

Industry Agenda

The Financial Sustainability of Health Systems A Case for Change

In collaboration with McKinsey & Company



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Preface



Robert Greenhill
Managing Director
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The leaders of today's developed healthcare systems are caught between a rock and a hard place: fiscal crises and gloomy economic outlooks create huge pressure to curb health expenditure, but countries also rely on health systems for economic growth and national development. There is little consensus on the implications of this financing challenge: some invoke the established links between health and wealth to advocate for more investment in healthcare, while others argue the need for bold and immediate controls on health costs, which are consuming an ever-increasing share of national resources.

In the absence of a strong vision to help existing models become sustainable, the Global Agenda Council on Healthcare has recommended the World Economic Forum as the right place to build consensus on this critical issue. The Forum is thus hosting this ambitious project to:

- Engage a great variety of stakeholders in a collective description and understanding of the issue: in its first year, this project has engaged almost 100 actors from the broader health ecosystem in developed and emerging countries (e.g., government and international organizations, academia, civil society, and partners of the Forum from the healthcare and other industries)
- Promote a collaborative design of solutions: the Forum's neutral platform is essential to resolve an emotional debate in a fragmented industry. This initiative aims to engage all actors and sectors as part of the solution and converge towards what they will jointly define as both desirable and achievable goals
- Provide a comprehensive analysis of health as an economic issue: a constructive health debate must rest upon a sound economic framework and an objective, fact-based point of view.

As we complete the first phase of this project, we are confident the findings of this interim report will not only help raise health to the national economic agenda, but will also address health as an issue that transcends national borders and the healthcare sector. More importantly, we hope this will help build energy for the second phase of this project, with the development of scenarios to design future health systems so they can sustainably achieve their fundamental mission to provide access to quality and affordable care.

We are grateful to all partners and stakeholders who have supported and engaged in this work, and we look forward to facilitating further progress on this important project.

A handwritten signature in black ink, appearing to read 'R. Greenhill', written in a cursive style.

Executive Summary

Health systems have been a great success in the past century, fostering longer, healthier lives and thereby contributing to prosperity and economic growth. These gains have come at a price, however: Organisation of Economic Co-operation and Development (OECD) countries have seen healthcare costs consistently outgrow the economy for decades. Although this trend has long been recognized as a significant challenge, the recent fiscal crisis and demographic shifts have suddenly brought it closer. Unless health system financing is redesigned, public deficits of tens of billions of dollars could amass in some developed countries by 2025.

The sustained growth in healthcare expenditures results from interacting factors affecting supply and demand. Health systems have little influence over the structural factors that are driving greater demand for healthcare, such as ageing, lifestyle and wealth. More addressable may be the incentives underlying supply-side inefficiencies, which are increasing demand, limiting value-conscious behaviour and discouraging the “frugal innovations” that maximize both quality and cost-effectiveness.

Managing this sustained growth requires a fine balance. Excessive rationing and caps could compromise health and social equity, but attempts to finance unfettered growth could compromise economic competitiveness. For health systems to best support healthy societies and economies, they should create more value by delivering more and better services with the same or fewer resources.

In this preliminary report, we outline the healthcare financing gap that many countries are at risk of facing in coming years and propose seven levers that health systems can use to improve their financial sustainability. Over the course of the coming year, we will develop a series of scenarios that will examine how health systems could radically transform by 2030. These scenarios will also enable us to more fully explore how the seven levers can be used to improve the value delivered by health systems and thereby ensure their financial sustainability.



Introduction: Celebrating the Health Sector

In many respects, healthcare is one of the greatest achievements of human endeavour. Interventions and treatments are possible today that would have been unthinkable to previous generations; cures have been found for deadly illnesses; and pain and suffering have been soothed. In the past century, an unprecedented series of advances – from antibiotics and vaccines to organ transplantation and robotic surgery – have revolutionized our ability to combat ill health.

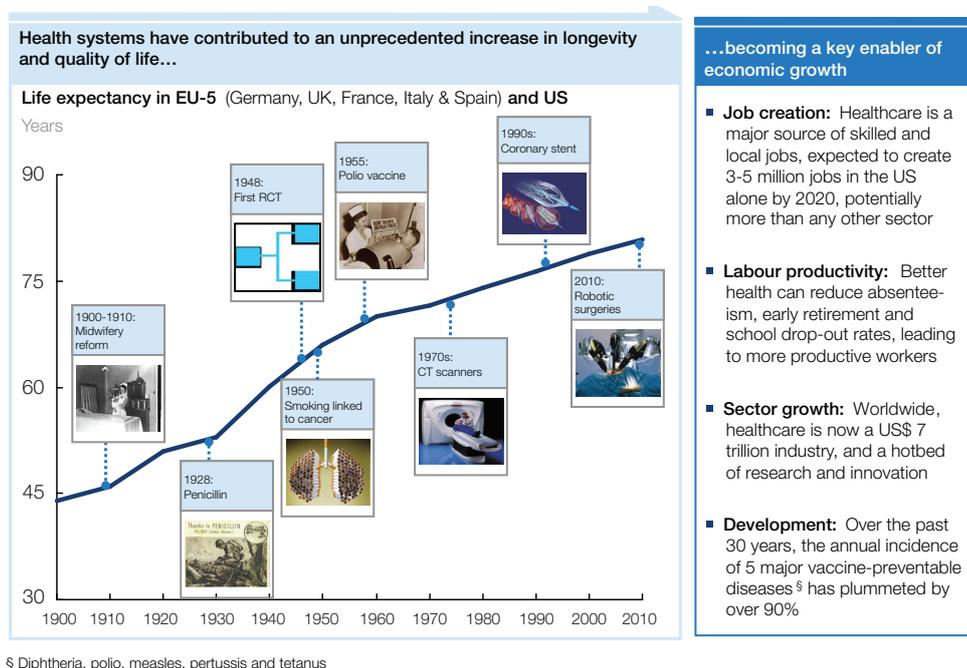
Most economically developed countries have put in place the infrastructure required to ensure that these advances can be delivered to those who need them. As a result, death rates from heart disease, stroke, most infectious diseases and even some forms of cancer have decreased considerably. Over the course of the past century, life expectancy has nearly doubled.

In most less developed countries, a chasm remains between what is needed and what is provided. Too many people are unable to access care, the Millennium Development Goals are still unmet, and the number of preventable deaths remains stubbornly high. Nevertheless, important progress has been made. Over the past 30 years, the annual incidence of the five major vaccine-preventable diseases (diphtheria, polio, measles, tetanus and pertussis) has plummeted by more than 90%, and the worldwide infant mortality rate has dropped by nearly half.

In addition to improving quality of life, the healthcare sector has fostered considerable economic growth. Better population health has contributed strongly to the labour productivity gains many countries have experienced in the past century. It has enabled more adults to work – and to work for more years – as lifespan lengthens. It has also enabled many people to enter the workforce with more education, because healthy children are more likely to attend and stay in school. Research has shown that longer life expectancy has a strongly positive impact on per capita GDP growth.

Healthcare is a valuable source of skilled jobs and businesses. In Switzerland, for example, healthcare accounts for over 15% of total employment. While Sweden spends about 35 billion euros (about US\$ 46 billion) annually on healthcare, it earns back 10 billion euros (about US\$ 13 billion) each year just from the healthcare companies that have sprung up around the Karolinska Institute in Stockholm. Worldwide, healthcare is now estimated to be a US\$ 7 trillion industry.

