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OECD Economic Surveys: Iceland

Chapter 4

Improving cost-effectiveness in the health-care sector

Health outcomes and the quality of health care are very good by international comparison, while income-related health inequality appears to be smaller than in most other countries. However, the health-care system is costly and, according to OECD estimates, public expenditure on health and long-term care could reach 15% of GDP by 2050 if no restraining measures are taken. This highlights the importance of raising cost-effectiveness and spending efficiency more generally. To this end, it would seem advisable to remove impediments to private provision and open up the health sector to competition. At the same time, the introduction of cost-sharing should be considered where it does not exist (as in hospitals), although concerns about equity need to be taken into account. This would relieve the burden on public finances, as would the introduction of spending ceilings, cost-efficiency analysis and activity-based funding arrangements. The high cost of pharmaceuticals should be reduced by promoting competition and the use of inexpensive generic drugs.

In the light of continued cost pressures and strains on public finances, health systems across the OECD are striving to increase value for money. Iceland is no exception. Since the country's health-care sector was reviewed fifteen years ago (OECD, 1993), health spending has risen further as a share of GDP, as in most other member countries. Although expenditure growth has moderated in recent years, the tendency over the longer term for demand to grow more than proportionally with income will make it increasingly difficult to finance the provision of health services without changing the system. This has prompted the new government that took office in May 2007 to launch or envisage a number of reforms. Following a brief overview of the Icelandic system, this chapter reviews health outcomes and costs as compared with those observed abroad with a view to identifying the most promising ways to enhance spending efficiency.

Overview of the health-care system

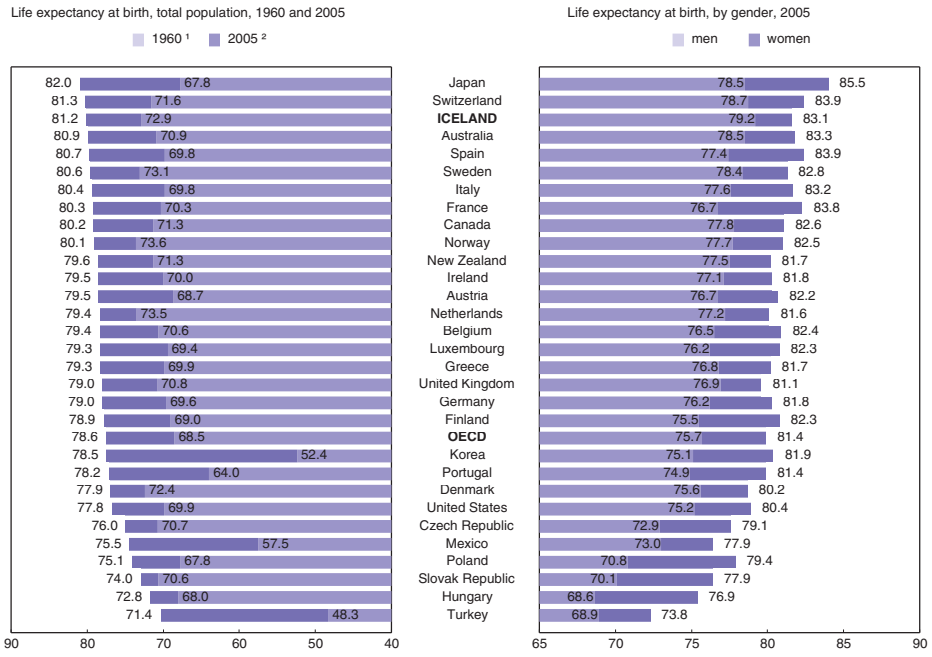
Like in the other Nordic countries, all residents are covered by public health insurance and health services are mainly paid by the public purse. Hospital treatment is free, although patients face limited co-payments for ambulatory care, most dental care and some pharmaceuticals. There are differences, however. In Iceland, health services are primarily financed by central government general taxation. Moreover, compared to other Nordic countries, the health-care system is much more centralised. Indeed, contrary to the trend in other public services (in particular, education), Iceland has seen increasing centralisation in the health-care sector in recent decades, with the state taking over responsibility for health-care centres and hospitals from local authorities and also private providers. This has involved an increase in the numbers of state-employed health-care personnel although, at the same time, some of the services have been contracted out (Halldorsson, 2003).

There is some degree of separation between financing and provision of services within the centralised system. According to the Ministry of Health, about one-quarter of all health services financed by the state is provided by private companies and NGOs. Still, most health-care personnel are employed by the state. Public health-care centres throughout the country, some of which are run jointly with municipal hospitals, are responsible for primary health services, including preventive care, and for home nursing care. Only in the capital Reykjavik are there a couple of private primary health-care centres and a few private general practitioners providing medical treatment under contracts with the State Social Security Institute (SSSI). Specialist treatment outside hospitals is delivered largely by private specialists under contract on a fee-for-service basis. But specialist services are also offered by the state hospitals. No referral is required for specialist treatment. Even though many nursing homes and old people's homes are run as independent institutions by municipalities or voluntary organisations, the major part of their financing is provided by the central government (either through the health-insurance or the pension-insurance scheme).

Outcomes by international comparison

Icelanders enjoy a good health status as measured by conventional indicators (such as life expectancy, number of disability-free years, self-reported health and quality of life). Life expectancy at birth is among the highest in the world (Figure 4.1). For men, it is the highest, while for women, who also held the first place some time ago; it is very close to the top. The gender gap in life expectancy is much smaller than generally elsewhere, probably reflecting in part the narrowing or disappearance of gender differences in many areas (for instance, labour-force participation, or smoking rates and hence lung-cancer incidence, see below). High life expectancy is attributable to the lowest overall cancer mortality rate in the OECD and below average mortality from stroke and heart disease. Perinatal and infant mortality are also the lowest, and maternal mortality is virtually non-existent. 80% of Icelandic adults report that they are in good health, about 10 percentage points more than on average in the OECD. Icelanders can expect to be healthy for about 90% of their lives (World Health Organisation, 2006). Health-adjusted life expectancy (HALE), which subtracts estimated years of life spent with illness and disability, is estimated to be the fourth-highest among OECD countries. Still, as in many other countries, the number of people with disabilities is a matter of concern. In Iceland, it has increased by half over the past decade or so, with 5% of men and 8% of women in the 16 to 66 years age bracket being on disability benefits in 2006. Disability is more common among women than men, except in the youngest age group. Mental and behavioural disorders are the most common causes of disability.

