandalous ill-treatment at homes for the elderly, which have since, from time to time, continued to reach the press. Integration with the healthcare system is an important part of making sure that these homes can provide what the elderly need. "Today, every policy, decision or action carried out by the ARSs that concerns health cannot be carried out without taking into account the medical-social dimension," stresses Ms Berra.

The system is well in place. A year after their creation, every ARS is up and running with a strategic plan in place. For such a major reform, however, every commentator agrees that it is still too early to assess success or failure. Not all will be clear sailing. In France, power has a tendency to flow back to the centre even when regional structures are put in place. Nor is everyone in the health system happy: in a recent poll, 48% of GPs said that the creation of ARSs was a bad or very bad thing, compared with only 26% who thought it was good or very good. Nevertheless, the sheer scope of integration envisaged makes this experiment in governance very important for the rest of Europe to watch closely.

Conclusion: Where do the roads converge?

These cases, rather than being unique, are activities at the forefront of trends. All of the elements described above as efforts to reform healthcare—integrating treatment, gathering and publishing outcomes data, creating electronic patient records systems, and addressing the private, insurance and public elements of funding and provision—have been subjects of experiments and reforms in some of the countries featured in this study and in the developed world more widely. Each has the potential to improve both quality and efficiency but, ultimately, each is only a partial solution.

Indeed, on the surface, the collection of remedies described in this study may seem as disjointed as the health services they are seeking to fix. A closer look, however, reveals that they are mutually re-enforcing. Dutch healthcare reform, for example, has reached a stage where its efforts to promote quality call for gathering precise outcomes data. The integration of care pathways beyond specific programmes and arrangements also requires the rapid transferability of data given by electronic patient records. Preparation of outcomes data to cover the entire health service will require an inexpensive means of gathering information, such as electronic patient records. Such records, however, rely for their effectiveness on a willingness of providers to see the benefits of acting within an integrated system. In short, these are all different elements not just of healthcare provision but also of a health eco-system, including the whole range of attitudes, activities and organisations which surround and have an impact on healthcare as whole, which is struggling to emerge.

All these changes point towards a system where stakeholders have a better understanding of the competing requirements of any health system; where constant learning and updating of practice within a flexible, integrated whole allows for the most effective, and efficient, use of resources; where the patient is central both to the definition of health and the organisation of its provision; and where health outcomes are seen in their wider context, including lifestyle choices and care provision outside of the core healthcare system. In such a system, other oft-discussed reforms too numerous for this study to detail (such as the reorganisation of tasks within healthcare to those best able to do them efficiently, the greater engagement of patients in their own care, and the use of remote medicine and IT) can be deployed to the greatest effect. An informed, integrated, efficient and effective system will be better able to meet the specific needs of Europe's future—financial and demographic—because it will be able to sense and adjust better to all challenges in an ever-changing environment. In that

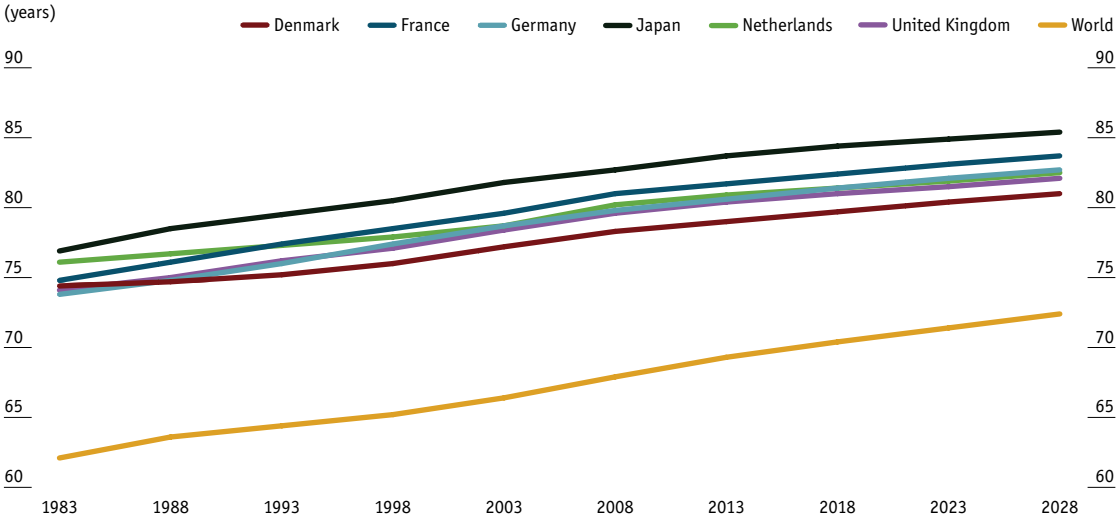
sense, it will be future-proof.