Figure 1: Healthcare success over the 20th century



Source: American Journal of Clinical Nutrition; OECD Health Data; University of Oregon "Mapping History"; WHO; McKinsey

The Price of Progress

These gains have come at a price: for at least the past 50 years, healthcare spending growth has consistently outpaced economic growth in every OECD country that reports this data. An ever-increasing share of wealth is being dedicated to healthcare. In most OECD countries, healthcare expenditures now account for more than 10% of total GDP.

While it is not possible to make an objective determination as to an “appropriate” size for the health sector, *a priori* and independent of other factors, the majority of this spending is paid for with public funds in most OECD countries. For many, this has created a fiscal challenge, with healthcare already one of the largest public sectors and with significant underlying momentum towards higher costs. Even in the US model, which is often held up as the archetype of a private health system, more than half of healthcare expenditure is financed through government sources (state or federal). Rising healthcare costs place significant pressure on countries’ national budgets, resulting in difficult trade-offs between competing public goods.

Even before the recent economic crisis, some observers had begun to question the wisdom of these ever-increasing expenditures, unsure whether the investments represented good value for money. Reflecting their enormous technical complexity, most health systems have not managed to systematically measure the value they create, although this is a field of increasing focus for researchers. Nor have health systems been able to demonstrate that higher spending always leads to better outcomes, or that they are deriving maximum benefit from the additional funding. As a result, many policy-makers view increases in healthcare spending as a burden rather than an investment in their country’s competitiveness, analogous to their spending on education. Some experts have tried to challenge this perspective, however, by pointing out that health may well be the purest form of wealth.

Furthermore, recent economic events call into question whether governments can continue to absorb ever-increasing healthcare costs. Even if the annual rate of healthcare inflation remains at its historic average (something that is in itself debatable in light of current trends), certain macroeconomic forces – a prolonged period of slow GDP growth, for example, could put them in a fiscal bind, caught between rising demand, rising expectations, rising costs and tightening fiscal constraints.

Navigating these difficult economic times will be challenging for policy-makers. Blunt but effective instruments to rein in healthcare costs – such as rationing access to care – could damage the sector’s ability to improve health and stimulate economic growth. However, the financing of high healthcare costs, for example, by raising additional tax revenue or reallocating public spending away from other sectors, could impair a country’s competitiveness beyond the advantage gained from better population health. The answer may lie in a third approach: by measuring healthcare value and putting a sharper focus on health system productivity, countries may be able to find ways to meet additional demand while retaining control of expenditures. If this is possible, which is by no means certain, it will require fresh and perhaps a radical rethinking of healthcare delivery.

To better understand the current dynamics, McKinsey & Company and the World Economic Forum interviewed more than 30 experts, reviewed the recent literature and modelled healthcare financing based on historical trends. This report examines how OECD countries could be affected in future decades by the twin forces of rising healthcare costs and recent economic events. For a look at how these forces are affecting developing countries, see page 17.

The report also reviews the interactions between supply and demand in healthcare that have been contributing – and will continue to contribute – to rising healthcare expenditures. This discussion will set the stage for the final sections, which describe seven strategies that can be used today to improve health system financial sustainability and the steps we will be taking next year to investigate how health systems could be transformed to ensure their long-term financial viability.



The Quiet Revolution in Healthcare Expenditures

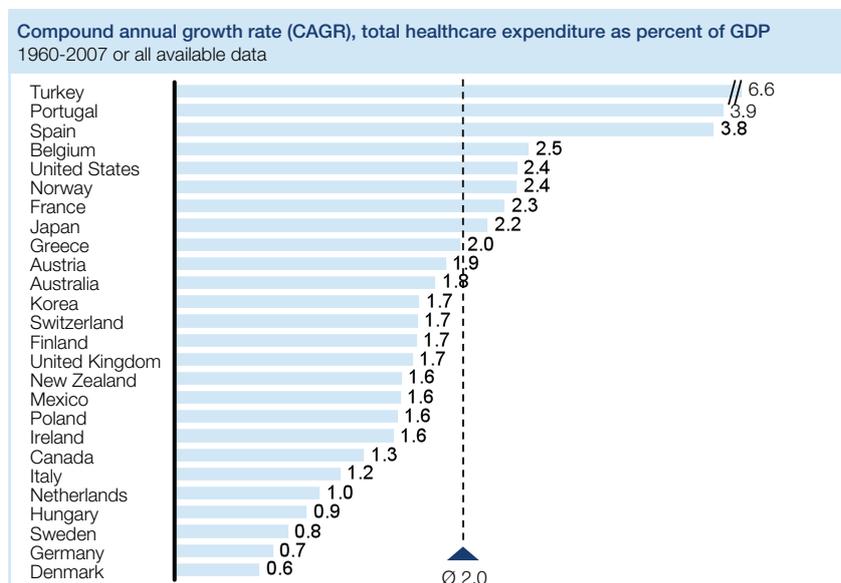
Over the past 50 years, total healthcare expenditures in OECD countries have risen faster than GDP, at an average rate of 2 percentage points above GDP growth.¹ This trend is consistent across the OECD: in none of the countries has healthcare spending growth remained in line with GDP growth for more than five consecutive years. As a result, healthcare expenditures, which averaged 3.8% of GDP across the OECD in 1960, consumed 9.4% of these countries' GDP in 2007. In seven of the countries, healthcare accounted for more than 10% of GDP that year. Remarkably, this consistent and quiet expansion has taken place year after year for many decades; there have been few instances of a sharp and obvious leap at a given moment.

¹ 21 of the 36 OECD member countries provide sufficient data for historical analysis of healthcare expenditures; unless otherwise indicated, references in this report to "OECD countries" or "developed countries" are based on information from those 21 countries. There is little reason to assume that the trends seen in those countries do not pertain to other OECD nations.

During the same period, public financing for healthcare increased significantly as governments sought to promote social equity, quality of life, and economic development. In more than two-thirds of OECD countries today, governments finance between 70% and 85% of total healthcare expenditures.

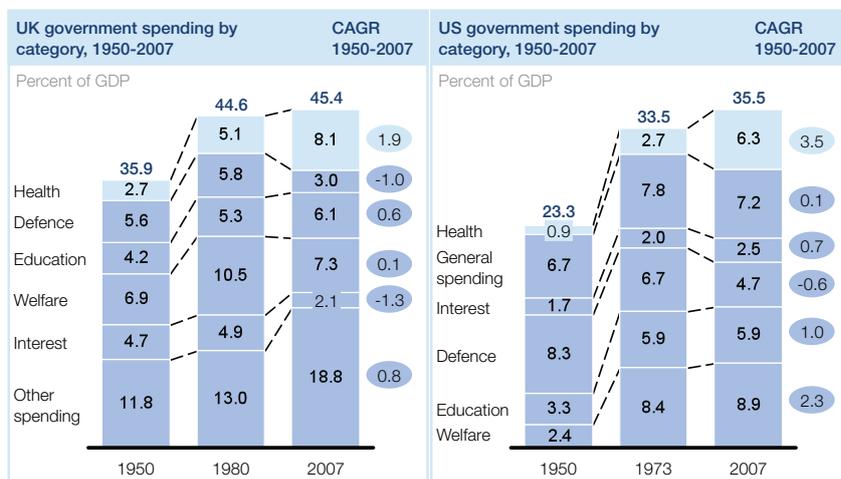
In many OECD countries, the combination of rising healthcare costs and increased public financing has caused the share of government budgets devoted to healthcare to rise steeply. Since 1950, for example, the UK's public healthcare sector has grown more than twice as fast as any other public sector. In the United States, public healthcare expenditures have grown more rapidly than any other type of public spending since 1950.