Figure 4.1. **Life expectancy at birth**



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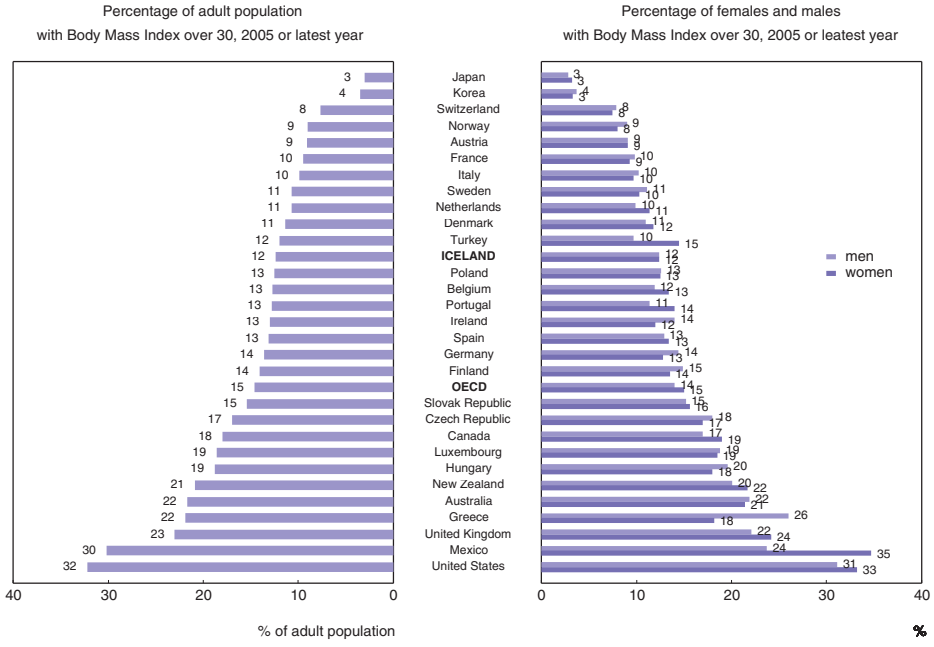
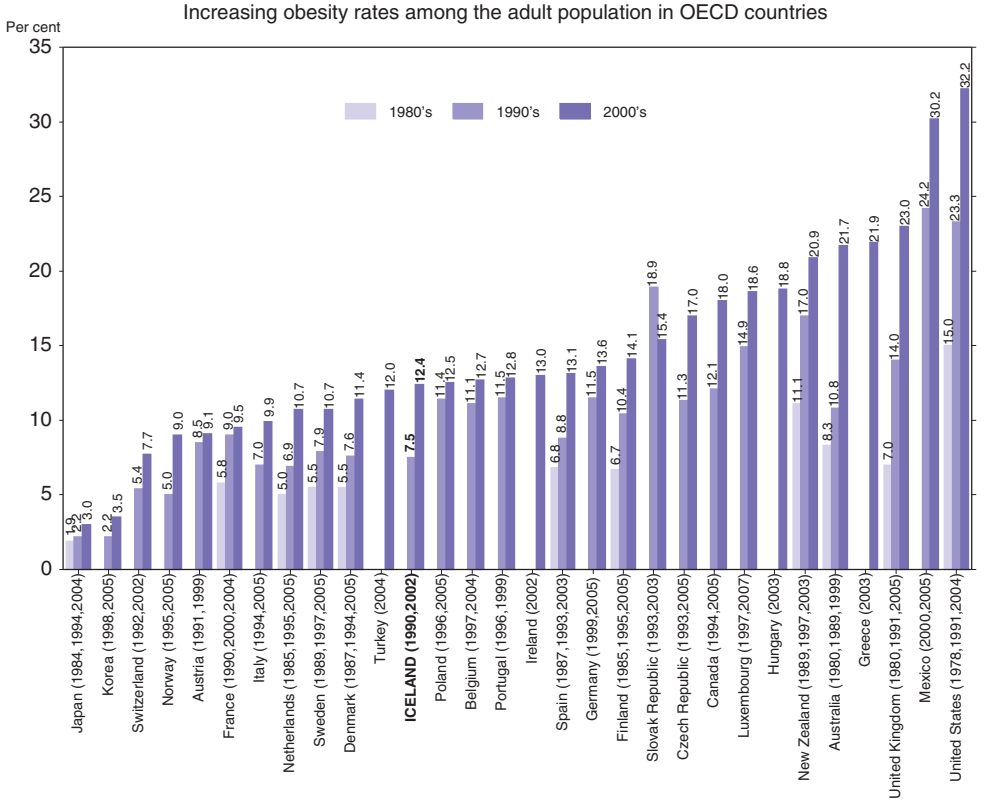
1. 1961 for Canada and Italy
2. 2004 for Belgium, Canada and United States

Source: OECD Health Data 2007.

Figure 4.2. **Obesity**





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Source: OECD Health Data 2007.

Lifestyle factors have in general developed in a way conducive to producing positive health outcomes. The nutritional value of food in Iceland has improved significantly and come close to official targets. The daily intake of fat has decreased, while consumption of fruit and vegetables has increased significantly. There is a clear social gradient, though, with those who have better education and higher incomes living on a healthier diet. On the negative side, the country's consumption of fish has diminished sharply, converging to the international average. Moreover, Icelanders have the doubtful honour of holding the world record in the consumption of sugar per capita. As a result, obesity is an increasing problem, especially among children, although it has remained distinctly below the OECD average (Figure 4.2). With Iceland being one of the most restrictive countries towards tobacco consumption, the number of regular smokers has declined noticeably. However, while the smoking rate is low by international comparison, Iceland is one of the few countries where there is practically no gender difference in smoking habits. Alcohol consumption used to be a major concern because of the habit of binge drinking of hard liquor, but drinking patterns have changed radically. While it has tended to rise, overall alcohol consumption is among the lowest in the OECD.

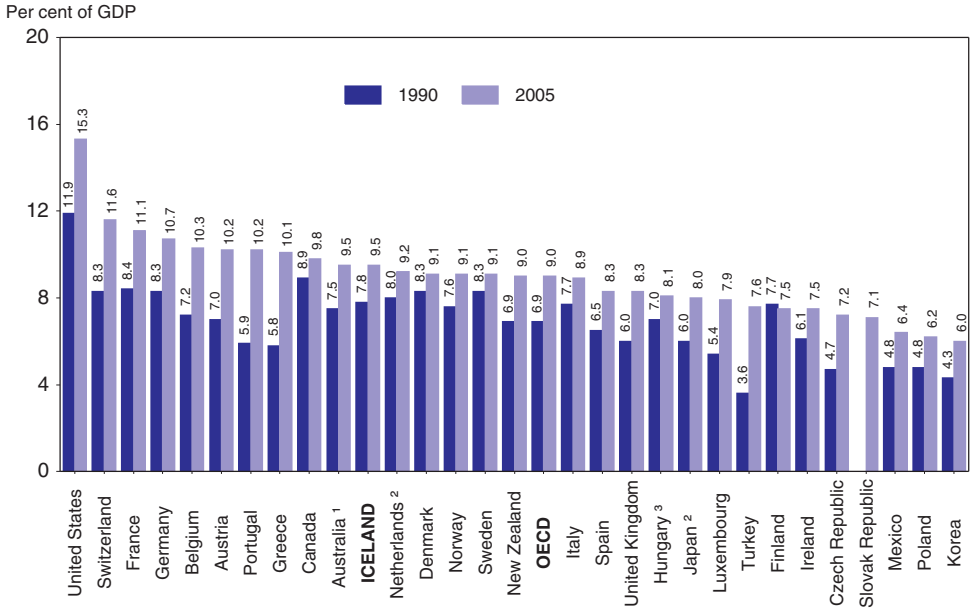
Socio-economic factors have an impact both on the lifestyle and on health outcomes. The centralisation of the medical system in Iceland is in part motivated by egalitarian views and an endeavour to restrain income-related inequalities in health. There is evidence to suggest that income influences an Icelander's health but to a smaller extent than reported for other countries (Asgeirsdottir, 2007). Interestingly, this relationship breaks down at higher income levels, perhaps indicating some adverse effects of very high income. There are, however, factors beyond political and social settings that might reduce variations in health that relate to income when compared to other countries. For instance, the Icelandic population is very homogeneous and relatively young (health inequality tends to increase with age).

Costs and financing

Iceland's health-care expenditure as a share of GDP is comparable to that of the other Scandinavian countries (Figure 4.3). Since the second half of the 1980s it has exceeded the OECD average. After surpassing the 10% mark in 2002-2003, the expenditure-to-GDP ratio has fallen back (to 9¼ per cent in 2006, according to national estimates), resulting in a narrowing of the positive gap *vis-à-vis* the OECD average where the ratio has continued to trend upwards (to 9% by 2005). In terms of per capita expenditure on health care (measured in GDP purchasing power parities), Iceland ranked sixth among OECD countries in 2005 (Figure 4.4). Per capita spending was 25% higher than in the OECD. Given Iceland's relatively low share of private health-care spending (around 17%), public per capita health-care expenditures were the fourth-highest in the OECD area in 2005 (behind Luxembourg, Norway and the United States). Iceland's ranking for per capita health-care spending broadly corresponds to that for GDP per capita. However, while there is an overall tendency for countries with a higher standard of living to spend more on health care, this relationship becomes looser with rising GDP per capita when other factors (such as institutional and policy settings as well as lifestyle and patient attitudes) are becoming more important (OECD, 2005b).