Surrounding such a system there will continue to be debates over efficiency and equity. Moreover, there may well be times when decisions have to be made about limiting resource use. Such discussions, however, will be better informed, and will be less painful owing to the greater level of resources freed up by the elimination of waste.

Such an outcome is by no means guaranteed, and the shift towards such a system, if it occurs, will be halting and uneven at best, given the nature of healthcare and the emotions that surround it. Grand, visionary designs are unlikely to make much progress in a world where consensus between so many stakeholders is a *sine qua non* of reform, and where so many moving parts need to mesh for success. Ms Imison says of outcomes measures that they should "be used as a tin opener to start conversations, rather than a dial [to determine best practice]". Rather than a blueprint, this study offers itself as such a can-opener.

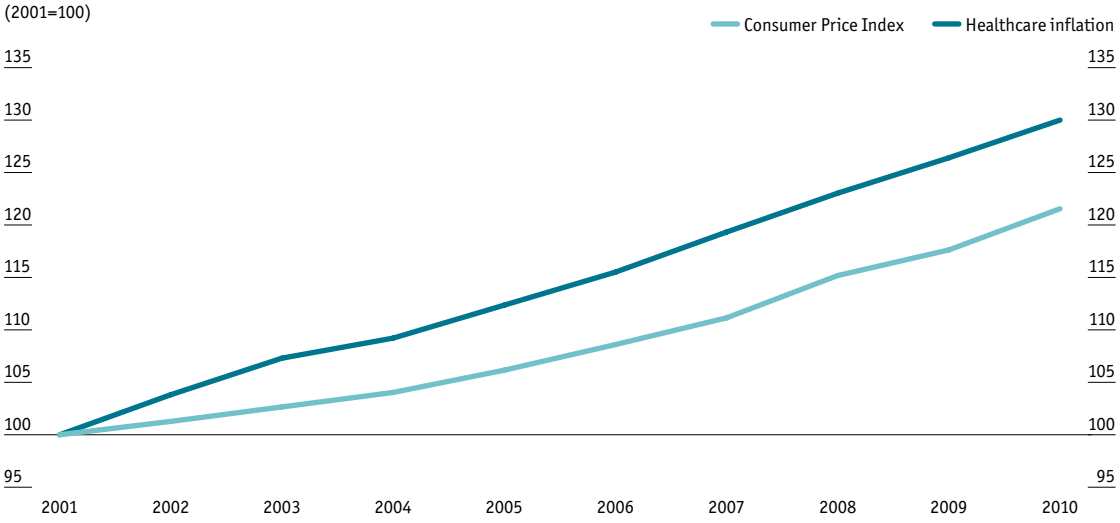
Appendix

Life expectancy at birth
(years)



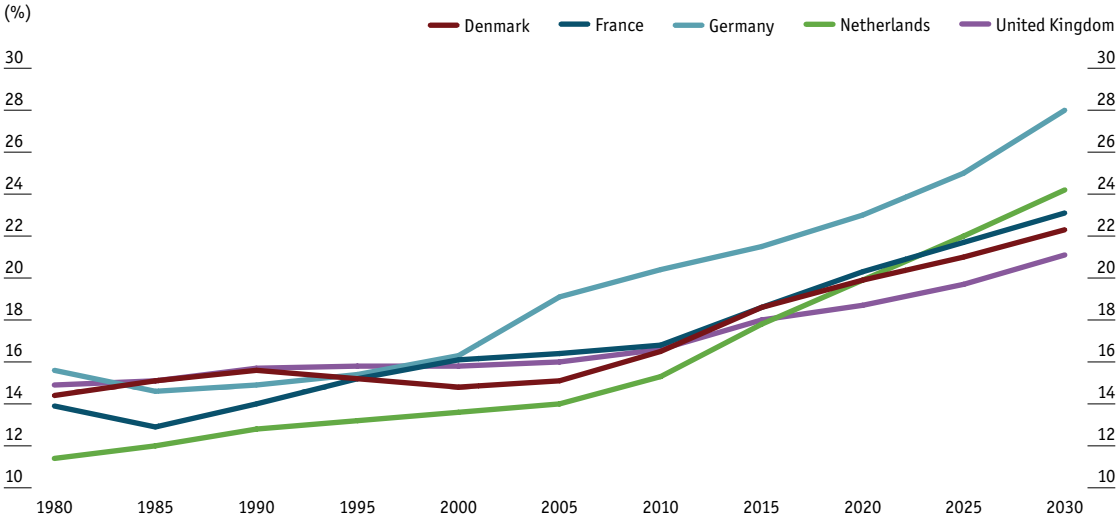
Source: UN.

Healthcare inflation
(2001=100)



Source: Office of National Statistics.

Percentage aged 65+ years



Source: UN.

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