Figure 2: Compound annual growth rate of healthcare expenditure in OECD



Source: OECD; McKinsey analysis

Figure 3: Public sector growth rates by sub-sector in the United Kingdom and the United States, 1950-2007



Source: B.R. Mitchell, British Historical Statistics, Central Statistical Office UK, US Census Bureau Bicentennial Edition: Historical Statistics of the United States-Colonial Times to 1970, US Census Bureau extracts; McKinsey

The Current Trajectory of Healthcare Spending

Forecasting future healthcare spending is an uncertain art. The results of any analysis depend heavily on the assumptions employed and the proxies used to model individual behaviour, technological changes and other variables; thus, they must be interpreted cautiously. Nevertheless, we thought it would be useful to try to understand what impact ongoing increases in healthcare spending could have on government budgets in the decades ahead. We therefore performed several analyses to map a range of potential outcomes.

In the first analysis, we examined what would happen if the future mirrored the past. Accordingly, we extrapolated forward the historic rate of expenditure increases seen in each of the 21 OECD countries for which sufficient data was available. For each country, we calculated the line that best fit its historical data of healthcare expenditure growth relative to GDP, then played that line forward to 2040. Thus, the baseline projection for each country (shown below) assumes that past trends will continue unchanged.

The results of this analysis indicate that if the countries' future spending trajectories mirrors those of the past, healthcare would consume, on average, 13.4% of their economic output by 2040. The United States would continue to spend the largest share of its GDP (nearly 24%) on healthcare. Among the 16 European countries in the analysis, only France spent 11% or more of its GDP on healthcare in 2007, but 13 of the countries would exceed this level by 2040. Only Denmark's spending would be below 10%.

However, the interviews with experts delivered a consistent message: healthcare expenditures are likely to accelerate in coming years due to a rising disease burden, higher patient expectations and technological advances. (These factors are examined in more detail later in this report.) To estimate the impact of this acceleration, we modelled a higher-spending variation of our first analysis, in which each country's future trajectory could be slightly higher than its historical one – in each year, healthcare expenditure levels were given a 2.5% probability of being one standard deviation higher than they had been. This probability was calculated based on the historical frequency of sustained higher expenditures (defined as a country spending more than one standard deviation above its historical trajectory for five consecutive years or more).

In this higher expenditure analysis, four countries would spend more than 20% of their GDP on healthcare, and three would spend less than 15%. The United States would allocate nearly 30% of its economic output to healthcare.

Figure 4: Projected potential healthcare expenditure growth by 2040

Health expenditure as share of GDP, percent

Country	2007	2040 Baseline	2040 High [§]
United States	15.7	23.8	26.6
France	11.0	15.7	19.5
Switzerland	10.6	16.3	19.1
Germany	10.4	12.5	15.2
Austria	10.3	15.4	21.0
Canada	10.1	13.4	16.2
Belgium	10.0	14.1	18.4
Portugal	9.9	16.2	20.9
Denmark	9.7	9.6	12.9
Greece	9.7	15.3	19.2
Netherlands	9.7	12.1	14.8
New Zealand	9.1	11.7	16.9
Sweden	9.1	10.4	14.8
Norway	8.9	14.5	19.8
Italy	9.1	11.4	13.8
Australia	8.5	12.2	15.7
Spain	8.4	13.5	20.4
United Kingdom	8.4	11.0	13.9
Finland	8.2	11.6	16.5
Japan	8.1	11.5	16.6
Ireland	7.5	10.0	18.0
Average	9.4	13.4	17.6

[§] High projection applies a 2.5% probability of being one standard deviation higher to each year

Source: OECD, McKinsey

Compounding the Challenge: The Broader Economic Context

As the Eurozone debt crisis has demonstrated, many governments are currently facing unprecedented fiscal pressures, and it remains unclear when the pressure will abate. Thus, we conducted another analysis to understand how four macroeconomic factors could affect governments' revenues and their ability to fund healthcare in coming years:

1. Long-term economic slowdown. A prolonged recession could restrict overall GDP growth in developed countries for a decade or more.
2. Government deleveraging. Many developed countries are implementing severe austerity programmes as they struggle to reach debt-to-GDP targets.
3. Sustained high unemployment. Jobless levels have already persisted longer than at any time since the Great Depression. As a result, governments are faced with higher welfare payments and lower tax revenues.
4. Shifting dependency ratio. As the "baby boomers" exit the workforce, the taxes they pay will diminish, lowering government revenues. At the same time, they will require pensions to be paid and long-term care to be provided.

To understand the potential impact of these macroeconomic factors, we used McKinsey's Global Growth Model to estimate the magnitude of countries' budgetary gaps to finance healthcare. This is a directional model based on a series of assumptions; although it cannot take future policy changes into account, it is sensitive to overall economic growth rates. To be conservative, we chose the model's baseline growth scenario for each of the nine countries for which sufficient data

was available.² For each country, we analysed the evolution of both government revenues (derived from wages, employment, economic growth and foreign income) and government expenditures (driven by deleveraging, unemployment and demographics).

This approach yielded a forecast for government budgets between 2007 and 2025. At one end was Germany, whose fiscal outlook was relatively positive; the model projected that its public spending would rise by 1.4% of GDP during that time. At the other end was France, whose public spending was projected to contract by 3.1% of GDP over the same period.

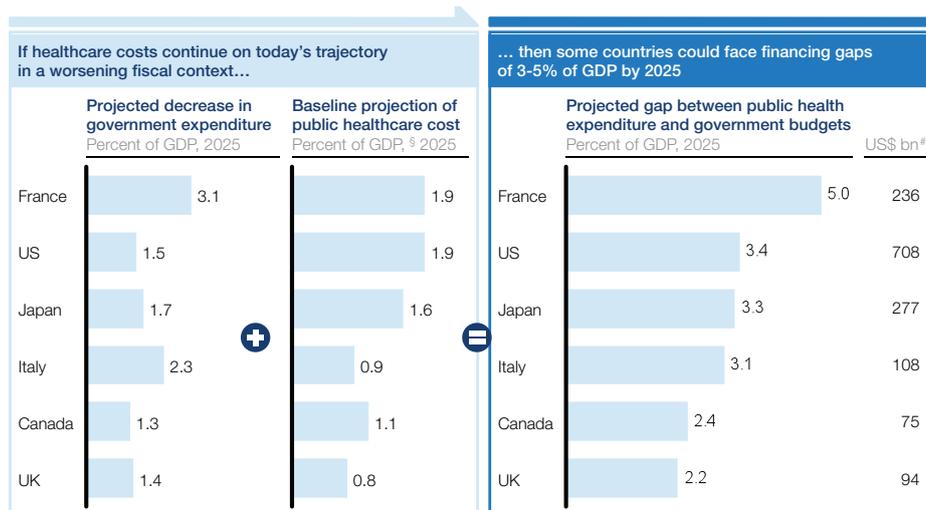
Next, we overlaid the baseline projection for growth in healthcare spending described above, and we assumed that the public-private proportion of that spending would remain unchanged. This enabled us to calculate the potential gaps between projected government budgets for healthcare and the expenditure levels required to meet demand.