It is doubtful whether the recent deceleration in the growth of health-care spending (which is estimated to have increased by 1½ per cent *per annum* in real terms in 2003-2006) will persist. Health expenditure in Iceland has always been extremely volatile, with real

Figure 4.3. **Total expenditure on health as a share of GDP**



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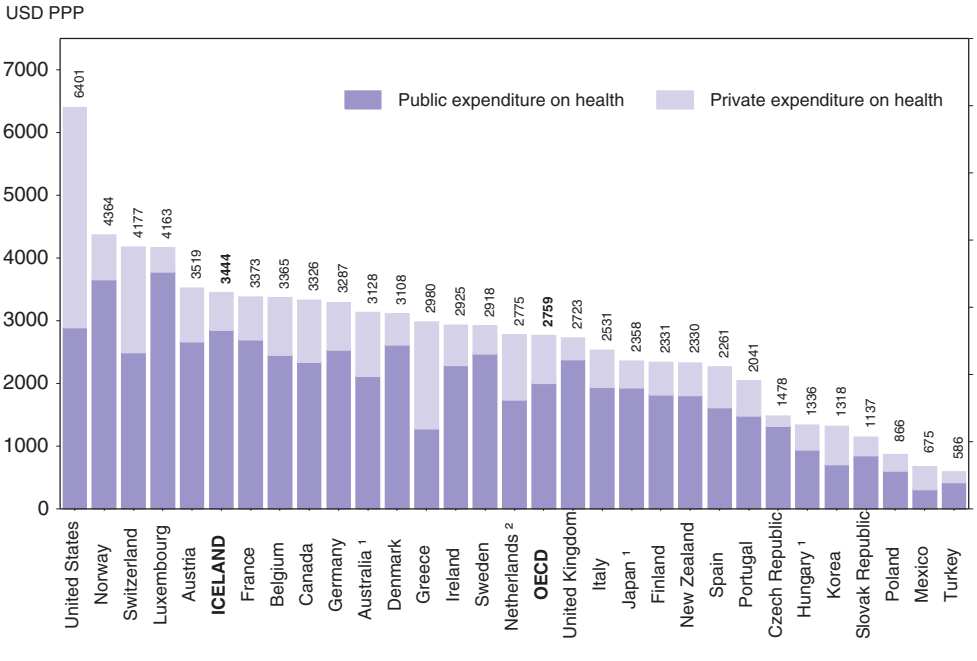
1. Countries ranked from left to right, from highest to lowest health spending ratio in 2005.
2. 1990/91 and 2004/05.
3. 2004.
4. 1991 and 2004.

Source: OECD Health Data 2007.

Figure 4.4. **Health expenditure per capita, public and private, 2005**



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1. 2004.
2. 2002.

Source: OECD Health Data 2007, Luxembourg: Inspection Générale de la Sécurité Sociale.

annual growth fluctuating significantly around a trend rate of about 5% since the 1980s. Slow growth during the budget consolidation period of the late 1980s and early 1990s was followed by an expenditure explosion. More recently, the surge and subsequent deceleration can to a large extent be traced to developments in the hospital sector which, at around 70% (including nursing care), accounts for an unusually high share of public health-care spending (Table 4.1). This reflects an over-reliance on institutional long-term care for the elderly (see below). While spending on curative medicine and rehabilitation in hospitals has decreased, this has been outweighed by rising expenditure on long-term nursing-home care.

Table 4.1. **General government expenditure on health care**

Per cent of GDP

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Medical products and equipment	0.78	0.86	0.81	0.75	0.81	0.87	0.85	0.74	0.73
Outpatient services	1.15	1.25	1.35	1.36	1.42	1.52	1.51	1.34	1.42
Hospital services	5.01	5.54	5.29	5.23	5.79	5.82	5.65	5.47	5.35
Public health services	0.04	0.05	0.05	0.04	0.05	0.05	0.05	0.05	0.04
Other	0.17	0.20	0.20	0.18	0.25	0.25	0.20	0.21	0.18
TOTAL	7.16	7.91	7.70	7.56	8.32	8.52	8.25	7.91	7.72
Memorandum items:									
National health expenditure	8.78	9.49	9.36	9.21	10.02	10.28	9.98	9.54	9.24
Public health expenditure at fixed prices[1] (1998=100)	100.0	109.5	110.6	113.3	120.6	122.4	125.7	126.6	129.5

1. Deflated by the government consumption deflator.
Source: Statistics Iceland.

Hospitals and nursing homes

About one-third of all public health-care spending goes to the state-owned Landspitali University Hospital in Reykjavik. This large institution was created in 1999/2000 by a merger of the state hospital in the capital with the municipal hospital, which, in turn, had taken over the only existing private hospital in 1996. This move was expected to increase cost-effectiveness through economies of scale and reduced duplication of services while, at the same time, enhancing the quality of provision. Many saw it as an opportunity to strengthen medical specialities and promote the institution's role as a university hospital. However, the merger, which remains controversial, was also strongly criticised for creating a managerially unwieldy institution and substantially reducing competition (expenditure on all the other hospitals together is only about half that for the merged hospital, although this broadly corresponds to the population catchment area for the hospital taking account of the fact that, as signalled below, many of its activities are all Iceland ones). The initial results of the merger were alarming indeed (National Audit Office, 2003 and Sigurgeirsdottir, 2006). From 1999 to 2002, the expenditures of the merged hospitals increased by 37%, 20% in excess of inflation, and the deficit of the combined institutions more than quadrupled. The National Audit Office found that administrative costs and the headcount were significantly higher than in other countries and concluded that the merger had not been "sufficiently well planned". In the wake of the National Audit Office's report, the management of Landspitali announced a downsizing in early 2004 and there are signs that the merger has finally accomplished economies of scale (National Audit Office, 2005). There are indications of productivity gains, while quality measures remain quite

favourable by international comparison. Since 2003, the expenditures of the merged hospitals have grown less than those of other ones, although they continue to exceed budget allocations. On the positive side, despite the more recent cost-cutting measures, waiting lists are still much shorter than before the merger. It should also be taken into account that the smallest hospitals in the country have abandoned surgical activity altogether and that, for instance, the bulk of deliveries now take place in Reykjavik. As a result, the number of treatments in Landspitali has grown much faster than the population in the capital area.

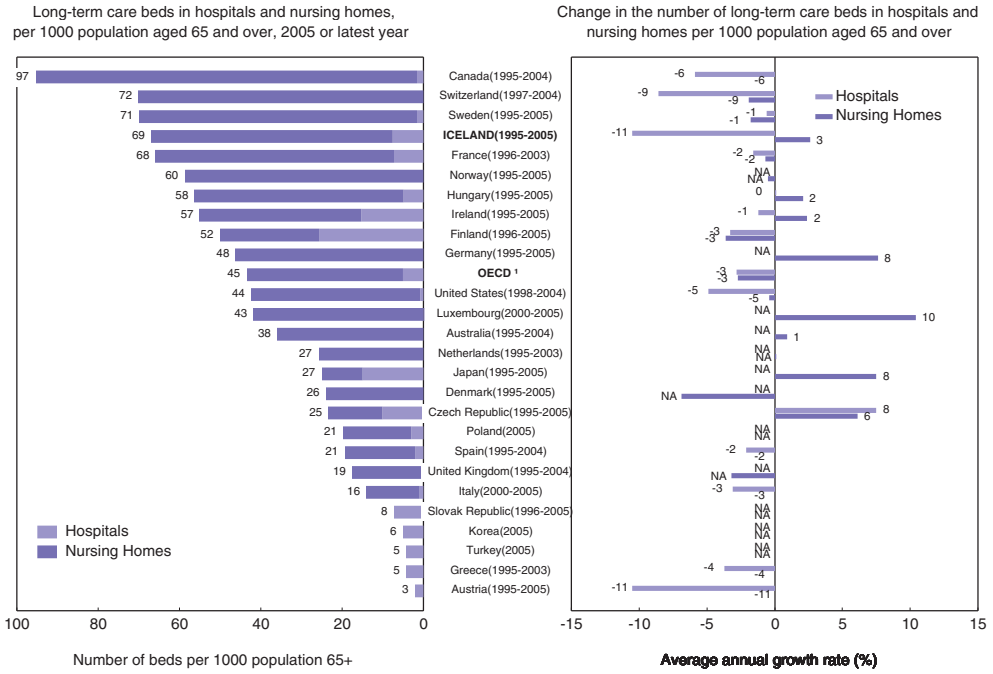
The surge in health-care expenditure in the early part of the decade was not only the result of the hospital merger in the capital. An official report (National Audit Office, 2004a) found that during that period payroll costs in rural hospitals and primary care centres increased by about double the rate recorded by the national wage index. The report traced this to three factors: centrally bargained agreements raising salaries for health workers; substantial wage drift following the transfer of human resource responsibilities to directors of individual institutions; and, associated with that, a substantial increase in the number of employed staff. Still, the cost of other hospitals rose significantly less than that in the capital in the early 2000s, suggesting that problems related to the hospital merger there have added to wage pressures.