The model indicated that, of the nine countries analysed, six might encounter gaps that are substantially larger than suggested by the projections described above and that are likely to develop much sooner than 2040. This would imply that changes to healthcare financing and expenditure strategies may be required, in the face of potentially large budget gaps – amounting, in some cases, to 3% to 5% of GDP.

The bottom line: the long-term trend in healthcare expenditure growth may collide with turbulent economies and labour forces to create significant fiscal pressure over the next 10 to 20 years.

² The Global Growth Model requires much more detailed economic, demographic and fiscal data for each country than is available from standard OECD reports. Reliable data was available for nine countries: Australia, Canada, Germany, Spain, France, the United Kingdom, Italy, Japan and the United States.

Figure 5: Projected potential budget gaps in selected countries by 2025



[§] Assumes each country's ratio of public/private health spend remains constant from 2007
[#] Real 2010 dollars

Source: OECD, McKinsey Global Institute Econometrics, McKinsey

Making Sense of Rising Costs: A Conceptual Model

To better understand the forces driving increased healthcare expenditures, we sought insights from leading healthcare experts, synthesizing their input into a conceptual model that looks at the interplay between demand-side and supply-side factors. It is our hypothesis that feedback loops between the demand and supply sides are the most important forces causing costs to accelerate. The healthcare cost model is not in equilibrium.

A simplified illustration of the model we developed is shown in figure 6.

Rising Demand for Health Services

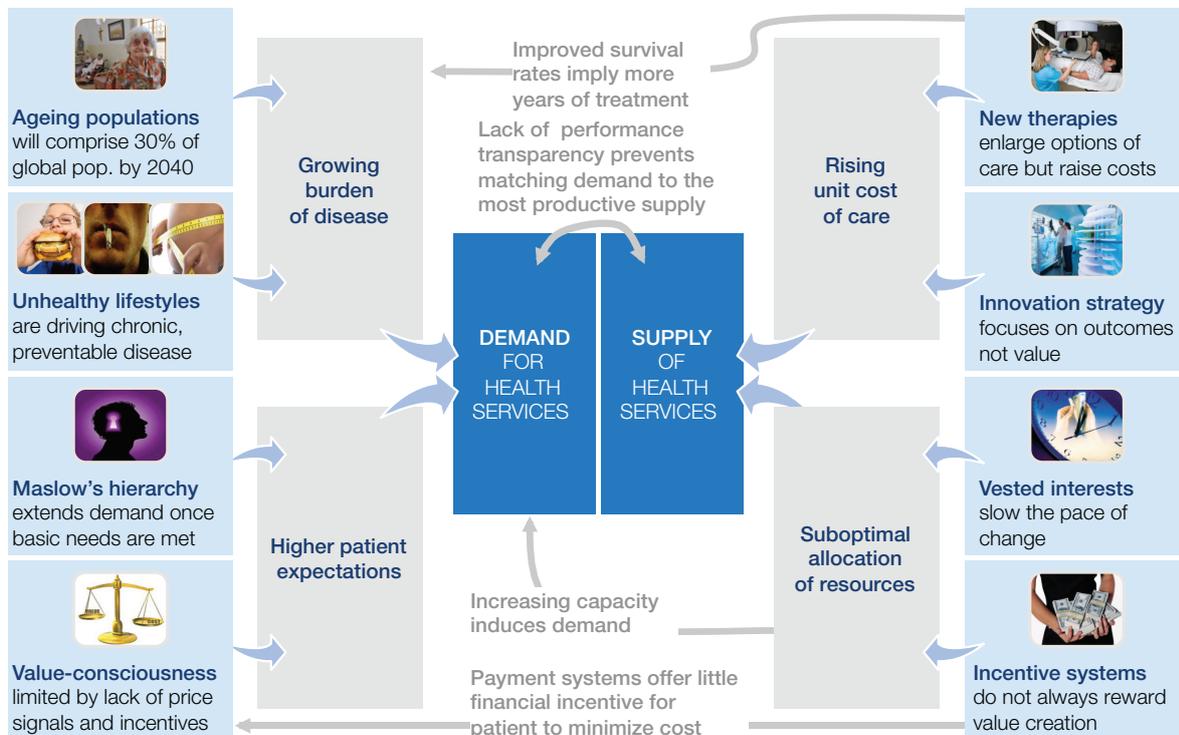
The increasing demand for healthcare is being driven primarily by four factors: an ageing population, the explosion of so-called lifestyle diseases, rising public expectations, and an absence of value consciousness among healthcare consumers. Of these, ageing has probably received the most attention. As individuals and societies live longer, the prevalence and burden of disease rises, and hence healthcare costs rise as well. Furthermore, the growing number of people over 65 years of age is expected to nearly double the OECD average dependency ratio by 2040; the elderly will consume more care while contributing less. As a result, population ageing will have a significant impact on both future healthcare spending and future government revenues.

In recent years, increased attention has been paid to the growing prevalence of lifestyle diseases: conditions such as type II diabetes, coronary heart disease and stroke that often result from modifiable risk factors, such as poor diets, physical inactivity, smoking and high alcohol consumption. As societies have become wealthier, the behaviour of their populations has not always become healthier. The resulting rise in the prevalence of lifestyle diseases increases healthcare spending significantly. For example, the total cost of care for someone who is obese is twice that of a person of normal weight.

However, healthcare demand is predicated not only on what people need, but also on what they want and expect. Historical data indicate that health expenditures correlate strongly with rising wealth levels. Maslow's hierarchy provides an explanation: as people's basic needs are met, their expectations of what services they require becomes increasingly sophisticated.

In most sectors of the economy, these expectations are tempered by the difference between the price of a given product or service and the reality of consumers' purchasing power. Most people understand that their incomes are not always sufficient to meet their material wants. The current high levels of personal debt suggest that many individuals have attempted to bridge this gap. In most OECD countries, individuals bear little out-of-pocket cost for health services; as a consequence, they have too little restraint or realism in their expectations and no way to gauge the value of those services.

Figure 6: Key drivers and dynamics of health expenditure growth



Source: Expert interviews; McKinsey

Factors Influencing Supply

On the supply side, the unit costs of care continue to rise, while resources are not optimally allocated. The rise in unit costs is driven by the advent of new therapies and technologies together with innovation strategies that are focused on better outcomes rather than lower costs. This is compounded by suboptimal allocation of resources in a delivery system that is too often closed to change – characterized by vested interests – and incentive systems that do not always reward value creation.

New therapies and technologies give patients a broader array of care options and often improve clinical outcomes, but they typically increase unit costs. This is partly because innovators often focus much more heavily on the outcomes achieved than the value delivered, which is a function of a new therapy's quality, price and hence cost-effectiveness.

However, historical forces influence the supply of healthcare as well. Most health systems have inherited clinician practice patterns, hospital infrastructure and other elements geared to older forms of care delivery. An example is an imbalance in the levels of specialist hospital-based care versus primary and community care. As a result, the systems must contend with resistance to the more efficient allocation of resources.

Existing incentive systems may also discourage the best use of limited resources. For instance, the business models of many providers and healthcare professionals are currently based on individual compensation per activity or per episode of care. As a result, many improvement efforts have focused on re-engineering discrete elements of service. Often, however, more value could be created if the improvement efforts included entire care teams so that the end-to-end pathways of care, from prevention through intervention to rehabilitation, could be optimized.