Nursing homes account for a large and increasing share of total hospital spending (about 30%, up from around 20% ten years ago). As general hospitals have reduced places for long-term care in order to rein in costs, the authorities have strongly promoted the expansion of nursing homes. As a result, overall nursing-care capacity has actually increased and spending on nursing homes has approached 20% of public health-care expenditure. Only a few OECD countries have a higher share of spending on long-term care. This is surprising in the light of favourable demographics: despite the high life expectancy, the proportion of people aged 65 and over is comparable to Ireland and significantly lower only in Turkey. But for this age group, the number of long-term care beds per capita is the fourth-highest in the OECD area (Figure 4.5). In hospitals, the number of long-term care beds has been brought down almost to the OECD average, but the bed capacity of nursing homes relative to the elderly population exceeds the OECD benchmark by one half. This reflects insufficient recourse to home health care and the lack of intermediate solutions (such as apartments for the elderly near nursing homes). While high female labour-force participation in Iceland may play a role, countries with similar activity rates have in fact vastly different provisions of institutionalised long-term care. In principle, a nursing home pre-admission assessment is now mandated by law and this seems to have contributed to some decline in the mean length of stay. But the fact that no waiting lists usually exist outside Reykjavik points to some overcapacities.

Pharmaceuticals

Pharmaceutical expenditure has remained relatively stable in relation to GDP. It accounts for a substantial part of non-government health-care spending: at around ½ per cent of GDP, almost half of pharmaceutical expenditure is private (in the form of out-of-pocket payments). In real terms, the growth in spending on drugs has not been exceptional and slowed recently like overall health-care expenditure. The major concern is the high level of pharmaceutical prices in Iceland, which means that – despite the relatively low use of prescription drugs associated with a young population – per capita spending on pharmaceuticals is considerably above that in the other Nordic countries and on average in

Figure 4.5. **Long term care beds**



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1. The average OECD average excludes all countries that have not supplied complete data.

Source: OECD Health Data 2007.

the OECD. An official report (National Audit Office, 2004b) found that in 2003 people in Iceland paid on average 46% more for medicines than people in Denmark and Norway (although in regulating wholesale prices, the Icelandic authorities have customarily based their decisions on prices in the other Nordic countries). The report concluded that this difference was explained mainly by two factors. First, Icelanders use more expensive generic drugs than Danes and Norwegians, who have substantially increased consumption of low-cost generic drugs in recent years. Second, sales and distribution costs for pharmaceuticals are higher in Iceland, owing to, among other things, the small size of the Icelandic market, limited turnover for many drugs, the cost of adhering to national language labelling requirements and a proportionately high number of pharmacies. While the pharmaceutical market was liberalised in the 1990s, competition is limited by the fact that it is dominated by a few companies (both at the wholesale and retail sale levels). The above report made a number of detailed recommendations, but only a few have been implemented (Box 4.1). In particular, not much has been done to strengthen incentives for the supply of cheaper drugs (for instance, by changing cost sharing or introducing competitive bidding for government purchases of drugs).

A recent follow-up study by the National Audit Office concluded that there have been mixed results in governmental efforts to lower pharmaceutical costs since 2004. On the positive side, negotiations with pharmaceutical manufacturers and importers managed to persuade them to reduce prices on most brand name and some generic drugs. As a result, wholesale prices of original pharmaceuticals are now more in line with those in other Nordic countries. On the other hand, little progress has been made in introducing low-cost

Box 4.1. **National Audit Office recommendations on pharmaceuticals**

Drug prices and cost sharing

- The state's share of drug costs should be based on the lowest price of generic drugs in other Nordic countries.
- Patients' reimbursement of drug costs should be based on volume purchased, with a fixed amount per package (currently patients pay a fixed fee plus a percentage of the remaining amount up to a ceiling).
- Drug prices in other Nordic countries should be carefully monitored and whenever changes occur the allowed maximum price should be adjusted accordingly.
- The margin rate on drugs should be revised in order to motivate supply of cheaper drugs.
- Retail prices of drugs should be monitored and published on a regular basis.
- The drug retail market should be investigated with respect to efficiency and the possibility of reducing the number of retail drugstores. (Implemented).
- Public administration of drugs should be restructured to reduce the number of government bodies. (Implemented).

Drug market and supply

- Health authorities should seek exemptions from EU rules (to which Iceland is subject as member of the EEA) that stipulate that instructions in Icelandic shall be included in every drug package.
- Competitive bidding should be implemented for all government purchases of drugs.

Drug use

- Public authorities should provide better and more accessible information about drugs to professionals (Implemented).
- Methods for collecting drugs statistics should be coordinated and publication improved.
- Hospitals and other health institutions should be obliged to use drug lists. Their use of such lists should be monitored to ensure use of the cheapest drug for every case.
- Research on drug use should be increased. Special efforts should be made to explain the increasing gap between Iceland and other Nordic countries in the use of neural and psychiatric drugs (Implemented).

generic drugs to the market and to lower retail margins of pharmacies. Wholesale prices of generics are still higher than in other Nordic countries and the retail price of medicines generally exceeds that abroad because of high mark-ups of pharmacies. One reason for this situation is that the widespread practice of pharmacies to offer rebates to patients for the purchase of brand name drugs effectively crowds out inexpensive generics.

Long-term outlook

Even though health-care spending has slowed recently, there are reasons to believe that it will put strong pressure on public budgets in the longer run. Advances in medical techniques and treatments are likely to continue and they do not come free of economic cost. Technical progress can be cost-saving, but it also tends to raise demand by increasing the variety and quality of products and services. In addition, demographic factors, which so far have had a negligible effect on the growth in health-care expenditure in Iceland, will

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become less favourable. Health-care spending is high both for children and old people. Over the past 50 years or so, the impact of a falling share of children in the population has almost offset that of a moderately rising share of old people. Over the next half century, however, the share of the population aged 65 and over in Iceland is projected to double, as in the OECD as a whole, though from a lower level.

Against this backdrop, long-term projections of health-care expenditure in Iceland present a bleak picture (Oliveira Martins and Maisonneuve, 2006). They suggest that, in the absence of reforms, public spending could exceed 15% of GDP by 2050 and be the highest in the OECD (Table 4.2). Nearly half of the increase of about 5½ percentage points is attributable to the rising cost of long-term care. To be sure, uncertainties surrounding such projections are substantial and they should be considered as indicative. It has also been pointed out that public health expenditure in the base year 2005 has turned out to be lower than estimated at the time the projections were done. However, as suggested above, the