The Dangerous Dynamic: The Interplay between Supply and Demand

No single factor alone can explain the consistent growth in healthcare costs; rather, it is the interplay among the factors that prevents the model from achieving equilibrium. Overall market efficiency is further impaired by significant and enduring information asymmetries driven by a lack of performance transparency.

The health sector has been successful in transforming once-deadly diseases into chronic conditions. Many of the most important therapeutic advances of recent years, including antiretrovirals for HIV patients and most new anti-cancer drugs, do not provide cures, but they do prolong survival – often, for many years. These are fantastic developments for individuals and families. However, the drugs are usually expensive and, the better they work, the longer they may have to be administered, which means that their long-term costs must be planned for.

Furthermore, it is precisely because healthcare exists at the edge of science, constantly finding new ways to treat disease or soothe suffering, that patients' expectations are raised. New technologies and cross-border comparisons enabled by the availability of information online also raise patient expectations, which further drive demand.

Changes to the supply side can have a more immediate impact, too. Reduction in demand for one set of services appears to be quickly offset by increases in demand for others. Many health systems policy-makers express frustration that success in demand management too rarely leads to real reductions in overall costs. Providers are perceived

as simply filling freed capacity with other patients, rather than reducing their cost base. This phenomenon is especially likely to occur when providers have an economic incentive for such a response, for example, in health systems that use fee-for-service reimbursement. However, this can occur anywhere, and for one simple reason: patients tend to want the best treatments and providers want to administer them. Once the added capacity is fully used, more capacity can be built and the cycle can begin again.

Finally, patients help to amplify provider costs. In the current healthcare financing paradigm in most OECD countries, where individuals are insulated from the economic impact of their decisions, patients do not prioritize cost-effective care. In many cases, patients actively resist changes that would improve the productivity of the sector, for example, by opposing the closing of popular but subscale providers. Ironically for the health sector, the public can support and reinforce existing inefficiencies rather than confront them.

What the Model Tells Us about the Future Outlook

When viewed through the lens of this conceptual model, there is no structural reason to assume that growth in healthcare demand will subside. In fact, population ageing and the rising prevalence of lifestyle diseases make it likely that most countries will see the disease burden – and hence demand for care – increase in coming years. Furthermore, technological innovations are breaking new ground in areas such as personalized medicine, stem cell research, and genomics – developments that are likely to raise rather than lower cost. Patients' expectations will continue to be fed by better access to information and greater transparency. Thus the fiscal pressures described earlier are the only evident brake on healthcare expenditure growth.

Furthermore, health systems operating in isolation have limited control over growth in demand. Most of the demand-side factors are difficult or impossible for health systems to change. Ageing is unavoidable. Efforts to alter unhealthy lifestyles have succeeded at small scale, for example, through workplace wellness programmes, but it is not obvious that health systems are currently either appropriately positioned or resourced for population-level efforts to improve health. Meeting the challenge will require a response from beyond the boundaries of the health sector alone.

Tough Choices for Governments, Industry and Individuals

It is unclear how the tension between unrelenting healthcare spending growth and tightening fiscal limits will be resolved. Multiple outcomes are possible, depending on the strategies health system leaders adopt. But one thing is very clear: if health systems continue to operate using a business-as-usual approach, significant pressure will be placed on a range of stakeholders, including policy-makers, payers, employers, healthcare companies and individuals. Several of the most important of these pressures are described below.

Choices for Governments

As governmental leaders – heads of government together with ministers of finance, health and social protection – look to address rising healthcare costs, their choices can appear limited. From our perspective, we can see four choices, none of which is easy. The choices below are what are theoretically possible, not what we necessarily regard as desirable:

1. Ration access to care. The bluntest approach is to ration access to care. This would imply either narrowing the population covered, for example, restricting coverage; imposing cash-limited budgets and allowing waiting lists to rise; or reducing the scope of services covered through a smaller benefits package. Extreme forms of rationing, however, could have the reverse effect: untreated conditions may worsen during waiting periods, increasing the total cost of care; and more individuals would likely seek costly emergency care rather than less-expensive preventative treatment. In its extreme form, rationing is unpalatable and undesirable. However, with increasing access to data, a growing understanding of which interventions have the best outcomes and returns should allow definitions of minimum standards in an increasing range of areas.
2. Shift the burden of cost. Governments could shift the burden of healthcare costs to individuals or employers by withdrawing government coverage and mandating private coverage. Not only would this represent a squeeze on household incomes, assuming personal taxes remained constant, it might also challenge the competitiveness of businesses, either by weakening their cost structures or by shrinking their talent pool. Equally, increasing the proportion of costs borne by individuals may help to appropriately match supply and demand.
3. Increase financing to health. In the face of unpalatable choices of rationing access or shifting the burden, governments may decide that they have no choice but to increase expenditures. This implies a further choice: to either raise tax rates; raise the retirement age to expand the pool of taxpayers; or reallocate resources from other publicly funded services such as defence, education, welfare payments, etc. Both this and the previous choices would likely require a fierce political contest about what are the right priorities for public policy.
4. Radically raise the productivity of health systems. If health systems could find ways to deliver more services with fewer resources, and to achieve the same or better outcomes in the process, they would go a long way towards ensuring their financial sustainability. For instance, improving performance transparency for health systems may raise productivity.

Of these choices, the pursuit of radical productivity improvements is the most immediately attractive. Our initial assessment of the greatest areas of opportunity is described later in this report, and will be further investigated through the course of 2012.

Implications for Industry

Pharmaceutical companies, medical device manufacturers, provider chains and other companies have made important contributions to the gains achieved by the healthcare sector in the past century. In common with health systems, they face a turbulent future. Existing business models may become obsolete and new models will need to evolve. A set of forces are powerfully shaping the future prospects of industry:

- A new era of cost consciousness. Private and public payers for healthcare have sharpened their focus on cost control. This has been evident in a harder stance in the negotiation of prices paid for pharmaceuticals or medical devices, or for the level of diagnosis-related group (DRG) payments. Elsewhere, payers are experimenting with changing the whole model of reimbursement, for instance, shifting the risk to providers through capitation models or risk-sharing based on the effectiveness of interventions.
- Bold public policy. Fiscal pressure has led to radical and immediate measures. In some instances, this has included sector-wide cost reductions; for example, the Catalonia region of Spain has imposed a 10% budget cut. In others, it has meant absolute pay restraint; for example, the National Health Service in the United Kingdom. Public systems have experimented in increasing both competition (through expanding choice for patients) and the diversity of supply (by encouraging private providers to enter the market).
- Insistence on transparency. Increasingly, providers are being benchmarked on outcomes and their performance is being compared and published. Media attention is intensifying on the results of major public tenders and more information is being made available for patients to be able to make better, more informed choices.
- Stronger regulation. Health technology assessment (HTA) is rapidly becoming a global regulatory norm. Although more than 30 countries currently use HTA, they do not adhere to the same procedures. The resulting lack of cross-country harmonization is creating redundant processes for many international companies. Furthermore, the scope of HTA is expanding to include cost-effectiveness as well as efficacy.
- Challenging market performance. Important subsectors are no longer earning their cost of capital. Many healthcare industries have become less profitable since the economic downturn began in 2008, and it has become harder to access capital. Poor market performance, for example, has led private providers to cut capital investment (their most common savings strategy), which is limiting demand for imaging equipment and other technologies.

It is the interplay of these forces that has made these challenging times to navigate the health sector. Given the rising fiscal pressures, the turbulence is set to increase rather than dissipate in the years to come.