Table 4.2. **Projections for public health and long-term care spending**

In % of GDP

	Health care			Long term care			Total		
	2005	2050		2005	2050		2005	2050	
		Cost-pressure	Cost-containment		Cost-pressure	Cost-containment		Cost-pressure	Cost-containment
Australia	5.6	9.7	7.9	0.9	2.9	2.0	6.5	12.6	9.9
Austria	3.8	7.6	5.7	1.3	3.3	2.5	5.1	10.9	8.2
Belgium	5.7	9.0	7.2	1.5	3.4	2.6	7.2	12.4	9.8
Canada	6.2	10.2	8.4	1.2	3.2	2.4	7.3	13.5	10.8
Czech Republic	7.0	11.2	9.4	0.4	2.0	1.3	7.4	13.2	10.7
Denmark	5.3	8.8	7.0	2.6	4.1	3.3	7.9	12.9	10.3
Finland	3.4	7.0	5.2	2.9	5.2	4.2	6.2	12.2	9.3
France	7.0	10.6	8.7	1.1	2.8	2.0	8.1	13.4	10.8
Germany	7.8	11.4	9.6	1.0	2.9	2.2	8.8	14.3	11.8
Greece	4.9	8.7	6.9	0.2	2.8	2.0	5.0	11.6	8.9
Hungary	6.7	10.3	8.5	0.3	2.4	1.0	7.0	12.6	9.5
Iceland	**6.8**	**10.7**	**8.9**	**2.9**	**4.4**	**3.4**	**9.6**	**15.2**	**12.3**
Ireland	5.9	10.0	8.2	0.7	4.6	3.2	6.7	14.5	11.3
Italy	6.0	9.7	7.9	0.6	3.5	2.8	6.6	13.2	10.7
Japan	6.0	10.3	8.5	0.9	3.1	2.4	6.9	13.4	10.9
Korea	3.0	7.8	6.0	0.3	4.1	3.1	3.3	11.9	9.1
Luxembourg	6.1	9.9	8.0	0.7	3.8	2.6	6.8	13.7	10.6
Mexico	3.0	7.5	5.7	0.1	4.2	3.0	3.1	11.7	8.7
Netherlands	5.1	8.9	7.0	1.7	3.7	2.9	6.8	12.5	9.9
New Zealand	6.0	10.1	8.3	0.5	2.4	1.7	6.4	12.6	10.0
Norway	7.3	10.7	8.9	2.6	4.3	3.5	9.9	15.0	12.4
Poland	4.4	8.5	6.7	0.5	3.7	1.8	4.9	12.2	8.5
Portugal	6.7	10.9	9.1	0.2	2.2	1.3	6.9	13.1	10.4
Slovak Republic	5.1	9.7	7.9	0.3	2.6	1.5	5.4	12.3	9.4
Spain	5.5	9.6	7.8	0.2	2.6	1.9	5.6	12.1	9.6
Sweden	5.3	8.5	6.7	3.3	4.3	3.4	8.6	12.9	10.1
Switzerland	6.2	9.6	7.8	1.2	2.6	1.9	7.4	12.3	9.7
Turkey	5.9	9.9	8.1	0.1	1.8	0.8	6.0	11.7	8.9
United Kingdom	6.1	9.7	7.9	1.1	3.0	2.1	7.2	12.7	10.0
United States	6.3	9.7	7.9	0.9	2.7	1.8	7.2	12.4	9.7
Average	*5.7*	*9.6*	*7.7*	*1.1*	*3.3*	*2.4*	*6.7*	*12.8*	*10.1*

Source: Oliveira Martins and Maisonneuve (2006).

slowdown in spending in the middle of the decade may be an aberration, or it could diminish following data revisions. In any case, the projected rise in spending is worrying enough, and in this respect the projections are based on rather optimistic assumptions. First, it is assumed that longevity gains are translated into equivalent additional years in good health ("healthy ageing"). If this is not the case, spending could be up to 1 percentage point of GDP higher. Second, the income elasticity of health-care expenditure is assumed to be unity. An elasticity of 1.2, which is more in line with historical experience in Iceland, would increase spending by more than 1 percentage point of GDP. Not all the risks are on the upside, but it would seem to be prudent to react in time to these potential cost pressures.

The above study also presents a "cost-containment scenario" to explore what policies could achieve in controlling expenditure growth driven by some of the non-demographic factors, for instance by ensuring that future technology improvements are mainly used in a cost saving way. Under this scenario, Iceland could reduce the projected rise in the public health-care expenditure-to-GDP ratio by half. This is more than OECD countries on average can expect to achieve by ensuring that, abstracting from ageing effects, public health-care expenditure evolves broadly in line with income over the very long run. Continuous cost-containment over such a long period would be unprecedented and rather challenging. Thus, it is all the more important to improve the cost-effectiveness of health care in Iceland, which seems to be lacking, in order to be better prepared for the unavoidable long-term pressures due to population ageing.

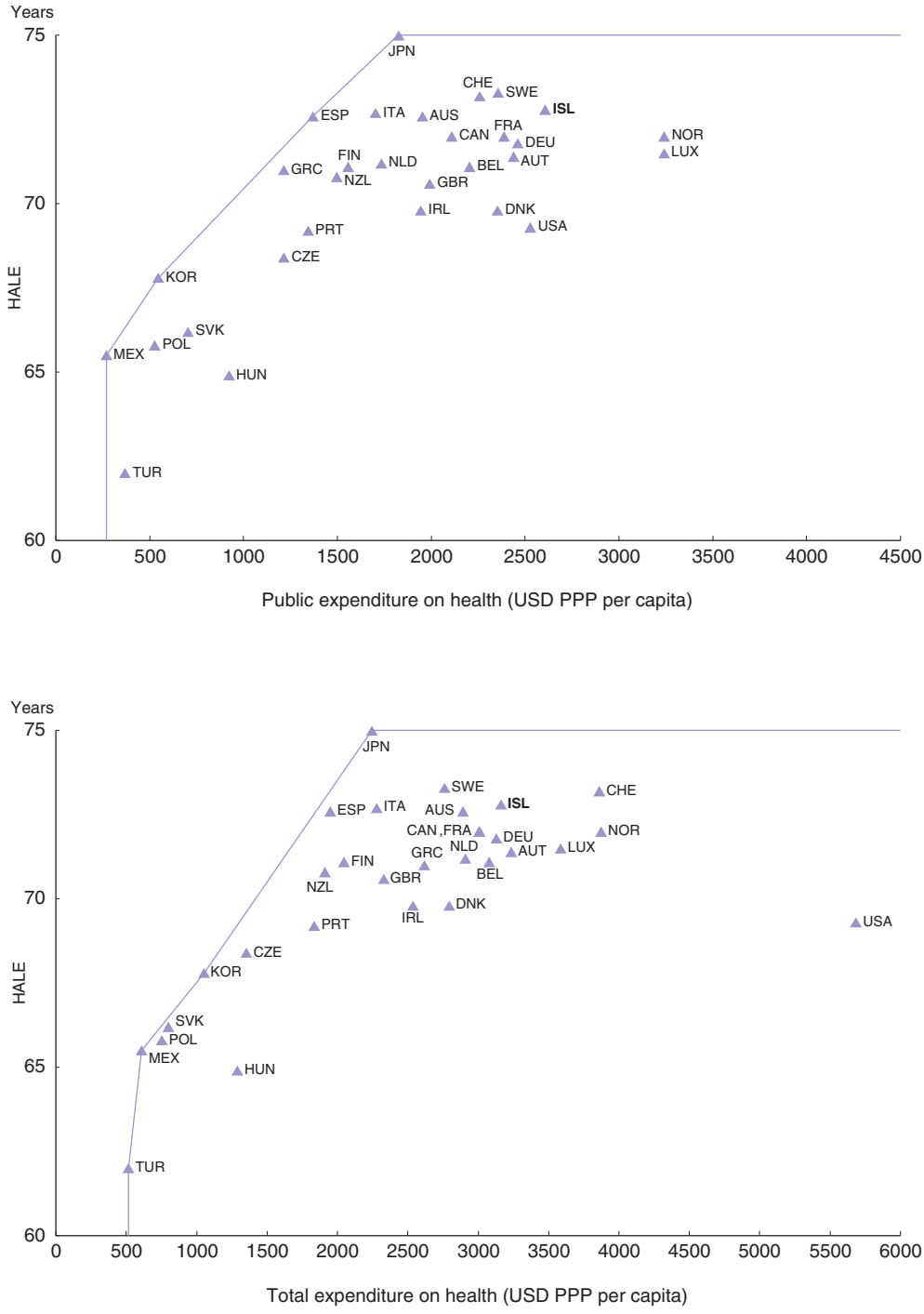
Spending efficiency

Efficiency analysis aims to assess whether and to what extent expenditures are higher than needed to achieve prevailing health outcomes. However, health-care outcomes are difficult to measure and country rankings may differ significantly when moving from one indicator to another (Häkinnen and Joumard, 2007). For instance, Iceland is doing even better in terms of infant and maternal mortality than with respect to overall life expectancy. Moreover, as noted, the health status of the population is heavily influenced by environmental factors (including life styles). Still, partial evidence and work in progress suggest that there is significant scope for improving spending efficiency in Iceland.