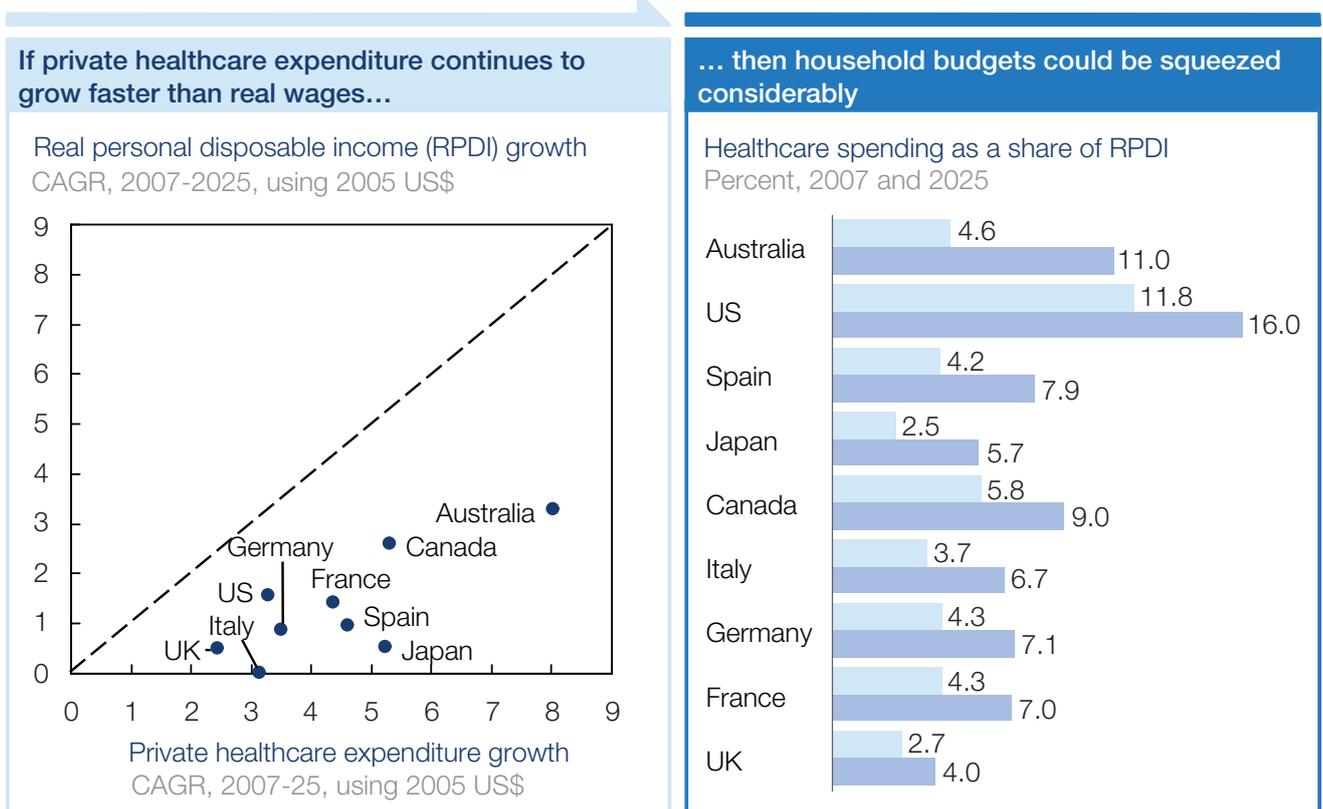
Household Budgets Could Be Squeezed

In most developed countries, private healthcare expenditures are rising much faster than wages. This trend is most notable in the United States, where basic health insurance for a family has nearly reached the equivalent of a full minimum-wage salary. However, private healthcare expenditures are reaching high share-of-wallet levels in other countries as well. Even under the conservative projection described above, we estimate that by 2025 the share of real personal, disposable income dedicated to healthcare spending could increase by more than 70% on average in the nine countries analysed.

If consumers are unwilling to cut their healthcare spending substantially, they will have to spend less on other household items – sometimes, considerably less, as figure 7 below illustrates.

While this may serve to raise the value-consciousness of some consumers, for others it may imply significant hardship. For households with high disposable incomes, it may raise a question of prioritization against discretionary expenditures, such as consumer electronics. However, for households with low disposable incomes it may represent unpalatable choices between healthcare costs and other necessities, such as housing or heating fuel. In political terms, healthcare costs are set to be a significant focus of public debate in many OECD countries. This is already happening in some countries.

Figure 7: Impact on household budgets



Note: assumes that the public/private proportion of spending in each country remains constant, uses baseline projection

Source: Global Insight; baseline model; OECD; McKinsey

Finding New Pathways to Sustainability

The challenges described are great, the uncertainties significant, and the right response may be emerging, but is not yet clear. High-quality healthcare matters to every individual and family; it is an important element of labour productivity; and it can be an engine of economic growth, creating good jobs at home and exports abroad. It is too important for a reactive response to be sufficient; it is in this moment, in the midst of a sustained economic storm, that policy-makers must chart a path to a sustainable future.

The first step must be to prioritize productivity growth in the health sector, demanding a new set of policy levers and interventions. Greater productivity is not the only way health systems can create more value, but it is by far the most important. Over the past 40 years, productivity gains have been the principal driver of GDP growth in many European countries and the United States. However, the productivity route is not without its challenges. For example, there is a tough but important trade-off between labour productivity and employment.

For the health sector, productivity improvement is challenging. This is for three principal reasons. First, health systems are “sticky”. This is because public resistance blocks radical change; the result is that inefficient providers persist. Furthermore, modern management practices (e.g., robust performance management or service line reporting) are too often resisted by powerful vested interests. Second, health systems cannot outsource to low-cost settings. Medical tourism currently accounts for less than 0.5% of hospital care for patients from Europe and North America, although the digital revolution may begin to change this. Finally, health systems cannot easily replace labour by capital. Healthcare is an intrinsically labour-intensive sector.

If health systems are to become financially sustainable, they must therefore find new value-creating models that manage demand more effectively and transform the supply side to eliminate inefficiencies and waste. Since health systems are dynamic, the solutions they develop must also be dynamic; addressing one issue alone could merely push inefficiency to another part of the system.

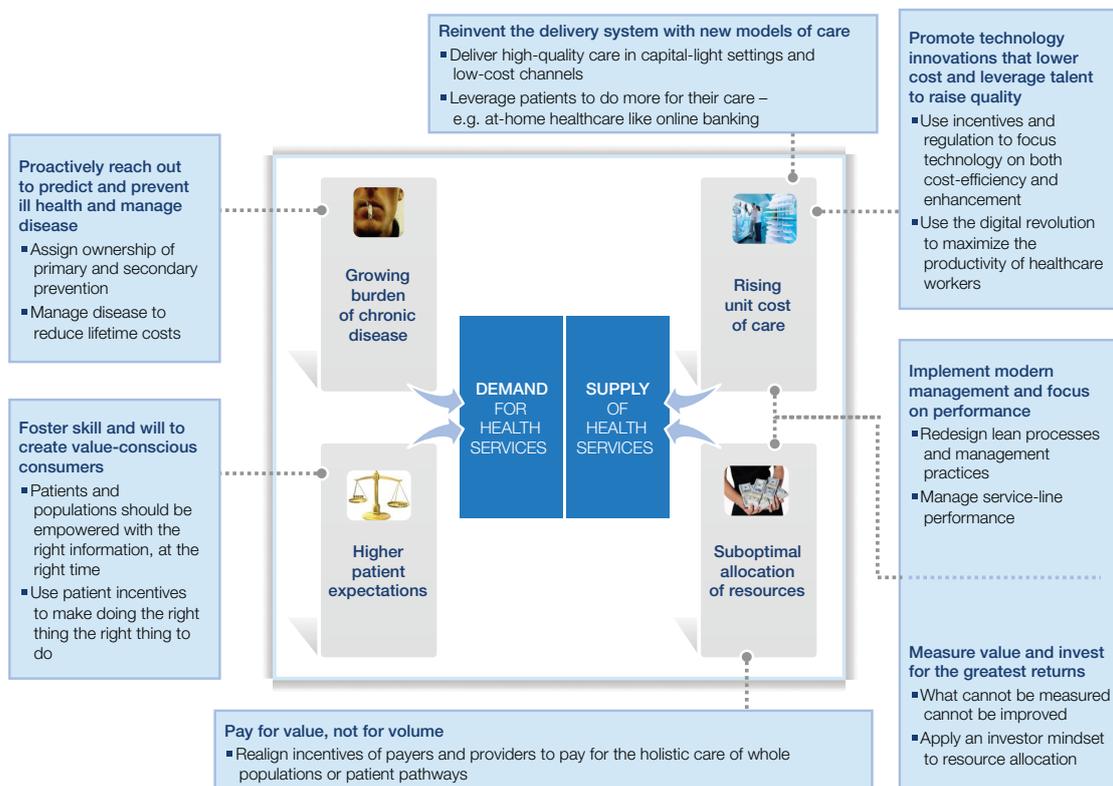


Through interviews with experts, we have identified the top seven most promising areas for potential productivity improvement that may be the paths to sustainability health systems must find:

1. Measure value and invest for the greatest returns. We can only be sure to improve what we can measure. Health systems must apply an investor mindset – investing greater resources for greater returns in terms of health and quality of life gained.
2. Foster skill and will to create value-conscious consumers. Patients and populations should be empowered with the right information, at the right time, so they can make the right choices for themselves. Furthermore, health systems should make more sophisticated use of patient incentives to make doing the right thing the right thing to do.
3. Pay for value, not for volume. Realign incentives to pay for the holistic care of whole populations or patient pathways. Payment innovation can span both health and social care, ensuring that payers and providers are all aligned to the most cost-effective interventions.
4. Proactively reach out to predict and prevent ill health and manage disease. Health systems need to shift their focus to the integrated care that is necessary to identify patients most at risk, proactively plan and manage their care, and prevent escalation to higher cost settings.
5. Reinvent the delivery system with new models of care. Capital-light settings, leveraged talent models and low-cost channels, such as home-based, patient-driven models, can help provide greater volumes of high-quality care. However, they must be accompanied by capacity reductions in higher-cost channels. Health systems must become more agile in leveraging the opportunities for more self-care.
6. Promote technology innovations that lower cost and leverage talent to raise quality. Incentives and regulations can encourage innovation that optimizes for both quality and cost, either by providing lower cost therapies, by using the digital revolution to boost the productivity of clinicians, or by eliminating the need for other interventions.
7. Implement modern management practices and focus on performance. Health systems should use lean transformation and similar techniques to improve the productivity of their service lines. They should also institute tighter management practices that focus on performance in all areas.

This is our starting list. In the year ahead, we will examine each of these areas in more detail, identifying examples of good practice and successful innovation. This will be developed into a detailed, actionable set of recommendations for health systems.

Figure 8: Paths to sustainability



Where Next?

The magnitude of the challenge facing the health sector is so great it is hard to grasp. Its implications are clearly far reaching for all aspects of the economy and society. Not only must health systems be the concern of all governments, they must also be the concern of all of government: ministers of finance and social protection as much as ministers of health. Health system financing – currently predominantly the concern of the health sector – may well become an area of concern for individual patients, households and taxpayers across all OECD countries, as is already happening in some, such as the United States.

Over the coming year, our community will do three things to take this work forward. First, we will develop a series of scenarios to explore a crucial question: what might sustainably financed health systems look like in 2030? Such a long-term perspective will allow us to move beyond most current healthcare reform efforts, which focus on how today's health systems can be optimized, and enable us to contemplate how those systems could be fundamentally redesigned. Second, we will build on both the scenario's insights and the conceptual model to develop a set of actionable interventions to help countries navigate towards their desired outcome. Third, we will work with specific countries to develop our perspective on how their health systems may evolve in the years to come. For this, we will focus on emerging nations – in contrast to the focus of this year's work on OECD countries – to reflect the greater flexibility they have to respond to the present spend, not least their greater fiscal space.

Moving beyond the confines of the existing debate will not be easy. It will require courage from all parties, enriched by diverse voices and fresh ideas from other sectors. Thus new partners from government, IT, nutrition and other sectors will be invited to join our community, including health system and finance leaders. All stakeholders will share ideas, values and possibilities as we try to collectively envision fundamentally different health system models. As a result, we should be able to converge towards a path that none of us could have reached on our own.

This report has highlighted the tough path ahead for the health sector globally. Yet it is important to keep the debate anchored in its very real achievements. The future of innovation – from genomics to personalized medicine to medical enhancement – could mean another century of remarkable gains in longevity, quality of life and access to care. It will mean that pain is soothed and disease treated.

However, unless significant change occurs, the price of these gains could be unaffordable, given the tremendous forces currently buffeting both public budgets and financial markets. These forces, coupled with growing demand for healthcare, make it increasingly important that health systems maximize the value they create. For the health sector, the journey ahead looks exhilarating, turbulent and daunting, all at once.

What are Scenarios?

Scenarios are stories about the future. They provide relevant, plausible, challenging and divergent ideas about an issue and the stakeholders affected by it. Scenarios are not predictions, preferences or forecasts. Rather, they are a springboard for inspiration – the process of developing and using scenarios fosters strategic conversation between participants in order to generate insights, align values and test strategic options.

Developing Countries: Charting New Paths to Financial Sustainability

Developing countries appear to be following the same trajectory of expenditure growth that OECD countries have followed, but the financial sustainability of their health systems may not be a serious issue for them in the near to medium term. For many developing countries, health systems are currently a vital enabler of growth, providing the same benefits (i.e., improved quality of life, increased labour productivity and economic expansion) that wealthier countries derived so forcefully from their health systems in the 20th century. Expanding their health systems will help developing countries improve outcomes and access, and increase their competitiveness.

Furthermore, most developing countries have room to grow in terms of health system financing. Although most OECD countries currently spend between 8% and 10% of their GDP on healthcare, the BRIC countries (Brazil, Russia, India and China) averaged less than 6% in 2009. Several developing countries have publicly stated that they want to increase the share of GDP they devote to healthcare. Russia and China, for example, appear to be aiming for 8% to 10%.

In addition, the fiscal pressures on government budgets in developing countries are less immediate. Public financing accounts for less than half of all health expenditures in many of these nations; often, more than half of those expenditures are still being paid for out of pocket. Greater public financing for healthcare could be underwritten by tax increases. The tax rates in BRIC countries, for example, could grow by another 20 to 30 percentage points before they reach the OECD average.