One technique often used to gauge the efficiency of government spending is Data Envelopment Analysis (DEA). The countries that provide the best combination of inputs and outputs define the best practice frontier. Countries that are not on the frontier are ranked according to their distance from the frontier, which is a measure of relative efficiency. For example, there are a number of countries that achieve a level of health-adjusted life expectancy (HALE) similar to Iceland's at lower level of public health-care spending per capita (Figure 4.6). First estimates based on this technique (OECD, 2007b) suggested that Iceland could reduce spending by one-third without compromising outcomes. However, preliminary results of further work, which takes into account a wide range of health determinants, rather point to more limited potential cost-savings in the health-care sector, closer to earlier estimates for the whole public sector (Afonso *et al.*, 2005). At the same time, they indicate that, probably reflecting declining returns to scale, every further health gain may come at a very high price.

Similar estimates of technical efficiency suggest that prevailing health outcomes could be realised with a considerably lower number of human resources. The sparseness of

Figure 4.6. **Spending to outcome frontier, 2003**
Health-adjusted life expectancy (HALE)

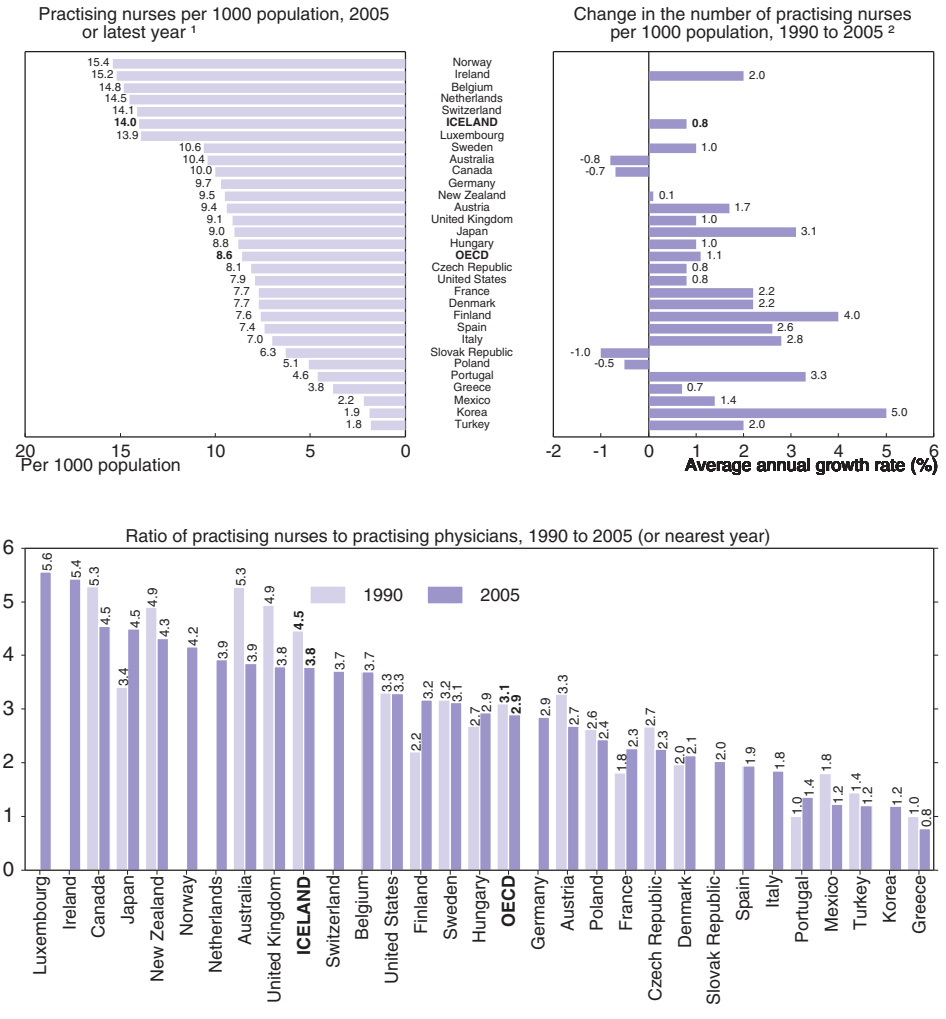


StatLink http://dx.doi.org/10.1787/276753308568

Source: OECD Health Data 2007, Luxembourg: Inspection Générale de la Sécurité Sociale.

the rural population may necessitate a somewhat higher number of health-care workers. Still, despite persistent complaints about a lack of nurses, relative to Iceland's population their number is about two-thirds higher than on average in the OECD (Figure 4.7). This is the more surprising given Iceland's relatively young population, although in part, it might reflect more prevalent part-time work than generally abroad along with the fact that not all nurses are classified as such in some other countries. While the nurse/doctor ratio has declined somewhat like in the majority of OECD countries, it has remained high in Iceland by international comparison. The growth in the number of physicians relative to the population has slowed but remained faster than generally abroad, so that physician density has moved further ahead of the OECD average (Figure 4.8). While general practitioner density is not unusual, that of specialists is high. This could be a matter of

Figure 4.7. **Nurses**

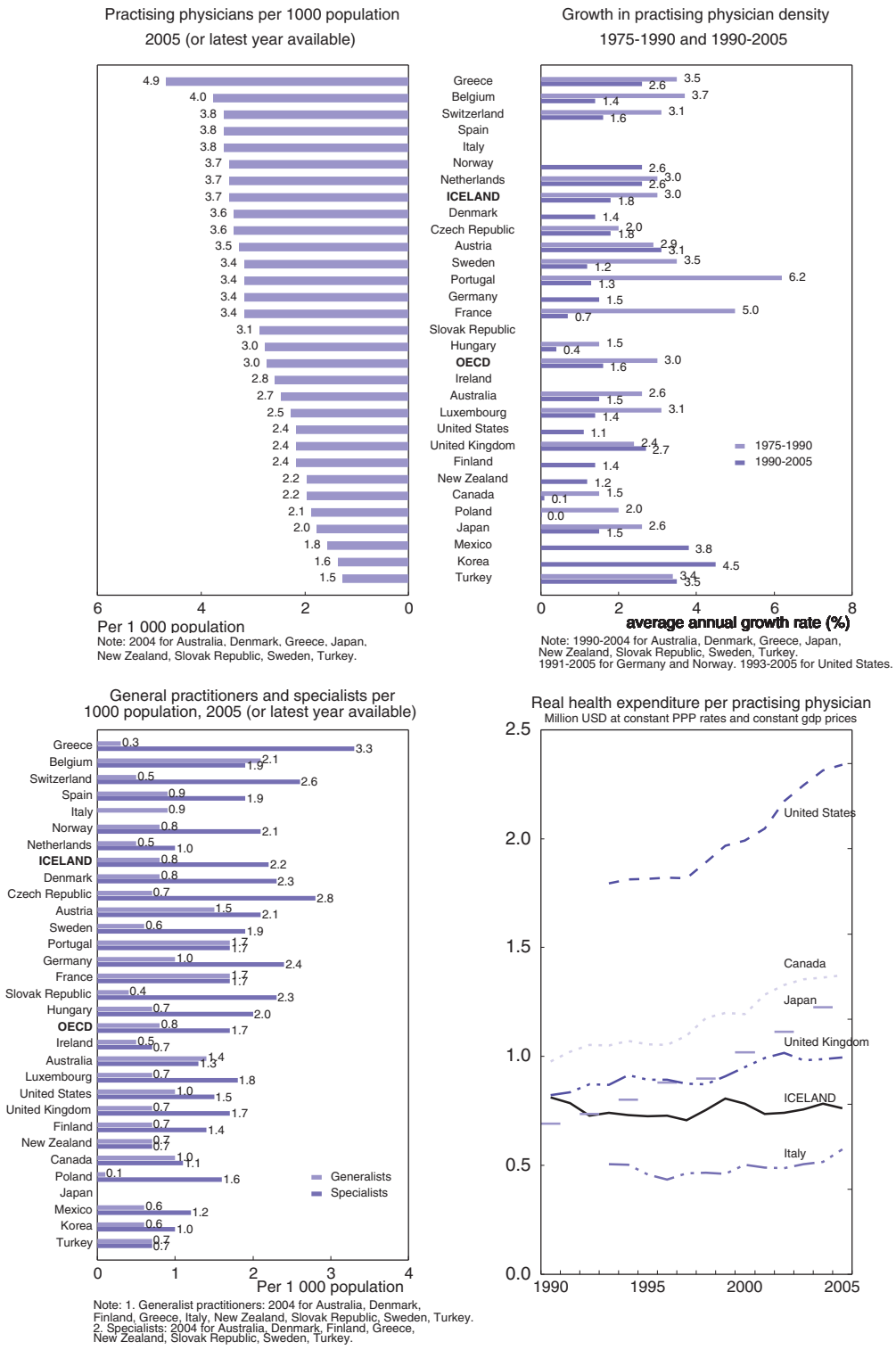


StatLink http://dx.doi.org/10.1787/276755543105

1. 2004 for Australia, Denmark, Finland, Greece, Japan, New Zealand, Slovak Republic, Sweden, Switzerland and Turkey. 2002 for United States.
2. 1990-2004 for Australia, Denmark, Finland, Greece, Japan, New Zealand, Sweden and Turkey. 1990-2002 for United States. 1993-2005 for Italy. 1994-2005 for Korea. 1994-2004 for Slovak Republic. 1995-2005 for Spain.

Source: OECD Health Data 2007.

Figure 4.8. **Physicians**



StatLink http://dx.doi.org/10.1787/276757872478

Source: OECD Health Data 2007.

concern because physicians, especially when they are paid by fee-for service, can induce demand for medical care. However, real health-care spending per doctor has remained relatively stable. In any case, there does not seem to be a significant relationship between physician density and health outcomes (OECD, 2007b), with Japan, for instance, achieving a similar life expectancy at about half of Iceland's physician density.

An analysis of hospital performance in selected OECD countries (Erlandsen, 2008) suggests that there is considerable scope for reaping efficiency gains. The study compares unit costs for seven hospital interventions for which clinical procedures are fairly standardized across countries. The specific definitions of the intervention are based on the system of Diagnosis Related Groups (DRGs), for which data have been collected in Iceland even though they have not yet been used as a benchmark for hospital financing. The potential for cost-savings is measured by using the unit costs of the best-performing country as a benchmark. For Iceland, the savings are estimated to be more than one-third on average, which is less than in many other countries covered by the study but much higher than, for instance, in Finland, Denmark and the United Kingdom (Table 4.3). Although the results of the above study have been called in question, they are in line with those of another study (National Audit Office, 2005) that found that the average cost per bed in Iceland's major hospital was substantially higher than at UK hospitals, due both to higher salaries and longer in-patient times. However, apart from the considerable margin of error attached to such estimates, superior cost performance can come at the cost of low-quality services. Iceland, for instance, has the highest survival rates for breast cancer and very low in-hospital case-fatality rates more generally (OECD, 2007a), while service quality in the United Kingdom, the country with the second-best cost performance in the above study, is clearly inferior in most of these respects (an exception being stroke-related fatality). On the other hand, in Denmark, the country with the best cost performance among the countries covered, service quality in these terms is not far behind that in Iceland in many instances. This suggests that the relationship between potential cost savings and quality is rather tenuous and, while care should be taken not to impair the high quality of services, there is substantial scope for raising cost efficiency in the Icelandic hospital sector.

Table 4.3. **Potential for hospital cost reductions**[1]

Per cent, 2006

Australia	42
Denmark	5
Finland	13
France	44
Germany	32
Iceland	38
Norway	34
Sweden	42
United Kingdom	12
United States	48

1. Based on cross-country comparisons of hospital unit costs for seven DRGs, with lowest unit costs used as a benchmark.

Source: Erlandsen (2008).

Spending efficiency is associated with a wide range of factors. Cross-country analysis suggests that a number of policy-related factors play a significant role and therefore merit

attention (Verhoeven *et al.*, 2007a). System efficiency is negatively correlated with the number of doctors' consultations and in-patient care admissions. A likely reason for that is that the number of doctor and hospital visits drives up the number of prescriptions for pharmaceuticals and medical tests. Indeed, higher spending on pharmaceuticals is associated with lower system efficiency, as it crowds out other, potentially more efficient, resources. Finally, countries with higher out-of-pocket health spending by patients appear more efficient, although there is a risk of increased inequality and delayed visits to providers.

Whether the centralisation of the Icelandic health-care system is conducive to spending efficiency remains to be seen (its potential impact is summarized in Box 4.2). Iceland is now the outlier in this respect among Nordic countries, with Finland having the most decentralised system (OECD, 2005a). It delegates the financing and governance of all main health and social services to the municipalities. Nonetheless, it has managed to control health-care expenditure better than most other OECD countries (although recent labour conflicts suggest that cost control is becoming more difficult). At the same time, the health status of its population, while not as good as in Iceland, is above average. It is true,

Box 4.2. **Centralisation and efficiency**

In theory there will be both advantages and disadvantages of decentralised governance of publicly-funded health and social services (Levaggi and Smith, 2005). Centralisation reduces potential problems with taxation capacity, purchasing power, diseconomies of scale, lack of expertise, conflicts of interest and a lack of national transparency. On the other hand, decentralization strengthens local democracy and ownership of publicly funded health services, though possibly at the cost of national equity in treatment according to need.

Raising funds. Centralisation avoids problems with variations in taxable capacity between municipalities and reduces administrative costs, but the possibility for local communities to exercise preferences over tax rates might encourage fiscal discipline.

Spending funds. Centralisation in principle implies more purchasing power and expertise and less conflicts of interest between serving patients and providing local employment and activity (especially in relation to public-sector providers). Decentralisation allows local communities to set their own priorities, and there can be local innovation in methods of purchasing services.

Providing services. Centralisation permits the use of economies of scale (at least for hospital care) and of management expertise. In a decentralised system, production can be tailored to demand using local knowledge and there can be local innovation in methods of provision.

Gathering and using information. Centralisation has clear advantages in this respect, ensuring common definitions and standards, national data collection, national transparency and comparability while reducing barriers to the diffusion of some innovations, although sometimes less information may be required if the use is only local.

For the advantages of centralisation to outweigh disadvantages, they must be realised, however. According to the National Audit Office, in Iceland even the central authorities often do not have the expertise to use their purchasing power and to properly design and monitor service contracts. Also, much still needs to be done with regard to gathering and using information.

however, that steps have been taken in Finland to avoid or mitigate the potential adverse effects of decentralisation on efficiency (such as obligatory co-operation in the management of services, guidelines for delivery of some services and considerable centralisation of the gathering and use of information). Moreover, there is evidence that moving the responsibility for managing hospitals from the sub-national to the central government level in Norway, where hospitals were less efficient than in Finland, has spurred technical efficiency, although disentangling the effects of that move from those of the simultaneous reform of hospital financing in Norway is difficult (Magnussen *et al.*, 2007). Other Scandinavian countries have also moved in that direction (with Denmark, for instance, drastically merging hospital regions).

Government policies

A new long-term health plan was adopted by Parliament in 2001 (Ministry of Health, 2004). Previous plans had not been as successful as expected, possibly because of the lack of any benchmarking or quantitative measurement of target achievement during the implementation period. Among other things, the new plan emphasises prevention in the field of tobacco, alcohol and drug use, accidents, cancer and cardiovascular and brain diseases. It sets quantitative targets for all these areas that are to be achieved by 2010 and calls for regular reporting on progress made towards them. The priorities are based on a cost/benefit analysis that estimated the societal costs and expected gains from remedial action. The plan also sets targets for the maximum waiting time for treatment, given long waiting lists in certain specialties. With respect to the funding of health services, the plan states that public spending will not fall below the growth of national income.

At about the same time, the centralisation of health-care services was accomplished with the elimination of regional health councils and transfer of their responsibilities to the Directorate of Health. Local steering committees of the health-care centres and hospitals, except for the Reykjavik University Hospital (Landspitali), were abolished and the executive directors of health institutions acquired more authority (for instance for the recruitment of doctors and other personnel). The negotiation of the payment of health-care professionals was also centralised (up to 2001, different state committees dealt with outpatient work in hospitals, the price and volume of services offered by private specialists, and the salaries of hospital employees). Better coordination and prioritisation should in principle make it possible to both curb spending and increase its efficiency. However, among other things, this would require an evaluation of the cost-efficiency of alternative kinds of provision, which is still lacking. Moreover, opposition to change by vested interests is strong and limits the effects of institutional reforms. It has also frustrated efforts to re-introduce "gate-keeping" by generalists that had been abandoned in the 1980s.