The health systems in developing countries also have greater latitude to chart a new course towards financial sustainability because their health systems are less encumbered by legacy structures and entrenched vested interests. For example, the insurance systems in many developed countries were originally designed to cover random, unpredictable catastrophic events and are ill suited to cover foreseeable, preventable and controllable chronic conditions. This problem does not exist in most developing countries. Because patients in those countries must pay a high percentage of healthcare costs themselves, the opportunity exists to develop new payment systems better designed to match today's disease mix.

Singapore has developed one such payment system. Its health savings accounts motivate individuals to make value-conscious health decisions by giving them more exposure to and control over their lifetime healthcare costs. However, other approaches could also be used. For example, some developing countries might want to develop savings- or annuity-based health products that align incentives among patients, providers and payers. This would encourage all of them to make value-conscious decisions that minimize the costs associated with chronic disease.

Even if some developing countries decide to increase public financing for healthcare, they might nonetheless want to keep private healthcare expenditures at levels above those seen in most OECD countries. Chinese policy-makers, for example, plan to maintain relatively high levels of out-of-pocket payments to limit non-essential demand.

Developing countries also have more latitude in deciding how care can best be delivered. The delivery systems in most developed countries were originally designed for high-intensity acute care, but chronic conditions generally require low-intensity care provided in out-of-hospital settings. Most developed countries are trying hard to decrease their number of hospital beds per capita, but emotional and financial considerations often hamper these efforts. Developing countries do not face this challenge. Although some developing countries may have to expand their acute care capacity, it will rarely be necessary for them to invest considerable sums in building large networks of hospitals. Instead, they should be able to set up more suitable delivery systems that address the dual burden they currently face: a high (but often decreasing) rate of infectious diseases and a growing prevalence of chronic, non-communicable conditions.

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Bibliography

Agency for Healthcare Research and Quality, 'Employer-sponsored health insurance: trends in costs and access', September 2004. Available at: <http://www.ahrq.gov/research/empspria/empspria.htm>

Aghion, Philippe, Peter Howitt, and Fabrice Murin, 'The relationship between health and growth: when Lucas meets Nelson-Phelps', NBER Working Paper 15813, March 2010. Available at: <http://www.economics.harvard.edu/faculty/aghion/files/Relationship%20Between%20Health.pdf>

Andersson, Jan, 'Medicine from Care to Cure', presentation at McKinsey's Academic Medical Centre conference, November 2011

Association of Pharmaceutical Companies in Switzerland, 'Value added and employment in the Swiss Health Sector', May 2006. Available at: <http://www.google.com/search?gclid=CjwKAEjYbZBwBQjARhC6t8q=Value+added+and+employment+in+the+Swiss+Health+Sector>

Baumol, William J., and William G. Bowen, *Performing Arts – The Economic Dilemma*, MIT Press, 1968

Calfo, Steve, Jonathan Smith, and Mark Zezza, 'Last year of life study', Centers for Medicare & Medicaid Services (Office of the Actuary). Available at: https://www.cms.gov/ActuarialStudies/downloads/Last_Year_of_Life.pdf

Cohen, Joshua T., Peter J. Neumann, and Milton C. Weinstein, 'Does Preventive Care Save Money? Health Economics and the Presidential Candidates', *New England Journal of Medicine*, February 2008. Available at: <http://www.nejm.org/doi/full/10.1056/NEJMp0708558>

Coll, Gaspar Pericay, 'Professionals of the public healthcare system protest across Catalonia,' Catalan News Agency, April 2011. Available at: <http://www.catalannewsagency.com/news/politics/professionals-public-healthcare-system-protest-across-catalonia>

Dorrell, Steven (former Secretary of State for Health, UK), as quoted in the NHS Reforms Live Blog. Available at: <http://www.guardian.co.uk/society/blog/2011/jun/08/nhs-reforms-live-blog>

Ehrbeck, Tilman, Ceani Guevara, and Paul D. Mango, 'Mapping the market for medical travel,' *McKinsey Quarterly*, May 2008. Available at: https://www.mckinseyquarterly.com/Mapping_the_market_for_travel_2134

Kaiser Family Foundation, *Key Facts about Americans without Health Insurance*, October 2011. Available at: <http://www.kff.org/uninsured/upload/7451-07.pdf>

Lelkes, Orsolya, and Eszter Zólyomi, 'Poverty across Europe: the latest evidence using the EU-SILC survey', European Centre Policy Brief, October 2008. Available at: http://www.euro.centre.org/data/1226583242_93408.pdf

Loeppke, Ronald, Michael Taitel, Dennis Richling, Thomas Parry, Ronald C. Kessler, Pam Hymel, and Doris Konicki. 'Health and productivity as a business strategy', *Journal of Occupational and Environmental Medicine*, July 2007. Available at: http://www.aoem.org/uploadedFiles/Career_Development/Tools_for_Occ_Health_Professional/Health_and_Productivity/Health%20and%20Productivity%20as%20a%20Business%20Strategy.pdf

Loeppke, Ronald, Michael Taitel, Vince Haufle, Thomas Parry, Ronald C. Kessler, and Kimberly Jinnett, 'Health and productivity as a business strategy: a multiemployer study,' *Journal of Occupational and Environmental Medicine*, April 2009. Available at: <http://www.vbhealth.org/wp-content/uploads/JOEM-article-4-09-Final.pdf>

Manyika, James, David Hunt, Scott Nyquist, Jaana Remes, Vikram Malhotra, Lenny Mendonca, Byron Auguste, and Samantha Test, 'Growth and Renewal in the United States: Retooling America's Economic Engine', McKinsey Global Institute, February 2011. Available at: http://www.mckinsey.com/Insights/MGI/Research/Productivity_Competitiveness_and_Growth/Growth_and_renewal_in_the_US

Munnell, Alicia H., and Steven A. Sass, *Working Longer: The Solution to the Retirement Income Challenge*, Brookings Institution Press, 2008

Organisation for Economic Co-operation and Development (OECD), *Health Data 2009*. Available at: http://www.oecd.org/document/30/0,3746,en_2649_37407_12968734_1_1_1_37407,00.html

OECD, *Health Data 2011*. Available at: http://www.oecd.org/document/30/0,3746,en_2649_37407_12968734_1_1_1_37407,00.html

OECD, *Live Longer, Work Longer*, 2006. Available at: http://www.oecd.org/document/47/0,3343,en_2649_34747_39371887_1_1_1_1,00.html

Stooker T., J.W. van Acht, E.M. van Barneveld, R.C. van Vliet, B.A. van Hout, D.J. Hessin, and J.J. Busschbach, 'Costs in the last year of life in the Netherlands', *Inquiry*, Spring 2001

US Department of Health and Human Services, 'The hidden costs of health care: Why Americans are paying more and getting less'. Available at: <http://www.healthreform.gov/reports/hiddecosts/index.html>

World Bank, World Development Indicators. Available at: <http://data.worldbank.org/indicator>

World Health Organisation (WHO), Global Health Observatory Data Repository. Available at: <http://www.who.int/gho/database/en/>

WHO, National Health Accounts. Available at: <http://www.who.int/nha/en/>

WHO, *World Health Statistics 2011*. Available at: http://www.who.int/gho/publications/world_health_statistics/EN_WHS2011_Full.pdf

Xu, Ke, David B. Evans, Kei Kawabata, Riadh Zeramdini, Jan Klavus, Christopher and J. L. Murray. 'Household catastrophic health expenditure: a multicountry analysis', *Lancet*, July 2003. Available at: http://www.who.int/health_financing/documents/lancet-catastrophic_expenditure.pdf



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