As described before, a major reform in the earlier part of the decade, with radical consequences for the health-care sector, was the merger of the hospitals in Reykjavik. This trend has continued. In 2006, the administration of all primary health-care centres in the capital area was merged. Moreover, a register of primary health-care data was established at the Directorate of Health. All data from primary health-care centres are collected electronically in accordance with a defined minimum data set. Other initiatives by the previous government were rather of a shop-keeping nature. A new Act on Health Services became effective in September 2007, replacing the Act from 1990. It clarified the basic organisation of the public health services and strengthens the right of health authorities to

enter into agreements with others to undertake health services. At the same time, an Act defining the responsibilities of the Medical Director of Health came into force.

The new government that took office in May 2007 announced a number of health-care reforms (Prime Minister's Office, 2007a). A cost analysis of health-care services would finally be carried out. Hybrid funding arrangements would be introduced for health-care institutions, whereby funding would be earmarked for individual patients with a view to better aligning it with the need for and volume of work. Scope would be created for more diverse operational formats in health-care provision, including tenders and service contracts. The emphasis would be on offering a wider choice to ensure that the best possible service is delivered for the allocated funds. Moreover, new ways of reducing medication costs and the public participation in payment for them would be explored. More recently, in his Policy Address, the Prime Minister stated more precisely that measures would be taken to open the Icelandic pharmaceuticals market in order to boost competition and thereby increase supply and lower prices of medication (Prime Minister's Office, 2007b). He also announced a restructuring of the health and social security system from the beginning of 2008 to give the state a more effective role as a buyer *vis-à-vis* health service providers. In particular, the administration of pension and welfare benefits, for which the Ministry of Health has also been responsible, would be transferred to another ministry. These initiatives are useful steps forward but it should be possible over time to make more fundamental welfare-enhancing changes to the system.

Concluding remarks

The health status of the Icelandic population is enviable. The quality of services is also first class in most respects. Still, this is achieved at a high cost. Although Iceland is a rich country and can afford to spend a lot on health care, public per capita expenditure on health care exceeds the OECD benchmark by around 40% while Iceland's GDP per capita betters the OECD average only by about a quarter. It is true that this large differential reflects a low share of private financing, but there is evidence to suggest that the prevailing excellent health status of the Icelandic population could be achieved at lower levels of expenditure. Although the geography and population distribution of the country probably justifies an above average share of health-care workers, staffing ratios seem excessive by international comparison. The mix of resources devoted to health care could be improved, given the high share of expensive hospital care by international comparison and a reliance on institutionalised long-term care that is at variance with Iceland's young population. What is clearly needed is a prioritisation of public health-care spending based on a cost-benefit analysis of different kinds of services.

The centralisation of the health-care system could in principle be beneficial for a small country like Iceland, although it has some drawbacks. Much will depend on whether the central authorities make use of the scope provided by a high degree of centralisation to increase efficiency, for instance by using their power as the main buyer of health services to reduce costs (both by putting downward pressure on prices and shifting care to less expensive services). To the extent that services are sourced out to the private sector – and there is indeed scope for increasing private provision – the authorities need to have the necessary expertise and resources to design appropriate service contracts and monitor the outcomes. To avoid that increased consumer choice overly stimulates demand for services, cost-sharing should be introduced where it does not exist and reformed where it does not provide sufficient incentives for cost savings. International experience shows that user

fees can relieve public financing systems, even though vulnerable populations must be exempted and negative effects on preventive care avoided (OECD, 2004). Aside from the effect of out-of-pocket payments, the share of private spending does not have an impact on efficiency in health care (Verhoeven *et al.*, 2007b). This may reflect adverse selection issues related to private health insurance and incentives for insured persons to over-consume health services. Moreover, subsidies are often needed to encourage purchase of insurance. Hence, it is not clear whether more reliance on private insurance which in principle is possible in Iceland, would have significant effects on public spending, although the result of reforms abroad, such as in the Netherlands, should be closely monitored. On the other hand, the implementation of activity-based funding in hospitals, which account for a high share of health-care spending in Iceland, should be accelerated. Within robust regulatory framework, output-related prospective payment systems can encourage providers to minimise costs without hurting patient care if associated prices are set correctly and there is appropriate control of quality (Docteur and Oxley, 2003). Recommendations along these lines are presented in Box 4.3.

Box 4.3. **Recommendations on health care**

- Facilitate private provision, which currently accounts for only one quarter of publicly financed health services, and open up the sector to competition so as to enhance efficiency.
- In contracting out public services, make sure that agreements contain detailed requirements regarding the quantity and minimum quality of service and that the authorities involved have the necessary skills and expertise to draw up such contracts and monitor service delivery.
- Consider more reliance on co-payments (or at least their introduction in hospitals) so as to avoid that, combined with no, or very low, cost-sharing, increased private provision leads to overconsumption. This would also relieve the pressure on public finances.
- Strengthen the government's role as a "buyer" of health services, establishing ceilings on public spending, speeding up cost-efficiency analysis of major services and introducing activity-based funding arrangements that reward productivity.
- Consider the re-introduction of "gate-keeping", with general practitioners or nurses assessing the need for treatment and directing patients to the most appropriate level of care.
- Given their increased responsibilities, make sure that directors of health-care institutions, especially smaller ones, have the necessary management skills and information to control personnel and other costs.
- Further reduce reliance on costly hospital care, which is high by international comparison, by eliminating excess hospital beds and promoting home care rather than nursing homes (or intermediate solutions).
- Reduce the high cost of pharmaceuticals by promoting competition and the use of generic drugs. In particular, competitive bidding should be introduced for all government purchases of drugs and cost sharing should be modified so as to provide incentives for the supply and purchase of cheaper drugs.

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Table of contents

Boxes

Tables

Figures

This Survey is published on the responsibility of the Economic and Development Review Committee of the OECD, which is charged with the examination of the economic situation of member countries.

The economic situation and policies of Iceland were reviewed by the Committee on 29 January 2008. The draft report was then revised in the light of the discussions and given final approval as the agreed report of the whole Committee on 11 February 2008.

The Secretariat's draft report was prepared for the Committee by Hannes Suppanz and Andrea de Michelis under the supervision of Patrick Lenain.

The previous Survey of Iceland was issued in August 2006.

BASIC STATISTICS OF ICELAND

THE LAND

Area (1 000 sq. km)	103	Unproductive area (1 000 sq. km)	82
Productive area (1 000 sq. km)	21	*of which:*	
of which:		Glaciers	12
Cultivated area	1.1	Other area devoid of vegetation	67
Rough grazings	20		

THE PEOPLE

Population, 31 December 2007	312 872	Occupational distribution, 2007 (per cent)	
Net increase 1997- 2007, annual average, %	1.4	Agriculture	3.8
		Fishing and fish processing	4.7
		Other manufacturing	11.5
		Construction, total	10.1
		Trade	16.3
		Transport and communication	7.1
		Other services	59.6

PARLIAMENT AND GOVERNMENT

Present composition of Parliament	2007
Independence Party	25
The Alliance Party	18
Progressive Party	7
The Left-Green Movement	9
The Liberal Party	4

Last general election: 12th May 2007

PRODUCTION AND CAPITAL FORMATION

Gross domestic product in 2006		Gross fixed capital formation in 2006	
ISK million	1 162 930	ISK million	387 992
Per head, US dollars	54 764	Per cent of GDP	33.4

FOREIGN TRADE

Exports of goods and services in 2006, % of GDP	32.2	Imports of goods and services in 2006, % of GDP	38.4
Main exports in 2006 (% of merchandise exports)		Imports in 2006, by use (% of merchandise imports)	
Fish products	51.2	Consumer goods	20.2
Aluminium	23.5	Capital goods and transport equipment	46.2
Other manufacturing products	14.8	Industrial supplies	25.1
Agricultural products	1.8	Fuels and lubricants	8.4
Miscellaneous	8.7		

THE CURRENCY

Monetary unit: Króna		Currency units per USD, average of daily figures:	
		Year 2007	64.1
		December 2007	62.4